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U.S. DIRECT INVESTMENT IN THE MIDDLE EAST AND NORTH AFRICA

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ABSTRACT

Majority-owned foreign affiliates ("MOFAs") of U.S. multinational enterprises ("MNEs") are a major source of global foreign direct investment (FDI) and economic activity. The percentage of U.S. MNE FDI devoted to the Middle East and North Africa ("MENA") has declined dramatically in the past two decades. This paper uses MOFA sales as an indicator of the level of FDI. Using propensity score matching, we find that the ratio of MOFA sales to host country GDP is lower in the MENA region, even in comparison to countries that have similar political and economic characteristics. While the level of MOFA sales in mining and extraction in MENA countries appears to be comparable to sales in other regions, the level of MOFA sales in non-mining industries appears to be significantly lower than in other regions. We also explore the determinants of MOFA sales within the MENA region and find that favorable macroeconomic conditions and high quality institutions affect MOFA sales more positively than financial development and trade openness.

Keywords: U.S. direct investment abroad; multinational enterprises; panel econometrics; propensity score matching

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I. INTRODUCTION

U.S. direct investment abroad ("USDIA") has grown rapidly in recent years as U.S. multinational enterprises ("MNEs") have played a significant role in the coordination and facilitation of investment and trade globally (Hossiso 2017). Data from the Bureau of Economic Analysis (BEA) show that the outward U.S. direct investment position (on a historical-cost basis) in 2015 was $5.04 trillion, up from $208 billion in 1982. The increase mainly reflected direct investment flows (measured in this paper as financial outflow transactions without current-cost adjustment), which rose from $1.1 billion in 1982 to $303 billion in 2015. Since 1982, on average, the U.S. direct investment position has grown annually by 10.3 percent. The majority of USDIA is invested in developed economies, with Europe accounting for 59 percent of the position, and Canada accounting for 7 percent in 2015. The share of the USDIA position in the Middle East and North Africa (MENA) countries,[2] by contrast, was only 1.4 percent in 2015, down from 2.3 percent in 1982. U.S. direct investment in the MENA region is largely concentrated in resource-intensive sectors such as mining, and in services, while investment in tradable manufacturing sectors remains small and has decreased over time. In contrast to investment in the MENA region, Jenniges and Fetzer (2016) showed that five major European countries: the Netherlands, the United Kingdom, Luxembourg, Canada, and Ireland—accounted for more than half of the U.S. direct investment position abroad at the end of 2015.

Foreign direct investment (FDI) is an important vehicle for capital, technology, and knowledge transfer, and MNEs are considered a major source (Borensztein, et.al. 1998). Empirical studies (Borensztein, et.al. 1998; Busse and Hefeker 2007; Globerman and Chen 2010) show that a host country's macroeconomic conditions, political stability, quality of institutions, human capital, management skills, and market structure are important determinants of FDI inflow. Further, Busse and Hefeker (2007), Daude and Stein (2007), and Alfaro, et.al. (2008) show that there is negative relationship between foreign direct investment (FDI) and political turmoil. Countries with less political risk and better institutions are able to enforce property rights and contracts, and thus attract FDI (Busse and Hefeker 2007). Studies specific to the MENA region (Burger, et.al. 2013; Mina 2012) showed that political instability and weak institutional settings significantly impact FDI flows in MENA countries.

Earlier studies suggest that the decline in direct investment in MENA countries and changes in the sectoral composition of investment is largely related to increased political and macroeconomic instability in certain countries (Burger, et.al. 2013; World Bank 2013). The existing literature on the determinants of FDI and activities of MNEs into the MENA region are predominantly based on studies that focus on the regional and sectoral aggregate level, which potentially masks the effect of country-specific heterogeneity, which can affect FDI flows to the region. Moreover, U.S. foreign direct investment has not been well-studied in the MENA region.

Given the importance of inbound U.S. direct investment for MENA countries, this study presents trends in U.S. direct investment in MENA countries and explores some of their determinants. The study also provides an overview of the sectoral composition of the investment and the role of U.S. MNEs in MENA countries. It is based on annual survey data on the operations of U.S. MNEs collected by BEA. Using panel data, the study explores factors affecting sales of majority-owned foreign affiliates ("MOFAs")

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[2] In this paper the MENA countries are Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, the United Arab Emirates (UAE), and Yemen. Israel is considered to be a part of the Middle East both by the U.S. State Department and in BEA accounts, and the World Bank considers Israel part of MENA. The World Bank, in many locations, separately identifies the West Bank and Gaza but BEA includes data from these areas in Israel; separating these accounts would be difficult. Further, the economy of Israel is different than other MENA countries. Thus, we exclude Israel from this analysis.

of U.S. MNEs in selected MENA countries. Variables we considered include institutional, macroeconomic, financial, and political risk indicators. Sales data on MOFAs are obtained from BEA's benchmark and annual surveys of U.S. direct investment abroad, the BE-10 and BE-11. Data on macroeconomic indicators are obtained from World Bank World Development Indicator database (WDI 2017). Information on political risk and institutions is taken from the International Country Risk Guide (ICRG). We take the publicly available political and governance indicator data from Worldwide Governance Indicators (2017). For more information on the data, see the data appendix.

II.   THE ROLE OF U.S. MULTINATIONAL ENTERPRISES IN MENA COUNTRIES

Broad trends in U.S. FDI in the region can be examined using the U.S. direct investment position and U.S. direct investment flows.[3] The region's share of the global U.S. outbound foreign direct investment position was 8.6 percent in 2015, down from 10.9 percent in 1990 (BEA 2017, UNCTAD 2016). The average yearly share of U.S. overall position within MENA countries accounted for by Saudi Arabia, Egypt, Qatar, and the United Arab Emirates was 68.7 percent from 1999 to 2015.[4] Egypt had the largest average share—23.7 percent, followed by Saudi Arabia (19.5 percent), and Qatar (14.5 percent). The U.S. FDI position in the United Arab Emirates quadrupled from 5.1 percent of the MENA position in 1999 to 22.7 percent in 2015. The position in Qatar grew from 0.04 percent in 1990 to 12.3 percent in 2015.

For a variety of reasons, the direct investment position and outflows can present a distorted view of the level of U.S. MNE activity in the region (Cantwell 1992). From Cantwell (1992), "FDI does not normally include the investments of multinational company (MNC) affiliates financed by local borrowing or depreciation allowances." In addition, "statistics on the outward position and related transactions are allocated to the industries and countries of the affiliates with which the U.S. parent companies have direct transactions and positions, but these industries and countries may differ from the industries and countries of the affiliates whose operations the parents ultimately own or control" (Jenniges and Fetzer 2016).Partly for this reason, BEA collects a second dataset on U.S. FDI abroad entitled activities of multinational enterprises (AMNE). These data, which are collected on the BE-10 (benchmark) and BE-11 (yearly) surveys allow BEA to create estimates of value added by MOFAs. The relationship between value added by MOFAs and host country GDP in several MENA countries is shown in Figures 2.1 and 2.2. For countries that have a relationship between MOFA value added and GDP, MOFA value added is relatively stable over time. In countries in which there is no clear relationship, however, MOFA value added tends to be more volatile. The figures show that GDP and MOFA value added as a share of GDP follow a similar trend in Algeria, Egypt, Libya, Oman, and the United Arab Emirates (UAE). First, in North Africa[5] there was an upward trend of the ratio of MOFA value added to GDP, the blue line, and it tracks GDP. However, around 2010 and 2011, there is a large decrease in the value added share, which coincides with the Arab Spring. Libya experiences the largest decline—MOFA value added falls to zero. GDP also falls by half from its peak in 2008. Algeria and Egypt did not experience such a large fall, but the fall is still significant. During this political transition, GDP was not as affected, so while the willingness or ability of U.S. MNEs to invest in these countries may have ebbed during this period, these countries were nonetheless able to maintain relatively stable

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[3] Here and throughout the paper, MENA countries exclude Israel, Gaza, and the West Bank. We subtract the BEA component devoted to Israel (which includes Gaza and the West Bank) from the calculations.

[4] Average yearly share was calculated by adding the yearly shares over 16 years and dividing by 16 (as opposed to total investment over 16 years [relevant countries] divided by total investment over 16 years [all countries]).

[5] Algeria, Egypt, Libya, Morocco, and Tunisia

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gross domestic product. Morocco's pattern is atypical but, as will be shown shortly, its pattern is similar to that of many Middle Eastern countries.

FIGURE 2.1. TIME-SERIES TREND OF GDP AND VALUE ADDED SHARE OF GDP OF MAJORITY-OWNED FOREIGN AFFILIATES IN SELECT NORTH AFRICAN COUNTRIES

For the selected Middle East countries (Figure 2.2), there is only a clear relationship between trends in MOFA value added and GDP in Oman and the UAE. The UAE shows a relatively strong upward trend in GDP and MOFA value added, which is also the case for Oman, in the years for which MOFA value added data are available. For the rest of the countries, the trends are not as clear and MOFA value added tends to be volatile over time.

The graphs suggest that MOFA value added in North Africa tends to be more strongly related to the improvements in GDP than it is in the Middle East. In Section 3, we will explore whether political and other indicators may explain a part of this dispersion. In Section 4, we will explore whether the level of MOFA sales is less or more than comparable non-MENA countries.
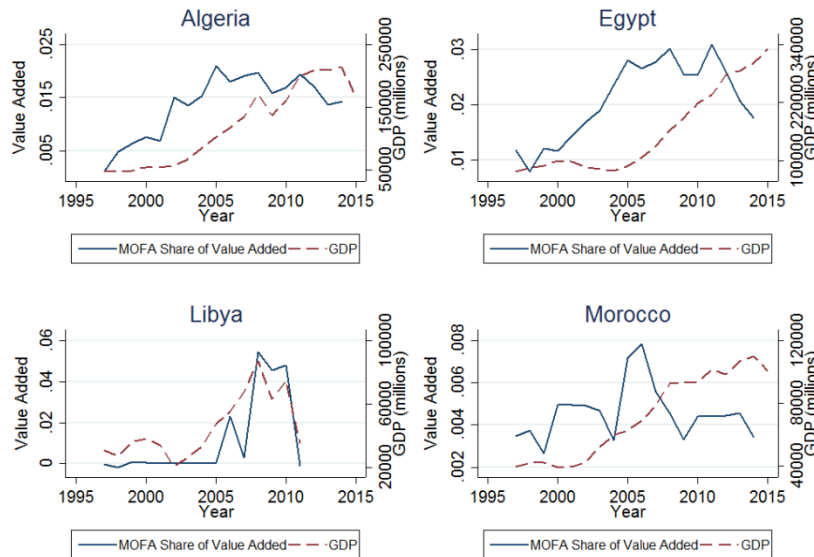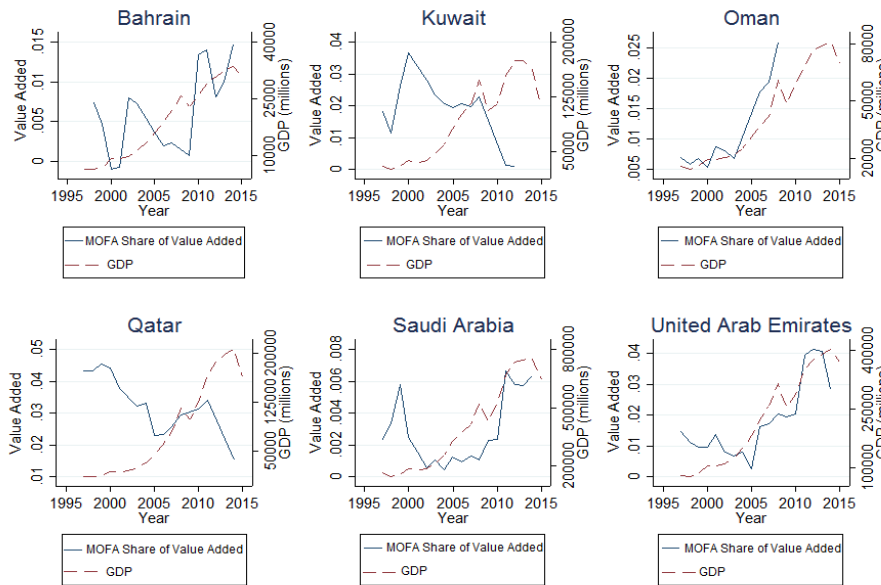
FIGURE 2.2. TIME-SERIES TREND OF GDP AND VALUE ADDED SHARE OF GDP OF MAJORITY-OWNED FOREIGN AFFILIATES IN SELECT MIDDLE EASTERN COUNTRIES

III.   INDUSTRY REGRESSIONS

3.1   Econometrics

We run two regression models over a series of industries using BEA data from the BE-10 and BE-11 to help explain what drives sales for MOFAs within the MENA region. The basic model, in both cases, is a stylized panel econometric model that assumes that sales of MOFAs are a function of a set of macroeconomic, structural, and institutional variables:

$$Y_{ijt} = \omega_{ij} + \mathbf{X}'_{it}\boldsymbol{\beta} + \varepsilon_{ijt},$$

(3.1)

where the market penetration variable (Y_{ijt}) is MOFA sales expressed as a per-thousandth of GDP in industry j in host country i (of N countries) for year $t = 1999,\dots,2014$. $Y_{ijt} = 1000 \times \frac{\text{MOFA Sales}_{ijt}}{\text{GDP (Current US\$)}_{ijt}}$. $\mathbf{X}_{it}$ is the log of a vector of macroeconomic, structural, and institutional independent variables that vary over time. We will estimate the parameter vector $\boldsymbol{\beta}$. The measurement and specification error component, ε_{ijt}, represents individual country $\times$ industry heterogeneity and stochastic and time elements. ω_{ij} are country-industry fixed effects. We assume that ε_{ijt} is normally distributed with mean zero and constant variance.

The dataset contains a large number of zero values for sales for particular i, j, and t's. Assuming we might use a log transformation, this would result in being unable to estimate equation (3.1). While one may attempt to add a non-trivial value to the left hand side to avoid taking the natural log of zero, or, alternatively, truncating the observations, this may lead to biased and inefficient estimates (Burger, et.al. 2009; Heckman 1979). We thus use Poisson Pseudo Maximum-Likelihood (PPML) and Negative Binomial (NB) models (Santos Silva and Tenreyro 2006; Burger, et.al. 2009). We measure the dependent variable in level form and the independent variables in logarithmic form.

A detailed outline of the PPML and NB models are available in the econometrics appendix; we use standard PPML and NB models. The intuition behind using an NB model over a PPML model is that a PPML model requires equidispersion, but the alternative NB model can be used when this is not present (Cameron and Trivedi 2010; Burger, et.al. 2009). We will describe which model works better for each particular industry.

3.2   Industry Regression Results

Using the formulation described in section 3.1, we regress MOFA market penetration, $Y_{ijt} = 1000 \times \frac{\text{MOFA Sales}_{ijt}}{\text{GDP (Current US\$)}_{ijt}}$ on eight independent variables in log form plus two discrete political indices. We find results for (a) all industries, with each industry $\times$ country $\times$ year combination as a separate data point, leading to N = 3276 observations, and (b) each of 8 industry groupings. The regression

TABLE 3.1. VARIABLES USED IN THE REGRESSION ANALYSIS

VARIABLE	DESCRIPTION
Y_{ijt} (sales to GDP ratio)	Sales for U.S. majority owned MENA affiliates as a share of GDP (multiplied by 1000)
Trade (% of GDP)	Ratio of the sum of import and export to GDP
Manufacturing exports	Manufacturing exports (relative to merchandise exports)
Fuel exports	Fuel exports (relative to merchandise exports)
Ores and metals exports	Ores and metals exports (relative to merchandise exports)
Broad money (% of GDP)	Broad money (M2) (relative to GDP)
Gross capital formation	Gross capital formation (relative to GDP)
High-tech exports	High-technology exports (relative to manufactured exports)
Domestic credit	Domestic credit provided by financial sector (relative to GDP)
Control of Corruption	Degree of control over corruption
Political Stability/Violence	Political stability and absence of violence

Note: In the design of the data matrix, Y_{ijt} is the only variable that has the industry (*j*) dimension. GDP of host country is measured in current US$. All independent variables except control of corruption, and political stability and absence of violence entered in the regression models in logarithmic form. The control of corruption and political instability score ranges from 0 to 1, with higher scores indicating more control of corruption, and presence of political stability and absence of violence.

includes 14 countries[6]. Column 2 in Tables 3.3 and A3.1 (Appendix A3) shows the coefficient estimates for all industries, and we present results for many industries separately.

We choose the PPML or the NB model based on which one has the lowest Akaike Information Criterion (AIC)—and whether there is potential overdispersions using a likelihood ratio (LR) test. Based on these results, summarized in Table 3.2 and presented in in the lower panels of Tables 3.3 and A3.1, we choose the NB models over the PPML models for seven out of the eight industry groupings. We choose PPML for the utility industry.

In the pooled regression, four of the ten explanatory variables are not significant. Broad money (M2), gross capital formation relative to GDP, domestic credit provided by the financial sector relative to

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[6] Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, the United Arab Emirates, and Yemen

GDP, and control of corruption are not statistically predictive for MOFA market penetration. Although there is variation in the order and magnitude of the coefficient estimates, trade openness, natural resource endowment, macroeconomic variables, institutional quality, and political stability are predictive of MOFA penetration in the region. MOFA market penetration is larger in countries with lower political instability, and lower violence.

TABLE 3.2 DESCRIPTION OF INDUSTRIES INCLUDED IN THE ANALYSIS

INDUSTRY	DESCRIPTION	PREFERRED MODEL (PPML or NB?)
Mining	Mining and nonliving resources	NB
Manuf.	Manufacturing	NB
Finance & insurance	Finance and Insurance	NB
Information	Information	NB
Constr.	Construction	NB
Wholesale	Wholesale trade	NB
Professional	Professional Science and Technical Services	NB
Utilities	Utilities	PPML

TABLE 3.3 NEGATIVE BINOMIAL REGRESSION ESTIMATES OF DETERMINANTS OF MOFA SALES AS A SHARE OF GDP—TABLE CONTINUES

	All industries	Mining	Manuf.	Finance & Insurance	Information
Trade (% of GDP)	-0.849**	-2.117***	-1.363***	1.208***	2.310***
	(0.26)	(0.47)	(0.39)	(0.35)	(0.55)
Manufacturing exports	-0.249*	-0.203	-0.078	-0.146	-0.260
	(0.10)	(0.16)	(0.13)	(0.12)	(0.19)
Fuel exports	0.118*	1.130***	0.033	0.160*	0.744***
	(0.06)	(0.16)	(0.09)	(0.08)	(0.15)
Ores & metals exports	0.183**	-0.078	0.434***	0.457***	0.321**
	(0.06)	(0.10)	(0.10)	(0.07)	(0.11)
Broad money (% of GDP)	0.078	-0.321	0.622	0.963*	1.292*
	(0.28)	(0.46)	(0.47)	(0.40)	(0.55)
Gross capital formation	-0.236	-0.828*	1.462***	0.341	-0.377
	(0.22)	(0.35)	(0.40)	(0.34)	(0.56)
High-tech exports	-0.071*	0.013	-0.011	-0.225***	0.282**
	(0.04)	(0.05)	(0.06)	(0.05)	(0.09)
Domestic credit	-0.019	-0.006	0.046	0.405**	0.119
	(0.12)	(0.21)	(0.15)	(0.16)	(0.21)
Control of Corruption	1.430	1.602	1.226	-2.412+	-3.502+
	(0.91)	(1.75)	(1.54)	(1.34)	(2.01)
Political stability/Violence	2.639*	6.112***	5.404**	2.666	2.263
	(1.17)	(1.64)	(1.65)	(1.79)	(2.39)
_cons	4.006*	7.974**	-3.302	-11.50***	-14.42***
	(1.56)	(2.80)	(2.73)	(2.29)	(3.77)
Ln(alpha)					
_cons	2.459***	0.0450	0.179	-0.245+	0.027
	(0.03)	(0.13)	(0.12)	(0.14)	(0.19)
N	3276	156	156	156	156
AIC	13,055	1,509	1,487	1,042	511
log-likelihood ratio (LR)	-6503	-730	-719	-496	-231
Alpha	11.69	1.05	1.20	0.78	1.03

Note: Standard errors in parentheses $+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$.
Out of the total 20 industries in our data, the regression is conducted for 11 selected industries. Wholesale trade industry is collapsed as pooled wholesale to include electronic trade post, durable and nondurable trade. Thus, the number of observations (*N*) by industry do not sum to all industries observation of 3,276. All of this is also true in the rest of regression tables.

TABLE 3.3 NEGATIVE BINOMIAL REGRESSION ESTIMATES OF DETERMINANTS OF MOFA SALES AS A SHARE OF GDP—TABLE ENDS

	Construction	Wholesale	Professional	Utilities
Trade (% of GDP)	-0.359	-0.466	0.058	-3.570*
	(0.65)	(0.55)	(0.48)	(1.90)
Manufacturing exports	0.083	0.110	-0.174	1.449**
	(0.22)	(0.20)	(0.19)	(0.64)
Fuel exports	1.482***	0.532***	0.392***	0.493
	(0.31)	(0.12)	(0.10)	(0.67)
Ores & metals exports	0.661***	0.803***	-0.266**	-0.440
	(0.15)	(0.12)	(0.10)	(0.31)
Broad money (% of GDP)	-0.322	1.341*	3.113***	-3.970**
	(0.80)	(0.62)	(0.49)	(1.87)
Gross capital formation	4.757***	-0.905+	0.573	5.11***
	(0.83)	(0.51)	(0.42)	(1.48)
High-tech exports	-0.027	0.306***	-0.279***	-0.121
	(0.10)	(0.07)	(0.06)	(0.20)
Domestic credit	0.214	-0.519*	0.092	0.276
	(0.22)	(0.22)	(0.14)	(0.83)
Control of Corruption	-8.243**	-0.053	6.944***	17.54**
	(3.17)	(1.89)	(1.49)	(8.00)
Political stability/Violence	4.526+	7.907**	4.154+	-0.578
	(2.63)	(2.50)	(2.15)	(8.78)
Constant	-18.05**	-2.422	-20.42***	-4.95
	(5.86)	(3.08)	(2.94)	(17.24)
Ln(alpha)				
Constant	0.731***	0.575***	0.125	0.804**
	(0.17)	(0.12)	(0.15)	(0.35)
N	156	156	156	156
AIC	641	1,256	840	276
log-likelihood ratio (LR)	-294	-603	-395	-114
Alpha	2.08	1.78	1.13	0.12

Note: Standard errors in parentheses $+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$.

Fuel exports as a percentage of merchandise exports is statistically significant and positively predicts MOFA market penetration—except in manufacturing and utilities[7]. The effect is largest for the construction sector, followed by mining. Manufacturing exports as a percentage of merchandise exports is negatively correlated with MOFA market penetration in the pooled regression, but it is not statistically significant for eight of the industries. Ores and metals exports as a percentage of merchandise exports are positively predictive with MOFA market penetration in the pooled regression and in five of eight industry regressions but negatively predictive in professional science and other services.

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[7] The regression coefficients interpretations on utilities are based on PPML models.

GDP-relative money supply is statistically significant in predicting MOFA market penetration, except in mining, manufacturing, and construction. GDP-relative private domestic credit is positively and statistically significant in predicting MOFA market penetration only in finance and insurance; it is negatively and statistically significant in wholesale trade. Our findings on these financial depth variables are in agreement with Mohamed and Sidiropoulous (2010) on investment in MENA countries.

Gross capital formation relative to GDP is positively associated with MOFA market penetration in manufacturing, construction, and utilities. An increase in the infrastructure index measured using gross capital formation is negatively associated with MOFA market penetration in the mining and wholesale trade sector. This could reflect a tendency for MOFAs in mining and wholesale trade not to rely on the host country infrastructure.

MOFA market penetration in wholesale trade; mining; manufacturing; construction; and professional, science, and tech services is positively associated with lower violence and improvements in political stability, with the highest impacts in the wholesale trade sector. MOFA market penetration in professional science and tech services is positively associated with improvements in corruption. However, MOFA market penetration in (a) information and (b) finance and insurance is negatively associated with control of corruption. Other studies of FDI (Alfaro, et.al. 2008; Ali, et.al. 2010; Busse and Hefeker 2007; Burger, et.al. 2013) have also found a negative and significant relationship between political instability and the level of FDI in most developing countries. Burger, et.al. (2013) found that adverse political shocks are associated with significant reductions in investment inflows in the non-resource tradeable sectors in MENA countries. In contrast, investments in the national resource and non-tradeable sectors are not significantly correlated with political instability.

A study by the World Bank (2013) showed that corruption and taxes were the most widely cited factors that constrain private sector growth in MENA countries. The study further pointed out that nearly 65 percent of business owners in MENA countries complained about political instability and institutional weakness. Further, Mohamed and Sidiropoulus (2010) found that property rights and control of corruption significantly influenced foreign direct investment in MENA countries. In separate study, Mina (2012) showed that political instability in the MENA region negatively affects FDI inflows.

IV. PROPENSITY SCORE MATCHING

4.1 Propensity Score Matching Description

To get a snapshot of U.S. MNE activity in MENA relative to other regions, we use propensity score matching (Rubin 2004, Imbens and Woolbridge 2009) to compare MOFA sales in MENA countries to comparable non-MENA countries. Our goal here is to see if unobservable characteristics of being a MENA country[8] may impact the level of MOFA sales.

First, for an industry grouping, *j*, either mining and extraction[9] or non-mining, year *t*, from 2005-2015, and MENA country *i*, we define the MOFA market penetration ratio (y_{ijt}) as:

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[8] Extraction does not include live extraction, such as farming and fishing, but **does include oil and gas extraction**. Mining for 2007 includes NAICS codes 2111, 2121, 2123, 2124, 2125, 2126, 2127, 2132, and 2133. Other years are available from the authors directly or from BEA.

[9] For this section, MENA includes Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, the United Arab Emirates, and Yemen. However, data from several different sources may include or exclude countries in any or all of the years. Because of the dimensionality of the problem and the difficulty of disclosure rules, it is difficult to describe in print which country years are included or

$$y_{ijt} = \frac{\text{Sales}_{ijt}}{\text{GDP}_{ijt}}.$$

(4.1)

This analysis is run in percentage terms,[10] so variables in the tables reflect percentages, i.e., $100 \times$ (Sales_{ijt} / GDP_{ijt}). If $W_i = 1\{i$ is a MENA country$\}$ (so, W_i is an indicator for treatment), our goal is to estimate the difference between MOFA sales as a share of GDP in MENA countries vs. the share if they were not a MENA country:

$$S_{ijt} = [y_{ijt} \mid W_i = 1] - [y_{ijt} \mid W_i = 0].$$

(4.2)

However, $[y_{ijt} \mid W_i = 0]$ is not observable since MENA countries cannot actually become non-MENA countries. The average of equation (4.2) is described as the "average treatment effect on the treated" ("ATT"), where treatment is being a part of the MENA region. The summary statistic, S_{ijt}, describes the difference in $100 \times$ (Sales_{ijt} / GDP_{ijt}) due to unobservables. $S_{ijt} < 0$ would indicate that there are systematically lower sales (relative to GDP) for U.S. MOFAs in MENA countries that are only accounted for by being in the region. Likewise, $S_{ijt} > 0$ would indicate the opposite.

In order to determine the value of S_{ijt}, we use propensity score matching. Propensity score matching with nearest neighbors is done by:

1. Determining the propensity score, or the estimated probability of being a MENA country, using one probability regression (we chose logit) – **and then** –
2. Matching, with replacement, MENA countries to the Ξ non-MENA countries with the most similar propensity scores (in our case, we run $\Xi = 1$ and $\Xi = 5$).

Each data point is a country $\times$ year combination, and we restrict neighbors to be within the same year. We run the analysis for both MOFA sales by industry group and for total MOFA sales. For robustness, we duplicate the analysis with two different logit regressions.

For the logit regression, we add a few variables that may help identify MENA countries. First, we compute the approximate distance, in miles, from Washington, D.C., to the capital of the country, using latitude-longitude data from CEPII (*Centre d'études prospectives et d'informations internationales*) and spherical distance.[11] CEPII also includes data on whether a country had a long-term colonizer (LTC): We create dummies, for Great Britain, France, and Other. We also create a dummy variable if the country had more than one term colonizer. The first logit is:

$\Pr(W_{it} = 1 \mid \mathbf{X}_{it})$
$= \text{logit}[\beta_0 + \beta_1\text{NotCorrupt}_{it} + \beta_2\text{RuleLawct} + \beta_3\text{France}_{it} + \beta_4\text{OtherColonizer}_{it}$
$+ \beta_5\text{MoreThanOneColonizer}_{it} + \beta_6\text{GDP,PerCapitaPPP[2011ConstantIntl\$]}_{it}$
$+ \gamma\text{Distance}_i].$

(4.3)

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excluded from the analysis. However, we can report that Syria is completely excluded from the analysis because of missing GDP data.

[10] In Section 3, we used $Y_{ijt} = 1000 \times$ (Sales_{ict} / GDP_{ict}). In this section, we are using $y_{ijt} = 100 \times$ (Sales_{ijt} / GDP_{ijt}) to easily discuss percentages.

[11] Some countries have more than one capital, so we use the capital that CEPII indicated as their most important capital. For reference purposes, the distance from Washington, D.C., to Mexico City, DF, Mexico, according to the spherical distance calculation, is 1884.5 mi.

The results of this regression are found in Table 4.1. An initial run of this regression matched many MENA countries to Singapore and to Canada, which are outliers for MOFA sales. WDI Data and tabular data from BEA's website indicates that Singapore has MOFA sales larger than GDP, and Canada, one of America's largest trading partners, also has high MOFA sales relative to GDP. Canada likely appeared as a match since it was colonized by France. Had their MOFA market penetration ratios not been outliers, these countries might otherwise be reasonable matches for a propensity score matching exercise. We also ran but did not include a regression that also included explanatory variables $GreatBritian_{it}$, $TimeToExport_{it}$, and $Population_{it}$, but the coefficients on these variables were insignificant.

TABLE 4.1 LOGIT REGRESSION FOR PROPENSITY SCORE MATCHING

Capital Distance to Washington, D.C.†	0.000030 (0.000064)	
Control of Corruption (1 = Not Corrupt)	-8.94*** (0.94)	-9.06*** (0.91)
Rule of Law (1 = Strong RoL)	3.86*** (0.83)	3.92*** (0.82)
France Long-Term Colonizer	1.42*** (0.28)	1.37*** (0.27)
Other LTC	-1.55*** (0.37)	-1.60*** (0.36)
> 1 LTC	2.76*** (0.40)	2.80*** (0.39)
GDP Per-Capita Cons. 2011 Int'l$	0.000057*** (0.0000071)	0.000057*** (0.0000071)
Constant	-2.46*** (0.62)	-2.26*** (0.44)
N	1306	1306
Log lik.	-324.5	-324.6

†Approximate spherical distance in miles.
t-stat's in ()'s. *$p<5\%$, **$p<1\%$, ***$p<0.1\%$.

The second equation is simply equation (4.3) *without* distance, for which the coefficient was not significant. The results are shown in Table 4.1. Whether distance is an important factor in determining MOFA investment and other variables is discussed in Zaheer, et.al. (2012); for our purposes, using the second instead of the first regression changes the results by a factor less than half of a standard deviation in the nearest one neighbor regression (and never changes the sign). Results with and without the distance variable are identical whatever industry they are run for since *j* does not appear in the equation.

TABLE 4.2. PROPENSITY SCORE MATCHING RESULTS: MINING

	$\Xi = 1$, Distance Included				
Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	1.32	1.17	0.16	0.26	0.6
ATT	1.32	1.19	0.13	0.25	0.54
	$\Xi = 1$, Distance Excluded				
Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	1.32	1.17	0.16	0.26	0.6
ATT	1.32	1.57	-0.25	0.45	-0.56
	$\Xi = 5$, Distance Included				

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	1.32	1.17	0.16	0.26	0.6
ATT	1.32	0.98	0.34	0.26	1.31

$\Xi = 5$, Distance Excluded

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	1.32	1.17	0.16	0.26	0.6
ATT	1.32	0.96	0.36	0.28	1.27

TABLE 4.3 PROPENSITY SCORE MATCHING RESULTS: NON-MINING

$\Xi = 1$, Distance Included

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	1.33	10.21	-8.88	2.43	-3.66
ATT	1.33	5.76	-4.43	2.34	-1.89

$\Xi = 1$, Distance Excluded

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	1.33	10.21	-8.88	2.43	-3.66
ATT	1.33	6.48	-5.15	5.83	-0.88

$\Xi = 5$, Distance Included

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	1.33	10.21	-8.88	2.43	-3.66
ATT	1.33	6.35	-5.02	2.57	-1.95

$\Xi = 5$, Distance Excluded

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	1.33	10.21	-8.88	2.43	-3.66
ATT	1.33	6.88	-5.55	2.66	-2.09

TABLE 4.4. PROPENSITY SCORE MATCHING RESULTS: ALL

$\Xi = 1$, Distance Included

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	2.65	11.38	-8.73	2.43	-3.59
ATT	2.65	6.95	-4.29	2.33	-1.84

$\Xi = 1$, Distance Excluded

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	2.65	11.38	-8.73	2.43	-3.59
ATT	2.65	8.05	-5.40	5.82	-0.93

$\Xi = 5$, Distance Included

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	2.65	11.38	-8.73	2.43	-3.59
ATT	2.65	7.33	-4.68	2.57	-1.82

$\Xi = 5$, Distance Excluded

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	2.65	11.38	-8.73	2.43	-3.59
ATT	2.65	7.85	-5.19	2.67	-1.95

Results of the propensity score matching are presented in Tables 4.2-4.4. For all of the results, the summary statistic for difference in market penetration, S_{ijt}, is estimated to be zero for mining and extraction. This means that MOFAs in these industries appear to have the same market penetration in MENA countries as MOFAs in similar countries in other regions. At the 10% level of significance, the results for non-mining industries, using data for the five nearest neighbors ($\Xi = 5$), suggest that $S_{ijt} < 0$, meaning that MOFAs in those industries seem to have less market penetration than MOFAs in similar countries in other regions. Looking at all industries combined, the insignificant regional effect for

MOFA market penetration in mining does not outweigh the 4 or 5 percentage point decrease in MOFA market penetration in non-mining industries, meaning that MOFAs in MENA countries, in general, appear to have lower market penetration that MOFAs in comparable countries in other regions. Results for propensity score matching for all industries are presented in Table 4.4. Total difference in percentage points remain in the 4 to 5 percentage point range.

4.2   Case Study

Case studies with matched pairs of countries are difficult to present because BEA disclosure rules require us to suppress data to avoid disclosure of data of individual companies. Much of the BEA data on MOFA sales by MENA countries in mining is suppressed due to the concentration of these sales among a small number of firms, but there are enough publically available data for one particular case study. Saudi Arabia was matched with the Dominican Republic in 2010 and 2011 in the non-distance based, one nearest neighbor regression. Notably, during these two years in this one regression, the Dominican Republic looks like many of the MENA countries. The Dominican Republic, if you exclude distance, looks like a MENA country because it was colonized by France and by Haiti and has relatively high corruption (0.33).[12] Distance is not in this regression, so it would not be considered. While Saudi Arabia and the Dominican Republic differ in which indicators make them look like other MENA countries, the propensity score indicates that they look similarly "MENA" for 2011 and 2012.

Figure 4.1 shows a graph of the sales/GDP ratio (in percent) for the Dominican Republic and Saudi Arabia for both mining and non-mining. While the Dominican Republic has very low (indeed, 0) MOFA sales in mining, the MOFA market penetration ratio much higher in non-mining than it is for MOFAs in Saudi Arabia. To show the matching is not being inflated by anomalous countries, perhaps because they are near to the United States, we also list India. As shown by the propensity score results, MENA countries do typically have less MOFA sales than other similarly situated countries.

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[12] It is not obvious that the Dominican Republic was colonized by France, but indeed, this is true. From *Encyclopædia Brittanica* (González and Wiarda 2017), "In 1795 Spain ceded the eastern two-thirds of Hispaniola to France as a result of its defeat in the wars that had been raging in Europe." CEPII also includes Haiti as a colonizer, which occurred around the Haitian Revolution. CEPII does not consider Spain to have colonized the Dominican Republic.

FIGURE 4.1. U.S. MNE MOFA SALES AS A PERCENTAGE OF GDP: DOMINICAN REPUBLIC, SAUDI ARABIA, AND INDIA
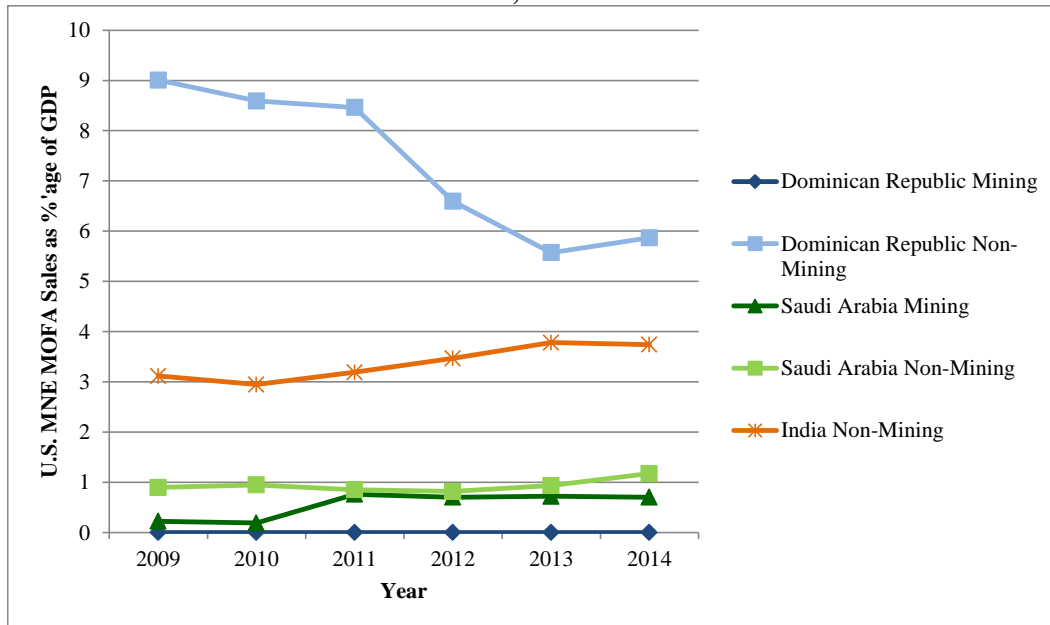
V.   CONCLUSIONS

This study provides an overview of U.S. direct investment and sales by U.S. MNEs in MENA countries using data from the BE-10 and BE-11 surveys. Using propensity score matching, we determined that MOFA market penetration is lower in MENA countries than in other geographic regions. We then used Poisson Psuedo-Maximum Likelihood and Negative Binomial regressions to evaluate the impact of macroeconomic, institutional, and financial factors affecting MOFA market penetration. These models enabled us to avoid many of the challenges presented by data that includes many heterogeneous countries with both zero and non-zero sales.

Openness to trade and GDP-relative money supply are more likely to attract MNEs that are primarily engaged in the financial and insurance or information than those primarily engaged in extracting natural resources. GDP-relative private domestic credit does not significantly affect MOFA market penetration for many sectors. While political stability and absence of violence seem to positively impact market penetration in extracting natural resources and tradable sectors, it is unclear whether they impact it in the financial and insurance or information. Moreover, while control of corruption does positively affect market penetration for MNEs that are engaged in professional science and tech services, it is unclear whether it impacts it in the mining, manufacturing and wholesale sectors. Except in manufacturing and utilities, MOFA market penetration in all studied sectors is positively associated with an increase in the fraction of total host-country merchandise exports that are fuels. Overall, the estimation results show that economic conditions play greater role in improving MOFA market penetration in MENA countries, but MENA countries still experience a systematically lower level of MOFA market penetration than MOFAs in comparable countries outside the region.

A1.   Data
We take eight macroeconomic, trade, resource endowment, and financial indicator variables that are expected to affect sales of MOFAs from the World Development Indicators (WDI) database compiled by the World Bank (2017). For example, GDP-relative trade is used to measure the effect of trade openness of MENA countries on sales of MOFAs. Money supply (M2) and domestic credit provided

by the financial sector (relative to GDP) are used to measure the effect on financial development of MENA countries. Natural resources endowment is represented by fuel, and ores and metals exports (share of merchandise exports). An infrastructure index is measured using gross capital formation (as percent of GDP).

For institutional quality, we take indicators for (a) the control of corruption, and (b) "political stability and absence of violence/terrorism." The World Governance Indicators (WGI 2017) has these indicators, from ICRG, scaled from 0 to 1, where 1 is "good." These are listed as indicators 2 and 6 in Kauffman, Kraay, and Mastruzzi (2010), who describe them thusly:

2. Political stability and absence of violence/terrorism (PV) – *capturing perceptions of*

the likelihood that the government will be destabilized or overthrown by unconstitutional

or violent means, including politically-motivated violence and terrorism.

6. Control of corruption (CC) – *capturing perceptions of the extent to which public*
power is exercised for private gain, including both petty and grand forms of corruption,
as well as 'capture' of the state by elites and private interests.

Our dataset comes from the BE-10 benchmark and BE-11 annual surveys of U.S. direct investment abroad. The focus is on MOFAs, rather than all foreign affiliates; the distinction between these groups is explained in Scott (2016):
Statistics for the foreign affiliates are presented for two categories—all affiliates, which are at least 10 percent owned by their U.S. parent, and majority-owned foreign affiliates (MOFAs), which are more than 50 percent owned by their U.S. parents. Most foreign affiliates are majority-owned. MOFAs accounted for 87.2 percent of the employment by all foreign affiliates in 2014.

Mataloni (1995) provides additional detail about the BEA data:
Benchmark surveys (or censuses), which are currently conducted every 5 years, are the most comprehensive surveys…they cover virtually the entire population—or universe—of U.S. [MNE]'s. In addition to the benchmark surveys, BEA conducts … annual sample surveys. … In the sample surveys, reports are not required for small affiliates, in order to reduce the reporting burden on the U.S. companies that must file. Instead, BEA estimates the data for these affiliates by extrapolating forward their data from the most recent benchmark survey on the basis of the movement of the sample data. Thus, coverage of the U.S.-[MNE] universe is complete in nonbenchmark, as well as benchmark, periods.

Much of this paper gauges MOFA activity using sales. Scott (2016) notes that an important distinction exists between sales and value added. Value added includes, "production of the firm itself," and that, by definition, occurs within the country and "represents the firm's contribution to gross domestic product." By contrast, sales also include revenue that comes from purchased inputs, including imported purchased inputs. In this paper, we focus on sales rather than value added because we want a more comprehensive measure of MOFA revenue.

A2.   Appendix: Econometrics

This appendix describes the PPML and NB models. For industry *j*, country *i*, and year *t*, the observed value of the dependent variable, Y_{ijt}, is:

$$Y_{ijt} = 1000 \times \frac{\text{MOFA Sales}_{ijt}}{\text{GDP (Current US\$)}_{ijt}}$$

(A2.1)

Poisson Model

We assume that Y_{ijt} has Poisson distribution with conditional mean (μ_{ijt}) as a function of the independent variables listed in equation (1). T_{ijt} is assumed to have a non-negative integer value so that $T_{ijt} \geq 0$. It has the probability mass function of:

$$\Pr(T_{ijt}) = \frac{\exp(-\mu_{ijt})\mu_{ijt}^{T_{ijt}}}{T_{ijt}!} \quad \text{, where } 0 \leq \Pr(T_{ijt}) \leq 1,$$

(A2.2)

and the conditional mean of Y_{ijt} and T_{ijt} is:

$$\mu_{ijt} = \exp(\beta_0 + \boldsymbol{\beta}'\mathbf{X}_{it} + \eta_i + \tau_j).$$

(A2.3)

Here, $\mathbf{X}_{ijt}$ is a vector of explanatory variables defined previously, and $\boldsymbol{\beta}$ is the corresponding parameter vector for $\mathbf{X}$. η_i and τ_j are specific effects to MENA countries and industries, respectively.

Negative Binomial Model

The Poisson model requires equidispersion: The conditional variance must be equal to the conditional mean (Cameron and Trivedi 2010). The presence of overdispersion could result in inefficient estimation. An alternative to the Poisson model is the negative binomial model (Burger, et.al. 2009). The density of the negative binomial model, in which Y_{ijt} (and count equivalent $T_{ijt} \geq 0$) have conditional mean μ_{ijt} is:

$$\Pr(T_{ijt}) = \frac{\Gamma(T_{ijt} + \alpha^{-1})}{T_{ijt}!\,\Gamma(\alpha^{-1})}\left(\frac{\alpha^{-1}}{\alpha^{-1} + \mu_{ijt}}\right)^{\alpha^{-1}}\left(\frac{\mu_{ijt}}{\alpha^{-1} + \mu_{ijt}}\right)^{T_{ijt}}.$$

(A2.4)

Here, Γ is the Gamma function, and α is the dispersion parameter (Burger, et.al. 2009).

A3.   Appendix: PPML Model Results

TABLE A3.1. POISSON PSEUDO-MAXIMUM LIKELIHOOD ESTIMATES OF DETERMINANTS OF MOFA SALES AS A SHARE OF GDP—TABLE CONTINUES

	All industries	Mining	Manuf.	Finance & Insurance	Information
Trade (% of GDP)	-0.701**	-1.501***	-1.178***	1.341***	2.627***
	(0.24)	(0.33)	(0.17)	(0.38)	(0.46)
Manufacturing exports	-0.142	-0.171+	0.130	-0.244*	-0.163
	(0.09)	(0.10)	(0.08)	(0.12)	(0.14)
Fuel exports	0.160*	0.648***	0.077	0.185*	0.780***
	(0.07)	(0.11)	(0.06)	(0.08)	(0.18)
Ores & metals exports	0.155**	0.038	0.280***	0.614***	0.0981
	(0.05)	(0.06)	(0.06)	(0.10)	(0.12)
Broad money (% of GDP)	0.193	-0.061	0.509+	0.108	1.120*
	(0.26)	(0.28)	(0.29)	(0.51)	(0.50)
Gross capital formation	-0.324	-0.472*	0.226	0.435	0.548
	(0.24)	(0.18)	(0.24)	(0.41)	(0.78)
High-tech exports	-0.065	-0.034	-0.086*	-0.169***	0.260***
	(0.04)	(0.04)	(0.04)	(0.05)	(0.060)
Domestic credit	-0.112	-0.193+	0.283+	0.558	0.119
	(0.11)	(0.11)	(0.17)	(0.35)	(0.15)
Control of Corruption	1.220	1.241	2.901***	-2.234*	-3.420
	(0.86)	(1.21)	(0.77)	(1.13)	(2.62)
Political stability/Violence	2.181*	3.624***	4.462***	0.424	2.378
	(1.07)	(1.07)	(1.25)	(1.83)	(2.30)

Constant	3.622+	8.097***	-1.185	-7.321*	-18.44***
	(1.94)	(1.89)	(1.40)	(3.04)	(4.04)
N	3,276	156	156	156	156
AIC	206,561	13,788	4,551	2,374	796
log-likelihood ratio (LR)	-103,256	-690	-2,251	-1163	-374

Note: Standard errors in parentheses + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Out of the total 20 industries in our data, the regression is conducted for 11 selected industries. Wholesale trade industry is collapsed as pooled wholesale to include electronic trade post, durable and nondurable trade. Thus, the number of observations (*N*) by industry do not sum to all industries observation of 3,276. All of this is also true in the rest of regression tables.

TABLE A3.1. POISSON PSEUDO-MAXIMUM LIKELIHOOD ESTIMATES OF DETERMINANTS OF MOFA SALES AS A SHARE OF GDP—TABLE ENDS

	Construction	Wholesale	Professional	Utilities
Trade (% of GDP)	-0.549	-0.638*	0.954*	-4.367***
	(0.84)	(0.29)	(0.46)	(0.94)
Manufacturing exports	0.286	-0.029	0.113	0.198
	(0.25)	(0.17)	(0.14)	(0.45)
Fuel exports	1.314***	0.444*	0.510***	-0.010
	(0.29)	(0.18)	(0.11)	(0.28)
Ores & metals exports	0.599***	0.522***	-0.317***	0.031
	(0.14)	(0.09)	(0.06)	(0.19)
Broad money (% of GDP)	-0.508	1.190*	1.805***	-5.201***
	(0.84)	(0.50)	(0.44)	(1.12)
Gross capital formation	1.998*	-1.191*	1.668***	5.196***
	(0.81)	(0.48)	(0.31)	(1.12)
High-tech exports	-0.142	0.314***	-0.216***	0.082
	(0.10)	(0.08)	(0.05)	(0.16)
Domestic credit	-0.501	-0.148	0.105	2.213**
	(0.34)	(0.17)	(0.16)	(0.84)
Control of Corruption	1.077	1.777+	6.405***	3.863
	(3.80)	(1.02)	(1.53)	(4.54)
Political stability/Violence	6.270	8.116***	1.212	-2.290
	(6.87)	(1.71)	(2.02)	(4.33)
_cons	-10.44	-3.154	-21.32***	13.17
	(6.97)	(4.04)	(3.41)	(8.61)
N	156	156	156	133
AIC	2,461	5020	1,584	678
log-likelihood ratio (LR)	-1,206	-2486	-768	-317

Note: Standard errors in parentheses + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

PROCEEDINGS

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Theme*: Entrepreneurship, Responsible Leadership, and Economic Development.*

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DIVERSITY AND EQUITY IN THE MIDDLE EAST: BEYOND ANOMIE AND DYSFUNCTION

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ABSTRACT

Change in the Middle East and adjacent regions often results in strife, tension, and cultural weakening. This tendency is discussed with reference to the concept of anomie in which socially acceptable goals can no longer be achieved in socially acceptable ways. Facing such situations, distinctive groups may benefit from concepts such as the "concurrent majority" which is a defense of the rights and heritage of minority groups. The Middle East might benefit from strategies such as this.

Keywords: Ethnic groups, Anomie, economic development, tyranny of the majority, concurrent majority, social equity.

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I.   INTRODUCTION

Many people view the Middle East in simplistic ways that envision great cultural uniformity (or perhaps assume that homogeneity should be established.). In reality, of course, significant diversity exists and is a positive asset. Nevertheless, rapid social and economic changes (and/or the pressures associated with them) put many Middle Eastern ethnic and minority groups under stress and/or peril.

Facing such circumstances, these enclaves often seek relief in the form of social equity involving some form of distinctive self-determinism. Opponents of such initiatives, in contrast, seek to have all people (members of cultural minorities included) act in accordance with some sort of universal standards or strategic models. Differences of opinion of this sort can (and have) led to tensions and conflict. This paper contributes to the dialogue regarding how disparities and disagreements such as these can be resolved.

II.   CHANGE, STRESS, AND PAIN

In the Middle East, as elsewhere, people are often adversely affected by cultural, social, economic, and/or technological change. Being asked to adhere to traditions that are not their own can be especially painful. In other words, "minorities" (envisioned broadly as those lacking power and control) often suffer due to contact with powerful "majorities" who seek compliance to their standards. Under these conditions, significant dysfunction can result.

Mainstream researchers discussing these pressures (Appelberg, Honkasalo, and Koskenvuo 1996) report that people who have experienced a significant conflict at work during the previous 5 years are more likely to be diagnosed with a psychiatric problem. Apparently, significant stress in dealings with other people can result in detrimental and hurtful ramifications.

The average person who experiences difficulties on the job, however, is still a member of a viable and intact culture or society. Presumably, the cultural and social support available to these individuals continues and, in the process, provides a degree of comfort and balance even when these people experience hardships. When away from work, furthermore, these people are able to participate within the larger community and gain a respite from the troubles they face. Even when this comfort is available, the above research indicates that mental illness and the pain associated with it tends to increase. This situation can easily promote dysfunction.

The relative comfort provided by cultural stability can be juxtaposed with the opposite situation where the entire culture, heritage, and traditions of a people are under attack, weakened, rendered passé, or even destroyed. If people within a viable and functioning culture are adversely effected merely by "on the job" pressures, those whose entire heritage, traditions, and culture are under attack are likely to be even more vulnerable to adverse psychological responses.

For many years, advocates for ethnic groups have understood that change has hurtful potentials that need to be proactively addressed. The necessity to do so is particularly important when a people's way of life has been quickly transformed, weakened, or destroyed by some unanticipated, uncontrolled, and/or unmitigated onslaught. The agendas or actions of some "majority" (however defined) are typical catalysts for maladies of this sort.

Consider the case of Ishi, the lone survivor of a California (USA) tribe who was dubbed the "Last Savage" by the media and became a tourist attraction as well as the subject of anthropological research in the early 20th century (Kroeber 1964).

Many Native American thinkers point to the treatment of Ishi as a classic example of oppressive exploitation in which outsiders first destroyed the man's way of life and then turned him into a commodity to be studied and gawked at. Although such conclusions are understandable, the story and message of Ishi is much more complex than that. It is chronicled by Theodora Krober in her *Ishi*: *The*

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Last of his Tribe (1964) which explores the relationship between her husband (anthropologist Alfred Louis Kroeber) and Ishi as each comforted the other.

Theodora observes that around the time that Ishi stumbled into the modern world, starving and alone, Kroeber had suffered his own grievous loss. His first wife had died before her time and, as a result, Kroeber was thrown into a profound and disabling depression. Possessing great knowledge of the indigenous people of California, however, Kroeber was asked to help calm this unruly "wild man" who had unexpectedly appeared. Kroeber found a grief stricken soul who had lost everything, not just a wife. Ishi's world was completely gone and everyone and everything that was important to him was dead. Nothing remained. Ultimately, Kroeber realized that suffering over a lost wife was relatively insignificant when compared to the agony of a victim whose entire social universe had quickly and irreversibly become extinct. In the process of helping Ishi adjust and cope, the grieving widower learned to deal with his own pain. Both men found salvation by helping each other.

The point is that people often feel profound and disabling pain when their heritage is stripped away. Although Ishi provides an extreme example of such anguish, this type of cultural and social loss is very common among ethnic groups who are confronted by the mainstream world or other powerful forces beyond their control. This pain should be recognized as well as the potential for dysfunction stemming from it. Those involved with the Middle East need to be aware of the ramifications of undermining and/or dismantling societies and communities. Strategies need to be developed to preserve cultures as well as mitigating the negative aspects of change and loss.

A classic discussion regarding the discomfort triggered by change is presented by G. N. Appell who observes that a strong and robust cultural heritage can help people cope with the impacts of traumatic change. Appell reminds us that "A society undergoing change...has a right to access its cultural traditions, its language and its social history" (Appell 1977 14) because these cultural assets can help temper the pain and disorientation caused by what he calls the social separation syndrome which "involves role conflict and ambiguity, threat to one's self esteem, and an impaired social identity".

Discussing this social and psychological threat, Appel continues, "Social bereavement arising from social change seems to follow a developmental sequence similar to personal bereavement...There is first a period of denial as numbness accompanied by anxiety, fear, and feelings of threat to one's identity. This is succeeded by a phase of frustrated searching for the lost world or individual, hoping for a reversal and then bitter pining and unrelieved sense of pain…Following this is a period of depression and apathy...Finally there is the phase of reorganization when the bereaved begins to build new plans and assumptions about the world" (1977 14.)

Although some of the details of Appel's vintage observations might be dated or metaphoric, the gist of his message continues to resonate clearly. Cultures are powerful coping devises that provide grounding, practical tools, comfort, and a sense of identity. They offer solutions to the problems that people face as well as presenting suggestions regarding how to think, act, and respond. If these tools are undercut, rendered passé, or destroyed, a void can emerge causing people to lack the ability to live in a socially and psychologically healthy fashion.

Although this vulnerability is real, it does not inevitably lead to cultural extinction. In a classic observation, for example, David Maybury-Lewis reminds us that "There is no natural or historic law that militates against small societies. There are only political choices." (1977 58). Thus, the demise of ethnic groups is avoidable even if popular paradigms of cultural evolution and extinction reflect the world view (and perhaps the priorities) of many advocates of economic development, change, or conformity.

III.   ANOMIE: THE DISRUPTION OF CHANGE

Social scientists recognize that change can lead to pain that triggers hurtful dysfunction. In the late 19th century, Emil Durkheim, for example, demonstrated how unhappiness and despair that is correlated with social displacements can lead to a growing suicide rate (Durkhiem 1893). Durkheim explained this relationship with reference to what he called "anomie" which refers to tensions and alienation triggered by significant disruptions or alterations in the daily life that people experience. Durkheim clearly recognized that unmitigated social change can produce dysfunctional, harmful, and counterproductive behavior.

Durkheim envisioned anomie as an inconsistency between (1) the standards of socially acceptable behavior and the goals embraced by a social group and (2) the realities that actually exist. When the inconsistency between the two is great, the rules of society begin to deteriorate or break down creating a chaotic and unpredictable environment capable of launching alienation, sorrow, a feeling of hopelessness, and hurtful responses.

From the 1930s to the 1950s, Robert Merton (1957) expanded Durkheim's concept of anomie, arguing that the norms of society provide individuals with (1) goals to which they should aspire, on the one hand, and (2) conventional methods for achieving these objectives, on the other. Merton understood that over time, the social structure (or the socio-economic milieu in which a community exists) may change to such a degree that its members are no longer able to attain sanctioned and honored achievements in the traditionally acceptable manner. Under such conditions, the predisposition for deviant and/or dysfunctional behavior tends to increase.

Social and economic development projects or initiatives involving ethnic groups can easily create conditions that give rise to anomie. The ways in which people respond under these conditions, however, vary with some alternatives being more productive and positive than others. Merton provides a typology of responses to anomie that includes 1. Conformity, 2. Innovation, 3. Ritualization, 4. Retreatism, and 5. Rebellion (Merton 1957). They can be described as:

Conformity is the situation in which people continue to embrace the goals of their society and seek to achieve them in the traditional socially acceptable manner. Conformers continue to respond in the manner they did before the pressures causing anomie were present. Conformity is a conservative response and it preserves traditional relationships between people. Conformity, however, can inhibit the ability to adjust to new conditions.

Innovation is a situation where people embrace the goals of society but attempt to achieve them using new methods that might not be socially acceptable. Mainstream sociologists often characterize these methods as illegal and antisocial behavior. Among ethnic, groups, however, innovation might include responses that while violating traditional norms or expectations result in productive and moral adaptation. If so, embracing productive, but taboo, behaviors as legitimate methods for achieving socially acceptable goals might be a positive response that ultimately benefits society.

Ritualization is a situation where the person acts according to the norms of society but loses track of the goals to be achieved. In this case, people begin to act in a rote manner using tradition as a guide with little focus upon the costs vs. the benefits of doing so. This type of response is not strategic and is not likely to be productive. When people follow the old ways merely as an end in itself, the ability to respond in a productive and beneficial manner is reduced.

Retreatism is a situation where the person rejects both the cultural goals and the institutionalized methods for achieving them. Although people might reject the status quo, they do not necessarily embrace any positive or beneficial alternative. Under these conditions, the potential for dysfunctional responses, such as alcohol abuse, increases. While under the influence of alcohol or drugs, for example, the victim might be temporarily distracted from the plight faced, but fail to respond in an effective manner that generates long-term benefits.

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Rebellion is a situation where the person (1) rejects both the goals that society provides and the traditional means of achieving them while (2) simultaneously embracing substitutes that take their place. Under such circumstances, the break with the old ways is profound and complete. Massive changes in thought and attitude take place when the old ways are discarded and new alternatives embraced. Chaos might result. Different factions might arise in conflict with one another. The situation, created by widespread rebellion, can be particularly painful to those who hold on to tradition and/or fear change.

Anomie, therefore, can spawn a wide variety of responses that are directly related to how individuals and the community deal with the pressures faced. These alternatives are compared in Table 1:

Table1 :Responses to Anomie

RESPONSE	DESCRIPTION	ANALYSIS
Conformity	The traditions of the culture are preserved. People and the community continue to be motivated and act as in the past	The community and its culture is stable, but strategically responding to circumstances is minimal. Little positive adaptation.
Innovation	Although the goals of society remain intact, people embrace new methods of achieving them.	Although maintaining the goals of the community, the means of achieving them evolves to reflect new circumstances.
Ritualization	People continue to act according to the old conventions of behavior although doing so has little ad hoc value.	Although the ways of the past continue to be embraced, strategically responding to new conditions is insignificant.
Retreatism	People withdraw and abandon the old ways, but do not embrace a new alternative.	Psychologically, people are cut off from their heritage. Dysfunctional responses are likely.
Rebellion	New goals and new codes of behavior are embraced.	People replace both the traditional goals and the strategies that are used to achieve them.
DISCUSSION		
When ethnic groups confront change and anomie, a number of responses exist. The choices people make have far-reaching consequences regarding the viability of the culture and the mental health of individuals. By examining the possible responses to particular situations, people can better predict the consequences of change and the anomie it causes. The people of the Middle East need to be aware of anomie and responses to it.		

In conclusion, the concept of anomie deals with the tensions caused by social change. Ethnic groups in the Middle East and elsewhere can use this model to better understand the variety of ways in which people cope with the disruptive pressures they face. In recent decades, various refinements, such as *strain theory*, have been developed that focus upon how and why people respond to stress. Although such theories are often used to depict criminal and antisocial behavior and its causes, the same approach can be used to examine any significant change in behavior that people exhibit. On many occasions, reactions to anomie are disruptive and painful. Other responses may be positive. By understanding this range of reactions, Middle Eastern strategists and policy makers can recognize and more effectively mitigate significant side effects of cultural contact and change.

IV.   REPRESENTATIVE EXAMPLES OF DYSFUNCTION

On some occasions, unmitigated change and stress can cause people to exhibit rather bizarre beliefs and actions. Three such examples are the ghost dance (Mooney 1896 Kehoe 1989) and the "cargo cult" (Harris 1974, Inglis 1957 and Worsley 1957) and the Cultural Revolution in China. They are case studies of cultural adaptation gone wrong.

The Ghost Dance was an influential late 19th century religious movement among Native Americans. Its most prominent leader was a visionary named Wovoka who intertwined aspects of local traditions with a new religion. Suggestions, such as living in a more productive, moral, and harmonious manner were beneficial and can be viewed as positive and productive aspects of the movement.

Others demands and beliefs, however, were counterproductive and hurtful. Wovoka, for example, taught that if a certain dance was properly performed, the dead ancestors would come back to life, herds of buffalo would return, the white intruders would go away, and the old way of life would be restored. None of these projections, unfortunately, reflected reality. Acting according to them proved to be tragically counterproductive.

Some devotees were even convinced that if they wore "ghost shirts" they could not be killed by the guns of the white man and, therefore, victory was assured. The emerging ghost dance and the hope it provided appealed to many indigenous people who had suffered grievously due to reservation life, sickness, cultural decline, and governmental policies that sought to undercut the local Native American heritage. Sadly, ghost dance activities led to the massacre at Wounded Knee, the last major bloodbath of the Indian Wars.

Viewed from the perspective of anomie, the ghost dance can be viewed as an example of conformity in which the traditions of the culture were largely preserved and embraced, albeit in an unproductive manner. People were encouraged to look to the past, ignore reality, reject the new order of things, and act accordingly. Unfortunately, by doing so the actual circumstances being faced were not addressed in any meaningful manner. The result was disastrous.

The cargo cult, usually associated with Melanesia, involves people whose lives were hurtfully transformed and disrupted by social and economic change associated with outside contact during the early 20th century. Apparently, these reactions to circumstance were attempts by indigenous people to reassert control over their lives in a world that was being irrevocably changed in ways that undermined the old economic system and way of life, leaving the local people in a precarious and bewildering situation.

The responses to these hurtful circumstances are well known. When intrusive foreigners began to gain a foothold in Melanesia, members of the indigenous community noticed that these powerful outsiders built airports and harbors and then waited for airplanes and ships to arrive with great wealth. Apparently, the local people, becoming desperate and jealous, wanted their share of the cargo. One ploy they used was to build phony airports in the misguided belief that by doing so they could magically attract their own supernatural airplanes, gaining affluence as a result.

Although such responses are typically associated with some charismatic leader, a common explanation is that these cargo cults are responses to sorrow, fear, and anxiety caused by rapid and uncontrolled change. Although such strategies might be associated with ignorance and, superstition coupled with a lack of familiarity with modern economics and technology, the most important catalysts seem to have been desperation, hopelessness, and disappointment.

Viewed from the perspective of anomie, the cargo cults appear as innovative and/or rebellious responses to anomie. Devotees of the cult, for example, embraced new ways to achieve goals (luring cargo

carrying planes by building bogus airports) even though other aspects of the society might have remained intact. This behavior might also be reflective of rebellion in which new goals (a desire for western goods) was accompanied by new economic strategies (luring cargo planes). In any event, a major adjustment (although counterproductive) took place. It was precipitated by profound tensions in the culture and economy caused by rapid and uncontrolled outside contact.

Such reactions do not just occur among small scale cultures. Consider the Cultural Revolution in China during the 1960s and 1970s when militants encouraged by Chairman Mao rejected their cultural traditions and attempted to destroy the rich cultural heritage of the Orient. This movement (Lee 1978, King 2010) sought to eliminate remnants of Western business practices as well as aspects of Chinese civilization that were considered old fashioned and inhibiting progress in China. This reaction appears to have been triggered by the social and economic troubles that China was experiencing during that era.

As a political movement, various purges eliminated leaders who were considered to be too connected with the bourgeois. Culturally, many Chinese, especially the young, lashed out against China's rich heritage. Millions of people were harassed, shamed, and punished because they were identified with Chinese civilization or its traditions and knowledge. Intellectuals, teachers, writers, and cultural leaders found themselves under attack.

Innumerable relics from China's impressive historic legacy were destroyed or mutilated. Thus, when I visited the tomb of Confucius a few years ago, I discovered that his grave marker had been badly damaged during the excesses of that era. Today, of course, repairs have been made and the Chinese people (and the rest of the world) hold Confucius in the highest of esteem. During this period, however, anyone who was identified with the past, even world famous philosophers, became vulnerable.

Archaeological remains, archives, art works, and artifact were destroyed in a massive wave of devastation. Thus, the Cultural Revolution is an example of people strongly rejecting their culture and all it stood for. According to the theory of anomie, this can be viewed as a case of how people react when they are unable to achieve socially acceptable goals in a socially acceptable manner. It took the form of rebellion in which the old ways were rejected and replaced with alternatives that were distinctive and divergent from the past. Although this movement was the work of overenthusiastic zealots (and not officially condoned by the government), the destruction was profound and seems to be a spontaneous reaction, similar in some ways to the ghost dance and the cargo cults. All three were encouraged by charismatic leaders, but rooted in a feeling of hopelessness and a grassroots demand for profound change triggered by troubled times.

The Chinese Cultural Revolution is now recognized as a disaster by the Chinese as well as the rest of the world. Today in the Middle East, unfortunately, some forces have begun to attack the rich cultural legacy of the region by destroying archaeological ruins, monuments, and the artistic achievements of the past. Although these events are unique, they also seem to be emotional responses triggered by the heat of the moment, not careful thought. Like the Chinese Cultural Revolution, they are tragic examples of the wanton destruction of an irreplaceable heritage during a moment of strong emotions.

These examples demonstrate that a strong potential exists for people to make poor decisions when they are faced with hurtful disruptions in their way of life. The theory of anomie can be used to model these changes. With this in mind, the ghost dance, the cargo cult, and the Cultural Revolution are compared in Table 2

Table2: Patterns of Dysfunctional Response

ISSUE	GHOST DANCE	CARGO CULT	CULTURAL REVOLUTION
Trigger	Cultural Stress. Economic reversals.	Cultural Stress. Economic reversals.	Cultural stress. Economic reversals.
Response	A belief in a magical return of ancestors, the old ways, and personal invincibility.	A misguided copying of the techniques used by outsiders who threatened the traditional way of life.	Widespread disrespect and rejection of cultural traditions long held by the Chinese people and their culture.
Impact	Suicidal behavior. Reliance upon magic.	Counterproductive economic strategies.	Cultural destruction on a massive scale.
DISCUSSION			
The ghost dance, the cargo cult, and the Cultural Revolution represent hurtful and unproductive responses to change, stress, and anxiety. Members of ethnic groups need to be aware of such potential reactions in order to envision more production strategies.			

The ghost dance, the cargo cult, and Chinese Cultural Revolution point to damaging and ineffective means of addressing social and economic change. They demonstrate that when people are not prepared for the conditions they face, dysfunction is likely to occur. The opposite, however, is also true: some cultures and the people within them respond to the pressures faced in positive and constructive ways while simultaneously maintaining their unique cultural character and distinctiveness. The examples of the Iroquois Indians of New York State (USA)/Ontario (Canada) and the Yup'ik of Alaska (USA) are examples.

V.   POSITIVE ADAPTATIONS

The Iroquois of New York State (USA) and the Province of Ontario (Canada) are impressive in many ways. In the 18th century they successfully manipulated the colonial forces of Britain and France, reaping significant benefits in the process. During the French and Indian War (1754-1763), known as the Seven Years War in Europe, the Iroquois strategically controlled the situation and enjoyed prosperity as a result. Once the French had been totally defeated and driven from North America, however, the Iroquois were "no longer able to play off the British and French against each other and [found themselves] surrounded by a circle of British forts" (Wallace 1978 442). Because an alliance with the Iroquois was no longer needed, British generosity dwindled and economic suffering crept in.

When the Revolutionary War between Britain and their North American colonists began, the Iroquois became embroiled, once again, in a conflict that was larger than their world. Realizing that the British valued the region merely for trading purposes while victorious colonialists would probably be tempted to migrate into Iroquois territory, most Iroquois sided with Britain. The decision was costly:

[During the war, the Iroquois homeland] was devastated by the John Sullivan [United States military commander] expedition in 1778, which in a three pronged offensive managed to burn the houses and the crops in almost every major Iroquois town. Many of the women and children, and the surviving warriors, took refuge at Fort Niagara with the British, who housed them in a refugee camp, inadequately clothed, inadequately fed, inadequately sheltered, and swept by disease. By the end of the war, despite their military successes, the Iroquois population had been cut approximately in half (Wallace 1978 443.)

After the war, the victorious United States, remembering that the Iroquois had been their enemy, showed them few favors. And, as the Iroquois had feared, White settlers were attracted to the area. By the turn of the 19th century, the Iroquois were beaten in war, decimated by diseases brought by the Whites, and

besieged by new economic rivals. The results of this unenvilable situation included infighting, personal resignation, despair, and retreat. As is often the case under such circumstances, dysfunctional behavior (including alcoholism) became rampant.

Anthropologist, Anthony Wallace, an Iroquois specialist, points to the widespread dysfunction that arose including violence, uncontrolled weeping and pining, fear of peers (as evidenced by accusations of witchcraft), social disunity, and, widespread alcoholism. Clinical depression was commonplace and Wallace observes that when people were sober, they were likely to be suicidal (1970 196-201). With the culture and its people in total disarray, the Iroquois, as a viable culture, appeared to be headed towards extinction.

Within this milieu of cultural decline, Handsome Lake, a once respected indigenous leader, had fallen into hopeless alcoholism and his productive life appeared to be over. By the spring of 1799 he was "bedridden, reputedly...as a consequence of prolonged [alcoholism] (Wallace 1978 445).

In June of that year "Handsome Lake collapsed [and] appeared to have died, but actually he was in a trance state and was experiencing the first of a series of visions in which messengers of the Creator instructed him in his own and his people's religious obligations" (Wallace 1978 445). After recuperating, Handsome Lake dedicated his life to sobriety and to the restoration of Iroquois culture and society.

On the one hand, Handsome Lake encouraged his people to embrace their cultural traditions in innovative ways. The late 18th and early 19th century had devastated the Iroquois, throwing their culture into a state of complete disarray. Economically, the Iroquois could not effectively compete with the new settlers who entered the region. Although embracing and championing Iroquois culture, Handsome Lake also recognized that Iroquois society needed to adjust to the emerging economic realities in order to be revitalized.

Iroquois men, for example, focused upon hunting and warfare, viewing farming as an unmanly and shameful profession that was left to women. When white settlers migrated into Iroquois territory, however, new methods of farming (that included men performing their share of the work) proved to be more efficient and productive. The success of these outsiders further undercut the Iroquois economy. Under these circumstances, Handsome Lake encouraged Iroquois men to take up farming and he urged them to perceive agriculture as a legitimate profession, not a source of shame or embarrassment. This change of attitude helped the Iroquois to rebound economically, socially, and culturally.

The response suggested by Handsome Lake is clearly an example of what Robert Merton describes as an innovative response to anomie in which the goals of society remain intact although people are provided with new methods for achieving them. While Merton often associated innovation with harmful and hurtful substitutes such as illegal activities, in this case innovation took the form of a productive and legitimate rethinking of traditional sex roles. It allowed the Iroquois to adjust to emerging social and economic circumstances.

Handsome Lake, furthermore, forcefully denounced the disruptive and dysfunctional responses exhibited by his people. Drinking alcoholic beverages, in particular, was banned, along with promiscuous sexual behavior, the practice of witchcraft, and other troublesome habits that were undercutting the society and its people. Handsome Lake went on to insist that people acknowledge their past errors and refrain from similar misdeeds in the future.

From the perspective of anomie, Handsome Lake seems to have intuitively understood that many people had fallen into responses that resemble retreatism; they had abandoned the old ways but had not replaced them with any positive alternative. He demanded that people find a meaningful focus and began to combat social and individual degeneration.

Largely through Handsome Lake's example and message, the Iroquois people reversed their downward spiral of decline and re-emerged as a vital and viable culture. They continue as a powerful force today. This example emphasizes that ethnic groups can adapt to changing circumstances by tempering their traditions in productive and strategic ways. Cultures are powerful forces and as Appel indicated above, they often provide invaluable tools for both physical survival and psychological health. In addition, they are flexible and capable of innovation and change.

Approximately 175 years after Handsome Lake's achievements, Alaska Native Harold Napoleon provided another example of cultural renewal. Napoleon's *Yuuyaraq: The Way of Being Human* (1996) examines his indigenous people (the Yup'ik of southwestern Alaska USA) focusing upon the trauma and stress caused by contract with the outside world during the 20th century. Napoleon chronicles the plight of a downtrodden and bewildered people who fell into disarray and dysfunction but ultimately rebounded with healing and renewal.

Instead of being a scholar or professional researcher, Napoleon is an insightful layman who recovered from a personal bout with alcoholism. Writing on a subjective and intuitive level, Napoleon discusses the traumatic events that undercut Yup'ik society (as well as the positive steps that can be taken to insure its renewal.) Revealingly, these observations and recommendations independently duplicate the example and suggestions of Handsome Lake.

While not excusing or discounting his lapses and personal responsibilities, Napoleon focuses upon the destructive power of uncontrolled social and economic change and the alienation and disruption they produce. He argues that social and individual dysfunction can best be overcome through cultural revitalization.

Napoleon points to the irony that profound decline among the Yup'ik was correlated with economic progress and physical wellbeing. The people had warm clothes, comfortable homes, and enough to eat. Famines were a thing of the past. Viewed from a material perspective, life was good. Nonetheless, the suffering was profound, alcoholism was rampant, and the suicide rate rose to epidemic proportions.

Napoleon explains these responses as the fruit of cultural destruction. He records that in the early 20th century disease had killed many of the elders who carried the traditions of Yup'ik culture. As a result, the survivors were denied their heritage and floundered emotionally as a result. Economically, moreover, the traditional subsistence lifestyle was rendered passé. This situation, of course is largely similar to what Handsome Lake's Iroquois faced in the late 18th and early 19th centuries. The response, furthermore, was almost identical: dysfunctional behavior, mass suicide, despair, and passive resignation.

The solutions suggestions by the Iroquois and the Yup'ik, furthermore, are almost identical even though there is no evidence that Napoleon was aware of his predecessors. In both cases, cultural renewal and an embrace of the local heritage and traditions was urged. The rationale underlying these tactics is the belief that by nurturing and rebuilding the culture and its traditions the people can heal from a painful past and a new and positive chapter in Yup'ik culture can begin.

Napoleon uses the theory of Post-Traumatic Stress Disorder as a metaphor to portray the painful process of stress, alienation, and dysfunction that long plagued his culture and people. Post-Traumatic Stress Disorder, of course, is a condition in which people develop dysfunctional patterns of response as a result of being exposed to danger, fear, stress, and so forth. Speaking with reference to this disorder, Napoleon argues that rapidly changing social and economic conditions caused unmitigated stress that, in turn, triggered dysfunctional responses and behaviors that almost destroyed the Yup'ik. This ongoing process proved to be a vicious circle because as the culture became weaker, it became less able to help people cope, leading to even more profound problems.

Discussed in terms of anomie, a pattern of retreatism emerged in which people abandoned their old ways, but did not replace them with new and powerful alternatives.

A key strength in Napoleon's account is that he is not a professional social scientist or psychologist. Indeed, his status as insightful layman who is member of his community gives his work added credibility. This analysis has special value because it independently verifies and reinforces the findings of researches such as Merton and Appell while simultaneously paralleling the example of Handsome Lake. They are compared in Table 3\

Table3: Positive Adaptation

EXAMPLE	HURTFUL PRESSURES	POSITIVE RESPONSES
Handsome Lake	Due to changing political and economic conditions, the Iroquois suffered. The resulting sorrow triggered disabling dysfunctional behavior.	Handsome Lake called for the people to preserve their heritage while adapting to changing social and economic conditions. The decline of the Iroquois was overcome.
Harold Napoleon	Due to new conditions caused by disease and the intervention of outsiders, the Yup'ik faced a crisis emerged leading to counterproductive responses and personal dysfunction,	Harold Napoleon notes that the people suffered because they lost touch with their heritage and traditions. He suggested reconnecting with their cultural heritage in order to more effectively cope.
DISCUSSION		
Although some responses to anomie (such as the ghost dance, cargo cults, and the cultural revolution are hurtful and counterproductive, alternatives exist. The examples offered by Handsome Lake and Harold Napoleon demonstrate this potential.		

Those who deal with Middle Eastern ethnic groups can benefit by keeping these positive examples of beneficial responses to change in mind. Social, change, economic development and business intervention trigger change. On many occasions hurtful reactions are the result. Positive alternatives, however, are possible. Efforts must be made to insure that transitions are positive, sensitive, as well as culturally and psychologically beneficial.

The fact that pain and alienation may exist, of course, does not mean that outsiders should force people to preserve and live according to their traditions. Self-determinism at a local level should prevail. People, however, need to understand the full implications of their actions.

In this regard, Ormund Loomis has observed: "Proposing…efforts to stem…inevitable change would be pointless. Further, in a free society, even expecting [organizations or] the government to slow…[inevitable] progress would be wrong…It is possible, however, to temper change so that it proceeds in accordance with the will of the people, and not in response to the pressures or faddish trends of insensitive public or private projects" (1983 29.)

Ethnic groups in the Middle East and throughout the world need to remember that the cultural heritage and traditions of a people can be a source of great strength and comfort. And they should not forget that transformations and regulations mandated by outsiders can undercut a culture in hurtful ways leading to stress, psychological discomfort, and dysfunction (Salzman 2001, Walle 2004.) Care needs to be taken to minimize this kind of negative and hurtful response. The examples of the Iroquois and the Yup'ik, however, prove that positive and constructive responses are possible.

Many methods for strengthening the cultures of ethnic minorities can be proposed. One example is the concept of what has been called the "concurrent majority" a political construct that was developed in the United States during the first half of the 19th century to protect the rights of minorities that are

threatened by the will of the majority. This strategy was a reaction to what has been called the "tyranny of the majority".

VI.   THE TYRANNY OF THE MAJORITY

Empowering minorities (such as ethnic groups) to live as they see fit is profoundly important. The discussions of the Iroquois and the Yup'ik that were presented above dramatize this reality.

As also discussed, significant obstacles often prevent people from following their preferred ways of life. Denying people the right to self-determinism is often labeled the "tyranny of the majority". The term "majority" can be used to refer to being outvoted by a numerical superiority (such as in an election). It can also refer to domination that results when others control a "majority" of some kind of power, such as economic or political clout, that is used as leverage. An example of raw power being more influential than a demographic majority is the complaint that often been made that in Iraq a Sunni minority was long able to force its will upon a Shiite majority. (This paper has no opinion regarding this debate and simply mentions it as a well-known point of contention).

The phrase "tyranny of the majority" goes back to the 18th century and was used by American political theorist John Adams in 1788. In the early 19th century, it was employed by Alexis de Tocqueville in his *Democracy in America* (1835). De Tocqueville, of course, was a liberal who favored democracy but was leery that unbridled majority rule could turn ugly, as it did during the French Revolution. The phrase and the concept it represents gained additional international attention in John Stuart Mill's, *On Liberty* (1859).

When significant social or economic initiatives are taking place, local peoples and communities often fear that the resulting changes will be detrimental. A key question that can arise asks "To what degree does a raw majority have the right to control and veto the way of life and the economic activities of distinctive and established minorities?" Phrased in another manner, "Should minorities be able to practice self-determinism even when doing so violates principles that are held by the majority?" Many advocates for liberty and equity believe the answer to this question should be "Yes".

These are complex issues. For justifiable and laudable reasons, the raw majority (and the countries in which they reside) want to establish uniform standards that provide guidance in their territory (or even globally, as argued by proponents of universal human rights). Majority rule can help create these sought after standards. On the other hand, if the dictates of the majority are strictly followed, the legitimate choices of minorities might be curtailed.

In the United States of America, this dichotomy has led to controversy and inconsistency. On some occasions, the United States demands that its indigenous people honor the demands of the majority. Thus, indigenous tribal courts are allowed to operate, but only if defendants are guaranteed all the rights granted by the United States (such as the ability to personally confront accusers and/or those who are witnesses against them). Thus, the rights of indigenous minorities, although acknowledged, are tempered by policies that are established by the majority even though they might conflict with local traditions.

In other circumstances, the will of minorities prevails over the preferences of the majority. Indigenous people of the United States, for example, are allowed to operate casinos and games of chance in states where the majority of the population has outlawed gambling. In such cases, the democratically established decrees of the majority are overruled by the will of the minority. (The complex rationales for these conflicting policies are not discussed here because they are distinctly American. The point bring made is that ad hoc variation and inconsistency exist.)

The Kurdish people of the Middle East present another example of majority vs. minority rights in conflict. The region of Kurdistan is a vast area in which the Kurds are in the majority. This region,

however, is parceled out to a number of nations including Turkey, Syria, Iraq, and Iran. In each of these sovereign countries, the Kurds are a minority. Many Kurds complain that their inherent rights and needs are denied because of their minority status. In some countries, attempts are made to provide the Kurdish people with a degree of autonomy and home rule that takes their distinctiveness into account while simultaneously integrating these regions and their people into the countries where they reside. Even when such concessions are present, many Kurds believe that the only legitimate solution is for the various parts of Kurdistan to be united to form a new country. This paper has no suggestions regarding how to resolve the problems and does not take sides. The compelling arguments of both sides are recognized.

By looking at these representative examples from North America and the Middle East, the potential problems and inequities associated with relying upon simple majority rule are showcased. These tensions need to be resolved.

VII.   A SAMPLE METHOD OF RESPONSE: THE CONCURRENT MAJORITY

Ethnic groups have an unexpected friend in 19th century American political theorist John C. Calhoun. Many will find this alliance to be ironic because Calhoun was a stalwart defender of a social and cultural elite that exploited racial and/or ethnic minorities (such as the 19th slave population of the United States).

In this regard, liberal American historian Richard Hofstadter (1948) observes "Not in the slightest was [Calhoun] concerned with minority rights as they are chiefly of interest to the modern liberal mind – the rights of dissenters to express unorthodox opinions, of the individual conscience against the State, least of all of ethnic minorities". This point is well taken, Calhoun was an apologist who supported slavery and the privileged classes that benefited from it.

In spite of championing an elite gentry that gained fortunes using slave labor, Calhoun grappled with how to protect the rights of minorities even when outvoted. Although most progressive people today have little sympathy for the "minorities" that Calhoun defended, his logic and thinking, nevertheless, provide generic tactics that can be used to shield any group against the tyranny of the majority. The particular theory that Calhoun developed in this regard is usually called the "Concurrent Majority". It asserts that factions have a right to protect their interests, even if outnumbered.

Calhoun's thinking arose in the early 19th century when strong tensions existed in the United States between the industrialized North and the agrarian South. The existence of slavery was a key issue, but not the only one (as demonstrated by arguments over tariffs which seemingly benefited the North at the expense of the South). Calhoun's fear that the minority might be downtrodden by the majority was not unreasonable, and he had repeatedly seen the federal government unlawfully do so.

On March 3 1832, for example, the United States Supreme Court decided "Worcester vs. Georgia" a case that affirmed that the states (which reflect the will of the local majority) had no authority to meddle into the affairs of the American Indians (a minority) that resided in its territory. The case was brought to the Supreme Court by an individual who had been detained for breaking a Georgia law that interfered with the rights of indigenous people to have unregulated contact with whites.

The United States Supreme Court declared that these laws enacted by Georgia were null and void. Andrew Jackson, president of the United States at the time, however, disagreed and took no action. He is reputed to have said "[Chief] Justice Marshal has made his decision, now let's see him enforce it." Since the court had no control over the military, Georgia was not forced to comply. In other words, the administration of the United States (voted into office by a white majority) denied a minority, composed of indigenous people, their legitimate rights in conscious disregard for the law.

Later in the same year, Calhoun and his state of South Carolina rebelled against President Jackson in what is called the Nullification Crisis. "Nullification" is the long standing principle that if a federal law is illegal, the states may ignore it. At the end of the 18th century, the nullification argument had been

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employed by Thomas Jefferson and James Madison in their opposition of the Alien and Sedition Acts (as articulated in Thomas Jefferson's *Kentucky Resolution* and James Madison's *Virginia Resolution*.) As a result of such precedence, South Carolina was in familiar territory when it sought relief by cancelling what it felt were illegitimate federal laws. On November 24, 1832, South Carolina passed a law nullifying the tariff within its territory and threatened to secede from the United States. President Jackson stood firm, declared that such action was treason, and threatened military intervention. Eventually a compromise was reached and the immediate crisis subsided. The underlying belief in nullification, however, remained among the Southern states, emerged as its rallying cry, and prepared the nation for Civil War.

The American Indian Removal Act of 1830 and the forced migrations of Eastern Indians to Oklahoma that it mandated is an even more blatant example of minority rights being denied by the federal government. Jackson's brutal "ethnic cleansing", known as the Trail of Tears, is one of the greatest injustices in American history. These actions were an illegal, shameful, and a flagrant denial of the legitimate rights of a minority. Without doubt, Calhoun was well aware of these examples of the tyranny of the majority.

This was the situation when Calhoun sought strategies for protecting the rights of minorities who were threatened by majority rule. In general, the term "concurrent majority" refers to methods which help an outvoted minority (however defined) to block the initiatives and desires of a majority. As might be expected, such remedies are popular among subgroups that feel that, otherwise, they might not be treated with parity and equity.

VII. MODERN APPLICATIONS IN THE HINTERLAND

As indicated above, in Calhoun's era the agrarian cotton planters of the Southeastern United States were outnumbered by the more populated Northern industrialists. In such an environment, Calhoun feared that the Northern majority would unjustly shift laws and economic policies (such as tariffs) to their advantage at the expense of the South. To avoid this possibility, Calhoun insisted that minorities must possess an ability to maintain their way of life, even when the majority is hostile to it. This basic reasoning continues to be a strong justification for the rights of minorities, such as ethnic groups. On many occasions, for example, indigenous peoples, such as the Maya of Belize, assert their traditional rights in ways that overtly contradict the will of the majority. They justify doing so by arguing that protecting these rights is a key to their survival as a people. They have found support and success when doing so.

Consider the example of the Crimean Tatars (Shevel 2014, Kinstler 2014, Balson 2015), an Islamic people, primarily Sunni, who are of Turkish descent. These Tatars have been the local people of the Crimea (an area bridging the Middle East and Central Asia) for hundreds of years. They have a better claim at indigenous status in the area than anyone else.

In the late 18th century, Russia defeated the Turkish Empire and took over the Crimea. This political shakeup was followed by a mass migration of ethnic Russians into Crimea, making the Tatars a minority in their own land. During World War 2, the Tatars were accused of collaborating with the Germans against Russia and a mass exile resulted. Today, the remnants of this indigenous group constitute only about 15% of the total population.

When the Crimea was a part of the Ukraine, the Tatars were granted a significant degree of autonomy. Currently, Russia, once again controls, Crimea and what the future holds for these people is uncertain. Nonetheless, a Tatar leader Refut Chubarov has called for an autonomous Tatar region to be established.

Although minorities such as the Maya and the Tatars are very different from the plantation owners who Calhoun defended, the situation they face is largely the same. They all oppose an eroding of the freedom to practice and enjoy their way of life. Calhoun developed the theory of the concurrent majority as a

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defense against the tyranny of the majority, and his logic is as strong today as when it was written in the early 19th century. Calhoun's writing, furthermore, is consistent with well-respected political theorists, including liberals such as John Stuart Mill who wrote the celebrated *On Liberty* (1859).

When decisions are made purely with reference to majority rule, subgroups can emerge as losers in an inequitable power-grab that favors the numerical majority at the expense of minorities. Calhoun sought to control the tyranny of the majority using methods that protect minority rights. In this regard, Calhoun rhetorically asks, "How can those who are invested with the powers of government be prevented from employing them [from] aggrandizing themselves instead of using them to protect and preserve society" (1851 271-272). Because of this potential misuse of power, Calhoun argued that minorities must possess the ability to prevent their rights from being annulled and their legitimate wishes and priorities from being ignored.

Providing these protections can be justified by complaining that without them the will of the majority can be forced upon minorities in hurtful, burdensome, and unfair ways. This potential is especially strong and oppressive if the minority is significantly distinct from the dominant majority (as is the case with many ethnic groups).

Perhaps in a small and homogeneous community, simple majority rule might function effectively and equitably. As the population rises and divisions and differences between segments of the population expand, however, this ability is reduced. Recognizing this reality, Calhoun observes "the more extensive and populous the country, the more diversified the condition and pursuits of its population; and the richer, more luxurious, and dissimilar the people, the more difficult it is to equalize the action of the government" (1851 273).

Under these conditions, Calhoun concludes that it becomes "more easy for one portion of the community to pervert its powers to oppress and plunder the other" (1851 273). This, of course, is exactly the complaint that is made by many ethnic groups whose lands are dominated by forces that attempt to transform or eliminate minorities in ways that accommodate the powerful or the majority.

Calhoun's basic point is that the mere will of a majority does not give it the right to destroy the way of life of a minority. Ethnic groups can use Calhoun's theory of the concurrent majority to affirm and justify rights that pure majority rule can easily undermine. Calhoun, furthermore, recognizes that the greater the difference between people, the more likely that majority actions might prove inequitable to minorities. Under these circumstances, methods for transcending raw "majority rule" are likely to be needed.

VIII. DISCUSSION

This paper is not presumptuous enough to assume that an example from the 19th century United States can be generalized for application elsewhere, such as in the Middle East and adjacent regions. The use of this specific example merely illustrates that minorities, including ethnic groups, need to embrace their distinctiveness, on the one hand, while recognizing the inevitable reality of change and its challenges, on the other.

As David Maybury-Lewis (1977) indicates, cultures are not necessarily destroyed by contact with the outside world and the pressures of change. If given a chance, most societies and their heritage have a profound ability to adapt. Variation and diversity, furthermore, can be strong and invaluable assets. This is true in the Middle East and elsewhere.

Change and the rivalries between peoples, however, often take a toll. This can be especially true if rapid and unmitigated transformations are forced by outside pressures. Under many circumstances, people find themselves unable to achieve socially acceptable goals in socially acceptable ways. This situation can lead to anomie coupled with the estrangement and bewilderment it often causes.

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All too often, the responses to anomie are hurtful and dysfunctional. This is what we saw in the examples of the ghost dance, the cargo cults, and the Cultural Revolution. Positive examples, however, such as those associated with Handsome Lake and Harold Napoleon can also be found. These positive examples demonstrate how cultures can adapt and prosper while maintaining their distinctiveness and essence. These examples prove that cultural preservation can be combined with an appropriate adaptation to new circumstances.

The vast majority of the world's countries believe that people, as individuals, should have rights to what most generally can be viewed as self-determinism and an appropriate degree of freedom (as defined by the specific nations). Many of these jurisdictions, however, possess few mechanisms to protect distinctive groups of people (such as cultures and ethnic minorities). As argued above, however, cultures and traditions often need to remain strong and vital in order to nurture those who are members of these groups.

A threat that often needs to be overcome when people face new realities is the "tyranny of the majority" in which powerful outside forces mandate that people adjust in ways that reflect the will of the majority or the powerful. Under such conditions, self-determinism and the process of equitable and orderly cultural transformation can be undercut.

Minorities (measured either demographically or with reference to power structures) need methods to resist these tendencies. Especially when smaller or weaker ethnic enclaves are distinctive and/or their situations are different from those who dominate, full human rights and self-determinism might not be available to these peoples. Under these conditions, small and distinctive enclaves often require proactive and additional protections. The method of the concurrent majority is one illustrative example of how these goals can be accomplished.

These are issues that impact the Middle East. The region (and the adjacent areas of North Africa and Central Asia) are the home to a wide array of distinctive peoples. Many small minorities are vastly outnumbered. And yet, their human and cultural rights need to be protected. By resolving these tensions and dilemmas, cultural diversity can emerge as a powerful and treasured asset, not as a source of division and strife. When that day comes, the Middle East and it people will be poised to prosper and live in peace.

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EMPOWERING SOCIAL ENTREPRENEURSHIP: EVIDENCE FROM MOROCCO IN NORTH AFRICA

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ABSTRACT

Our purpose through this paper is to demonstrate that cooperatives are an empowerment lever for rural women in morocco. We would like to prove that social entrepreneurship for women coming from rural disadvantaged environments (Lack of resources, Limited access to education, Limited revenues…) can help them develop six dimensions of their empowerment: self-esteem, mobility, leadership, and social network. We will build our empirical exploratory study on a qualitative methodology, trough the study of five cases of women working for a beekeeping cooperative in the Ouazzane region in the north of Morocco.

Keywords: social entrepreneurship, empowerment, cooperative, Morocco.

I. INTRODUCTION

Morocco is a country that has undergone several economic and social reforms in the last 10 years. Conscious of the importance of human capital in a country's development, Morocco has focused on strengthening the role of women in society. The "new moudawana" or the new family code, implemented in 2004, embodies this desire to strengthen women's role in society and, above all, to place men and women on an equal footing.

Despite these initiatives, the Moroccan woman's situation is still problematic. In 2016, Morocco occupies the 137th position out of 144 countries, whereas it occupied the 127th in 2010 (The Global Gender Gap Report, 2016[13]). For gender issues, Morocco ranks 133 out of 142 countries in 2014, when it occupied the 127th place in 2010. It ranks 135th in the women's economic participation and 116 out of 128 countries in the effectiveness of women's economic empowerment policies and measures. Morocco is 24th out of 30 in terms of policies and mechanisms to support high potential women businesses and is amongst the countries with conservative cultures regarding the acceptance of the socio-economic role of women in society.

In terms of demographic characteristics, Moroccan women are relatively young, more than two thirds (67.4%) are under the age of 45. As for their marital satatus 56.5% of Morrocan women are married, 31.1% are single, and 12.4% are windowed or divorced, according to the "Haut Commissariat aux Plans", 2013. The same source, states that nearly 12.3 million women are of working age (15 years and older). 60.3% of these women live in urban areas and more than half of them (52.6%) are illiterate. In 2012, women's employment rate stood at 22.3% against 67.2% for men. In 2000, these two indicators were respectively 24.5% and 68.2%. In 2014, the illiteracy rate for women over 10 years old in rural areas is 60.4% and the activity rate for women in rural areas is 7.5% (54% for men), while the unemployment rate for rural women is 23.5% (8% for men).

As advocated by the great majority of international institutions, entrepreneurship and social entrepreneurship can be a solution to overcome this precarious situation in which the Moroccan woman lives. Several researchers endorse the role that social entrepreneurship can play as a strategy for economic and social development. This strategy has been a great success for many countries, especially in India, where social entrepreneurship through the cooperative sector is a lever for the social and economic development of marginalized female populations (Datta and Gailey, 2012; Kisior and Gupta, 2004; Sen, 1997). It is also the case in Bangladesh where entrepreneurial activities and microfinance are a strategy to fight marginalization and poverty (Mahmud and Tasneem, 2014, Mahmud et al., 2012, Kabeer, 1999).

The interest that the field of social entrepreneurship knows today is not fortuitous. It meets a need to ensure a development from the bottom up, to integrate the poorest and most marginalized, through a response tailored to their social needs. Indeed, the driving force of social entrepreneurship is the creation of social added value (Austin, 2006), through the creation of social change and social impact (Martin and Osberg, 2007; Austin, 2006).

We position ourselves in this perspective, in which social entrepreneurship is a response to social needs and plays the role of a catalyst to social change. For our study, we will refer to the empowerment approach in order to identify the social changes that social entrepreneurial activity can bring, such as working for women's cooperatives, in a context of developing countries, specifically Morocco.

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[13] https://www.weforum.org/reports/the-global-gender-gap-report-2016

The purpose of this contribution is to understand how social entrepreneurship can be a driving force to the empowerment of rural Moroccan women. Precisely, we seek to understand how working for women's cooperatives can help women from a constraining environment (lack of resources, limited access to education, limited income, etc.) to develop five dimensions of their empowerment, namely: Decision-making, control of resources, self-esteem, mobility and leadership.

II.   SOCIAL ENTREPRENEURSHIP

In the field of entrepreneurship, value creation remains a central issue (Alvarez and Barney, 2007). The broadening of this notion of value in social entrepreneurship has attracted a lot of interest from researchers and academics in the field of strategic management and entrepreneurship (Austin, Stevenson and Wei-Skillern, 2006; Certo and Miller , Peredo and Chrisman, 2006, Schendel and Hitt, 2007).

Despite interest in this new area of research, the definition of social entrepreneurship remains blurry. It sometimes refers to for-profit organizations and others to non-profit organizations or even the public sector (Christie and Honig 2006, Weerawardena and Mort, 2006).

In that sense, certain definitions limit social entrepreneurship to nonprofit organizations (Lasprogata and Cotton, 2003), while others describe it as for-profit enterprises run by non-profit organizations (Wallace, 1999), or organizations that create a business with financial loss (Baron, 2007). Still others equate social entrepreneurship with philanthropy (Ostrander, 2007), while some researchers adopt broader definitions that link social entrepreneurship to individuals or organizations engaged in entrepreneurial activities with a social objective (Certo et al. Miller, 2008, Van de Ven, Sapienza and Villanueva, 2007).

Our research is based on Mair and Marti (2006)'s definition, in which they define social entrepreneurship "*As a process involving the innovative use and combination of ressources to pursue opportunities to catalyse **social change** and/or address **social needs**"*. We draw from this definition that social entrepreneurship is a process of value creation through a combination of different resources. It aims to explore and exploit opportunities for the creation of a social added-value through the stimulation of social change, or by responding to social needs.

In our study, we will take a rather specific entrepreneurial form, namely, Women's cooperatives. The cooperative is a form of organization that initially belongs to the sector of social and solidarity economy, but it aligns with the spirit of social entrepreneurship. It is an "autonomous association of people who are united voluntarily to satisfy their common economic, social and cultural aspirations and needs through a jointly owned and democratically controlled enterprise[14] ".

We define women's cooperative as "*a form of social entrepreneurship, insofar as it acts as a catalyst for social change, bringing together women and pooling a specific set of resources to create an autonomous entity which will enable them to have a positive impact on several levels*" the cooperative contributes to the improvement of the living conditions of its members. It stimulates positive economic and social changes in the direct environment that surrounds it and can play a key role in national and even international development.

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[14] http://ica.coop/fr/node/10584.

III. EMPOWERMENT

The word "Empowerment" is derived from English and refers to "Power". This word was used by the feminist movement in the 1980s to define an alternative approach to the development of participation practices "coming from the bottom" or from the south.

The literature on empowerment is very rich and covers so many disciplines such as sociology, anthropology, demography, and economics, that it is difficult to fit it into a single definition. "Gender equality"," women's autonomy "," women's status "," women's empowerment ", are often terms used to indicate the same thing.

The definition of Empowerment has never been free from controversy or difficulties. They all arise from the latent character of the phenomenon, which means that it is not directly observable (Narayan-Parker, 2005). The actions or the overall results can be observed, but the internal dynamics of the phenomenon is much more difficult to examine or evaluate.

Researchers define women's empowerment as improving women's ability to access development components, particularly health, education, income, rights and political participation (Duflo, 2012). It was also defined as a dynamic process of change by which "those who have been denied the opportunity to make choices acquire such capacity" (Kabeer, 1991). In other words, empowerment implies the existence of a process of change. People who have the opportunity to make choices in their life can be very powerful, but they are not empowered because they have never been helpless before.

However, to be relevant in the analysis of power, the notion of choice must be nuanced. First, having a choice implies the existence of alternatives, the ability to have chosen otherwise. Since survival imperatives are more dominant, choices are not all equally relevant to the definition of power. Some choices are more important than others in terms of their consequences on people's lives. Kabeer (1991) makes a discrepancy between two types of choice. The first category represents first-order choices or strategic choices, such as the choices regarding the means of subsistence, where to live, get married, have children, how many children, have freedom of movement and the choice of friends. These choices are essential for individuals to live the life they want, and help define other second-order choices that are less direct sequential choices that may be important to the quality of life but are not its parameters of definition.

IV. SOCIAL ENTREPRENEURSHIP, LEVER TO RURAL WOMEN'S EMPOWERMENT

Entrepreneurship is seen by many researchers as a mean of value creation, coping with poverty and promoting social and economic progress (Bruton, Ketchen, France, 2013, Tobias, Mair, & Barbosa-Leiker, 2013). It is also an activation tool for the poor to integrate them into development.

In developing countries, especially in rural areas, the situation of women remains one of the most critical (a higher illiteracy rates, a more restrained access to resources ...), the development of these regions is conditioned by the improvement of women status. Per Faleye (1999), women's development not only reduces poverty by increasing productivity, but above all it ensures the empowerment of women.

Aware of this fact, several international institutions and programs have focused on entrepreneurship to improve the situation of rural women, through income-generating activities, micro-finance, and creation of micro-enterprises, cooperatives and associations.

Entrepreneurship plays a very important role in creating employment for rural communities, especially for women. It improves the economic and social situation of women through an increased income, a better control and mobilization of resources, an improved self-esteem (inner transformation), and the education of children (Sharma & Varma, 2008).

Several researchers and international organizations have worked on the entrepreneurial potential of rural women, aiming to develop the empowerment of rural women from a disadvantaged background (lack of resources, limited access to health and education, limited income ...). Indeed, women entrepreneurs are the two direct and indirect leaders in their communities, especially in emerging economies. Entrepreneurship, especially social entrepreneurship, allows women to use their earned income to support their households and their families, thereby improving their living standards and gain more autonomy (Ahl, 2006; Calas, Smircich, et Bourne, 2009; Coleman, 2004; Minniti, 2009; Minniti, Arenius, & Langowitz, 2004; Rindova, Barry, & Ketchen, 2009). Women entrepreneurs are also an example for other women (Morris & Brennan, 2003).

Several researchers have tried to measure the empowerment of women engaged in entrepreneurial activities, either in cooperatives, such as in India, or micro-credit (India, Bangladesh, etc.). The flagship model of empowerment measurement remains that of Kabeer (1999), which focused on measuring the three dimensions of empowerment, i.e. resources, capacity for action and outcomes.

This model has strongly inspired several researches such as the model proposed by Jejeebhoy (2002b) to measure the autonomy of women, which is a notion close to empowerment to take control of their own life, in relation to their family, community and society. Mahmoud et al. (2012), have also drawn inspiration from the Jejeebhoy model (2002) to develop a model for measuring the empowerment of married women in Bangladesh, with focuses on the dimensions and determinants of these women.

Our goal is to propose a theoretical model that is adapted to our context, with the realities and constraints specific to rural Moroccan women. We have tried to review all the models proposed in the literature, in several contexts, and to propose a synthesis model. This approach allowed us to make a proposal for an a new model, since no researcher has attempted to verify the combination of dimensions put forward in our research model.

Our theoretical model is as follows:

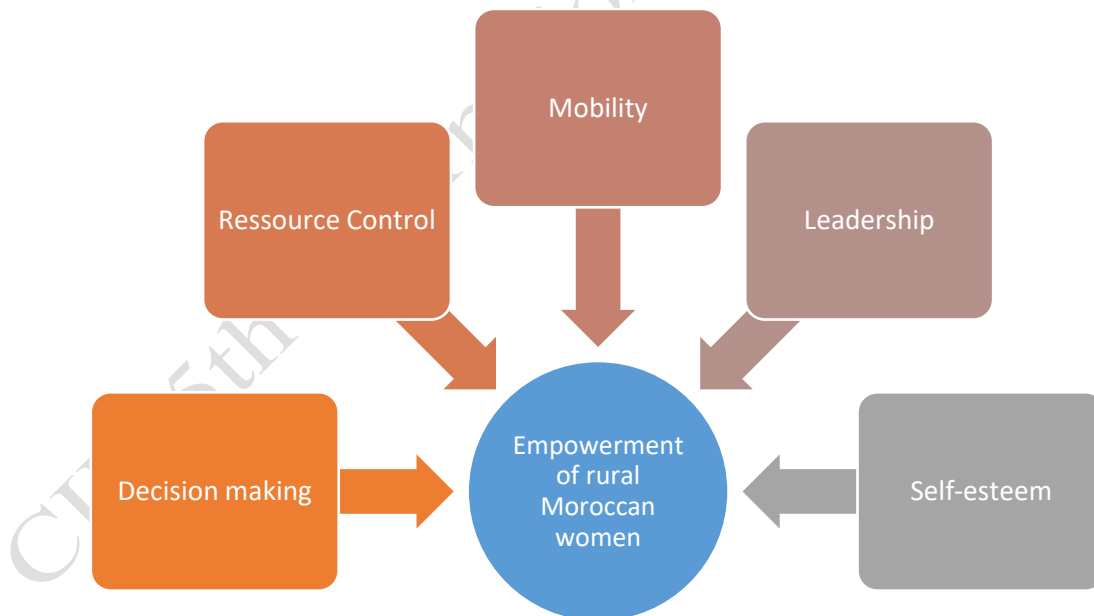**Figure 1: The empowerment dimensions of rural Moroccan women developed through social entrepreneurship (Adapted from Jejeebhoy (2002b)).**

- *Decision making:* one of the most discussed dimensions in empowerment measurement models. Decision-making emphasizes the ability of women to make important decisions in their household. Jejeebhoy (2002b) split this section into two parts, the first relating to economic decisions

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(food, major household products and jewelry purchases), the second refers to decisions about children (the number of children to have, medical care, schooling ...).

- ***Resource control:*** this index is summarized by the possibility of having the money and spending it as one pleases. It can be summarized through the answer to four questions: (a) having a say in how to spend household income, (b) obtaining money to spend, (c) freedom to buy jewelry and (d) the freedom to buy gifts.

- ***Mobility:*** represents the movement ability to women without requesting permission from the husband, or having the right to travel alone, without a chaperone. The study by Mahmud et al (2012) focused on where the woman moved in the past year, including a meeting or gathering in the village, her father's house, parents' friends outside the village.

- ***Leadership:*** this dimension was the subject of a study by Al Adajanij and Marlow (2013), to study the relationship between entrepreneurship and empowerment. In the longitudinal study of Al Adajanij and Marlow (2013), this dimension is highlighted by two factors: the woman's ability to influence other women and her ability to play a role in her environment

- ***Self-esteem:*** The self-esteem dimension of empowerment is the least observable and is not commonly presented in empowerment research (Basu & Koolwal, 2005). This dimension was presented in a flagship model for measuring empowerment, of Mahmud et al (2012). In this study, emphasis is placed on two elements. The first relating to what women think of their involvement in decision-making and what types of decisions they must take. The second element relates to their perception of physical violence against women. That is, what do they think of physical violence? Is it justified? And if so, in which cases?

V. METHODOLOGY

The vast majority of work on women's empowerment has attempted to measure quantitatively the dimensions of empowerment developed in some entrepreneurial activities (Mahmud, S., Tasneem, S. (2014), Aboukhsaiwan, (2014) Mahmud Et al (2012), Kishor and Gupta, (2004) ...). Very few have adopted a qualitative method to understand the phenomenon in its depth (Datta and Gailey, (2012), Kabeer (1997 and 1998)).
Qualitative studies of empowerment strive to highlight the process through in-depth interviews and case studies that track women's life changes through their life stories. G. Sen (1993) suggested that the process of empowerment is essentially qualitative in nature. This idea was reinforced in the work of Kabeer (1997). The latter suggests that the evaluation of the process is not only qualitative but subjective. This subjectivity is explained by considering women's interpretations of their own empowerment.

In our research, we have chosen the qualitative method to understand how social entrepreneurship, through work in cooperatives, can help rural women develop 5 dimensions of their empowerment.
The choice of the qualitative method is due mainly to the complexity of the phenomenon of empowerment. Our goal is to understand the meaning that women attribute to empowerment as a social reality. In this sense, the qualitative method (Yin, 2000) remains the most appropriate to understand the meaning attributed by an individual or a group to a given social phenomenon or reality (Deslauriens, 1991, Huberman and Miles, 2003). This method will also allow us to give people the opportunity to take a critical look at their own situation.

We choose the case study of 5 women working in "AL AMANA" cooperative of beekeeping in the rural commune of "MZAFROUNE", region of Ouazzane in the north of Morocco. The choice of this cooperative is based on the recommendation of the " Maison de l'Economie Sociale et Solidaire" which played a facilitating role between the researcher and the population to be studied.

The contact with our target was first made via a call with the president of the cooperative to explain the purpose of our research and to agree on the characteristics of the women who can intervene in our study. Then we traveled there to have direct contact with the population and to be able to observe the living conditions of these women very closely.

The choice of these women was made on a voluntary basis. We chose the women volunteers who responded positively to our request and who gave us time. We have ensured that these women have the following characteristics: aged between 25 and 65, married, with children preferably, with at least one year's experience in the cooperative, and residents in the study area for a minimum period of 5 years.

Data collection:

The collection of data is ensured by two tools: the organization of a focus group, and semi-directive interviews. The interview guides for the focus group and semi-directive interviews were originally written in French and then translated into dialectal Arabic by a translation teacher. The objective was to ensure a good understanding of the questions, and above all to minimize the biases associated with a word-for-word translation, which can distort our investigation.

The focus group as well as the semi-directive interviews were conducted in dialect Arabic in the house of the President of the cooperative. The duration of the focus group is 46min, and the average duration per semi-directive interview is 45min per participant.

With the permission of all participants, the focus group and all the interviews were recorded. The focus group transcription was done the same day, to have a first approach to the phenomenon, and to see if there are new dimensions of empowerment that emerge, to integrate them in the semi-directive interviews. These were transcribed as and when. The retranscription was not an easy task, considering the difficulty of translating the dialect Arabic into French again, while capturing the meaning given by these women to their experiences, impressions and, above all, perceptions. To minimize translation bias, we requested a re-read by another researcher to confirm the translation process.

Data analysis:

The qualitative analysis of the data was undertaken manually. The themes emerged from this analysis highlight two key elements: the entrepreneurial motivations of rural women, and the dimensions of empowerment developed through social entrepreneurship activities (see Table 1).

Table 1: Presentation of the identified themes

Identified themes	
Entrepreneurial motivations	***Empowerment dimensions developed by SE***
1. Economic motivations; 2. Social motivations;	3. Decision-making; 4. Control of resources; 5. Mobility; 6. Leadership; 7. Self-esteem; 8. Social capital;

Examples of the data are presented in the following section to illustrate the emergence of the different dimensions of empowerment, through the presentation of the narrative fragments extracted from the semi-directive interviews.

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VI. RESULTS

The "AL AMANA" cooperative of beekeeping is a cooperative in the northern region of Morocco. This region has more than 1650 cooperatives and represents 12% of the national workforce of cooperatives. Ouazzane counts 15% of the cooperatives of the region with a very high concentration of these in the rural communes.

Created in 2012, the cooperative "AL AMANA" of beekeeping, is a women's cooperative of the Douar of MZAFROUN, a rural commune of the region of Ouazzane. There are 8 women members. Inspired by a cooperative model of a neighboring douar, a group of women decided to embark on cooperative work, creating a women's beekeeping cooperative. The cooperative is open to all women who want to work in beekeeping for a fee. Generally, all adherents are women belonging to the same douar, with a very low level of education for some, and a large proportion of the adherents are illiterate. The following table provides a description of the women who participated in our study:

Table 2: Profile summary of the women interviewed

Name	Age	Education level	Marital status	Number of children	Role in the cooperative
Hayat X	27 yrs	3rd year Mid.School	Married	without	Secretary
Aicha Y	40 yrs	Illiterate	Married	3 children	Member
Badiaa Z	36 yrs	Illiterate	Married	3 children	Member
Samira XX	37 yrs	Illiterate	Married	4 children	Treasurer
Attika YY	35 yrs	3rd year Mid.School	Married	5 children	President

The analysis of the focus group and the semi-directive interviews highlights two important elements: the entrepreneurial motivations and the dimensions of empowerment developed by the social entrepreneurship of rural women.

The entrepreneurial motivations of rural Moroccan women:

Understanding women's motivations to join a cooperative is an intermediate goal that will allow us to understand the elements they seek to develop in their lives. Implicitly, these motivations can shed light on the dimensions of empowerment that these women seek to develop. The motivations for joining a cooperative, as expressed by these women, can be grouped into two categories:

- *Economic motivations:* the highly constraining context in which women live in the rural world in Morocco, especially the Ouazzane region, has meant that these women first seek to improve their material situation through the development of activities generating income. Although the income generated by the co-operative has so far remained very limited, the women of the Al Amana cooperative had many expectations, especially in terms of financial income. Badiaa (36) stated that:

"(...) at the begining, we saw that women from another aromatic and medicinal herbes cooperative were making a lot of money. They participate in several exhibitions in other cities. When Attika told me about the creation of the cooperative, I thought, why not, if this activity will allow me to have a little money for myself and my family. With my husband's limited income, one more income will improve our situation. Children grow up, and their needs increase ... "

- *Social motivations:* although financial income is certainly an important motivator, the development of social resources is not less important. The women of the Al Amana cooperative have

all emphasized the need to develop their social relationships with their environment in order to emerge from their isolation and gain confidence. The following stories illustrate these points:

"(...) I wanted to create a hobby for the women of my douar. You know, we're in a fairly isolated area. We do not have the opportunity to meet new people who can teach us new things. Our husbands leave in the morning to work and do not return until late at night. We spend our days cleaning and caring for the children. Our life revolves around this routine "(Samira, 36, treasurer).

"I can't lie to you, at first, it was difficult for me to talk to a man, even from the same douar. It was hard to go get an administrative paper, it was really difficult for me. My husband was not there, so I had to fend for myself. One day I met a woman newly settled in a neighboring douar. She was sure of herself, and knew and approached everybody, even though she is new to our region. I realized later that she runs a women's cooperative. She really impressed me. When Attika (the president of our co-operative) offered us the idea of creating our cooperative, I did not hesitate, because for me joining the cooperative will enable me to resemble a little that woman "(Hayat, 27 , Secretary).

The dimensions of empowerment developed by social entrepreneurship:
This combination of empowerment dimensions was based on this approach's literature review, basically based on the Jejeebhoy model (2002b) and Mahmoud et al. (2012). Each of these proposed dimensions has been recognized in the literature, but the proposal for such a combination was only undertaken within the framework of our research, in a Moroccan context. Our qualitative study allowed us to enrich our proposals by adding a new dimension to the empowerment of rural women, namely social capital. Indeed, the development of social capital as a dimension of empowerment has been little developed in literature as a dimension of empowerment, we have integrated it into our research as a new dimension developed by the cooperative work of rural women in Morocco.

- ***Decision-making and control of resources:*** this dimension of empowerment is not developed by cooperative work in our study. The women interviewed all assert that co-operative work has not affected household decision-making at all. In fact, culturally in this region, all the important decisions concerning children, the home and the various purchases of the family are taken by the women. The husband's work is the main source of income for the household. Women are often the ones who decide how and when to use these financial resources.

"Generally we do not have this problem. Here, the husband works and gives all his revenue to his wife and it is she who manages it. I give you an example, if we want to make big adjustments in our house. I'll save money, and once the money is ready, I'll tell him we have to start work and here's the money to do it "(Hayat, 27).

"(...) all the decisions in our home depend on me. My husband does not intervene in any decision. For me this is not a good thing, on the contrary, it irritates me. Everything, absolutely everything depends on me, especially when I started working in the cooperative. He tells me you integrated the world of work, he gave me full responsibility. He does not even tell you a no. What he does is that he works hard and brings you all of his gains and asks you to manage them as you see fit "(Attika, 35).

"(...) before taking any decision, traveling, spending money, whatever, he consults me beforehand" (Aicha, 40).

We can say that on this basis, and in our context, decision-making is a cultural fact specific to the region of Ouazzane. Cooperative work did not change this, as women took and continue to make important decisions for the family.

- ***Mobility:*** This dimension is one of the dimensions of empowerment that all the women interviewed spontaneously evoked during the focus group. In rural areas, the mobility of women is conditioned by several elements, like the husband's agreement or having a close family member in the city to visit. All the semi-directive interviews, emphasized the role of the cooperative in creating opportunities for visiting other cities. All women had the opportunity to visit at least two new Moroccan cities, which they had never visited before, without the husband's accompaniment, and without having

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a family member in that city. The following remarks illustrate the role of cooperative work in developing the mobility of rural women:

"The change is there, for example, we visit new cities, like Tetouan, I never had the opportunity to visit this city before, last year we had a training in Bouznika, that we had never visited before. We also visited international exhibitions that were shown on television. All of this is different from before. The truth is this profited us "(Samira, 37).

"(...) when I travel and discover new things, I feel it is something very important and very rewarding. Like when I was in Casablanca, it was a dream for me, even Assilah I had the opportunity to visit it only in the context of the cooperative "(Samira, 37).

- ***Leadership:*** This dimension is highlighted through two elements: the woman's ability to influence other women, and her ability to play a role model in her environment. For the women of Al Amana cooperative, we found in during the interviews and focus group that this dimension does not exist in all the women interviewed. On the one hand, we have seen that this dimension is developed by the President of the cooperative Mrs Attika Chhiba, who had the idea of creation and who influenced all the women by convincing them to join the cooperative, and who at the same time is a role model, since several women said that Attika was a model of a woman who has "Power" and to whom they want to resemble.

" (...) Yes indeed. When I was pregnant with Sourour, it was very bad. I really wanted to quit the cooperative as I had health concerns. They all told me they would sue me if I did. A woman member tells me if you leave, there is a great risk that the cooperative will be dissolved "(Attika, 35, President of the cooperative).

Hayat (27) secretary of the cooperative and who ensures literacy courses for the benefit of Douar women specifies that:

"Yes I feel that I am a model especially when I give courses to these women. I feel they want to be like me. Sometimes they tell me they want to work but they are not educated like me. I really feel that they like what I do. In their eyes, I see my change, I feel that they like what I have become. Many tell me, I want to participate with you or be like you. There are those who have constraints such as their husbands don't let them join the cooperative, they come to see me and tell me, if only I am like you, I want to work in the cooperative, better than to remain without occupation, and even better than working outside in agriculture "(Hayat, 27).

- ***Self-esteem:*** changing her position from an inactive woman to an active woman has profoundly affected self-esteem and the image that a rural woman has of herself. Focus group participants emphasized the importance of cooperative work in improving self-esteem for these women. The perception of the other reinforces this idea, especially for certain members of the cooperative who are role models to other women.

"My life before the cooperative was a daily routine between housework and looking after children, our lives revolved around the children and the house. Now, what we can say about our situation is that we feel we have value, even if the woman has always had value, but through cooperative work, women acquire more value, we can even say that we developped a "Power". We feel that we aren't afraid anymore "(Attika, 35 years).

- ***Social capital:*** According to Coleman (1990), social capital represents the relational resources that individual actors can mobilize through their networks of social relations. It can be defined as "the sum of real and potential resources integrated, available, and derived from the network of relationships possessed by an individual or a social unit" (Nahapiet and Ghoshal, 1998). It allows the use of social resources for economic purposes (Coleman, 1988; Burt, 1992). During the discussions with the women of Al Amana cooperative, several of them spontaneously spoke of the development of knowledge either of other members of other cooperatives or associations or of contacts in administrations. These new

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contacts constitute for these women a network to develop the marketing of their products and the development of social services offered to the population. The words of Attika, President of the cooperative, illustrate this idea:

"We gained a lot and it even benefited the whole region. The cooperative allowed us to meet new people. We subsequently created an association, to help our region, but overall to participate in the development of our country. Look at the example of the medical campaign: we call on an association in the region of Sefrou, which is a region far from our own. We will offer free medical services, free counseling and even free medicines to the douar people. We are bringing new and very important things to the people"(Attika, 35, President of the cooperative).

This knowledge network also affects key people, such as government officials, including the Caid, the Governor, and even some ministers. Samira, the treasurer, explains that the women of the cooperative are the first to receive the Governor of the region during his first visit to their douar:

"(...) For example, when the Governor is received, people notice that the women in the co-op are the first to meet him and talk to him about the needs of the people. The same is true of a senior official. They say that the women of the cooperative are advancing while the others have stayed where they were. Attika, the president always goes to meet the leaders to share with them the difficulties of the people of the region, and makes certain requests which often happens to have a favorable response. But the others who are not in the cooperative, they have nothing to exchange with the Governor, or the other officials. They do not have the courage to talk to them, they cannot approach them "(Samira, 37, treasurer).

VII. DISCUSSION

In our study of the impact of social entrepreneurship on the empowerment of rural women, we tried to understand how working in cooperatives as a form of social entrepreneurship can help rural women develop six dimensions of their empowerment.

Our conceptual and empirical work has enlightened us on the entrepreneurial motivations of rural women and on the dimensions of empowerment developed by social entrepreneurship.

As far as the entrepreneurial motivations of rural women are concerned, they are summarized in economic and other social motivations. Out of a very constraining rural environment, rural women first seek to increase their income in order to improve their living conditions, and those of their children. On the social level, the rural woman lives in a situation of isolation and confinement. She seeks, through social entrepreneurship, to develop new social relations with her environment in order to be more aware of what is going on around her and above all to gain confidence.

Social entrepreneurship, in the Moroccan case, more specifically in the northern region of Morocco, allows women to significantly develop four dimensions of their empowerment: mobility, self-esteem, leadership and social capital. The other two dimensions proposed in the literature on empowerment are not due to social entrepreneurship. Decision-making and control of resources exist in the region as cultural data. In the northern region, the woman manages her household autonomously, and does not need the authorization of her husband to manage the family income. She is also consulted for all important decisions concerning children and her household. This conclusion confirms the importance of the context of empowerment (Kabber, 1999). Indeed, the particular paths of change vary from one context to another. All women may not live or experience empowerment in the same dimensions, and what is true in India or Blangladesh may not be true in Morocco or Tunisia. Even in the same country, empowerment can be experienced differently in the same region and from one region to another. This is particularly evident given that cultural differences, the level of education and age of households can play a large influence on empowerment. This data related to the context made us choose to focus on a particular region, to reduce the biases related to cultural differences between the different Moroccan regions.

The field study of five women from Al Amana cooperative confirms the idea of different levels of empowerment for women living in the same context and sharing the same difficulties. We found that the empowerment of women in the same cooperative varies across the four dimensions. This idea was demonstrated in the study by Mahmoud et al (2012), by studying the empowerment of rural women in Bangladesh.

VIII.   CONCLUSION

Our study aims to broaden the understanding of entrepreneurship as a process of social change by exploring the issues of social entrepreneurship and empowerment of women in the Moroccan context. It illustrates the success of social entrepreneurship practiced by women in a resource-constrained environment in a developing country (Mair & Marti, 2006).

Although a qualitative study, including a particular context and a very specific non-representative sample, prevents the generalization of results, we believe that our study contributes to emphasizing the entrepreneurial commitment of rural Moroccan women and their role as agents and actors of social change in their environment.
Our research positions rural women as a learning ground to illustrate how social entrepreneurship can help marginalized people develop their empowerment. However, this path of studying female social entrepreneurship, as a specific form of entrepreneurship, to enrich the literature on the gender approach in entrepreneurship, can shed light on gender differences in a strong patriarchal context such is the Moroccan case.

Our results can be validated and verified through a quantitative study of a rural female population that would be large enough to verify our research model.
The implications of our research involve several levels, local, national and international, to the extent that this research contributes to a better understanding of how social entrepreneurship will impact women's empowerment, at a personal, individual, social and political levels.

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DOES THE GRAVITY OF INSTITUTIONS AFFECT MIDDLE EAST AND NORTH AFRICA'S INTRA-TRADE PERFORMANCE?

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ABSTRACT

This paper analyses MENA region's intra trade flow, in view of the disparity and fragility in performance of its trade institutions. The main aim is to examine why a gap exists between MENA region's predicted intra-trade flow and its actual intra performance; given that MENA region's trade with the Rest of the World (RoW) and E.U. realized acceptable growth rates averaging 10% and 5% per annum over the course of 20 years. Therefore, the paper considers higher intra-MENA trade flows once we control for the quality of the region's political and trade institutions and it provides empirical evidence that the transformation of MENA countries from autocracies to democracies will lead to effectiveness in their governing institutions and above all trade institutions. The empirical methodology was conducted using a 'Bilateral Trade Gravity Model; estimating MENA's bilateral intra-trade over 25 years by PPML to treat for zero trade flows. The model was built upon several scenarios starting by a baseline classical model followed by three others capturing the quality of institutions for MENA countries through Polity IV, Trade Freeness indices and incorporating sub-regional dummies dividing MENA into 4 groups of trade areas in line with all modelling techniques used in literature for MENA and other regions. Testing all the underlying scenarios was performed and had shown that MENA's intra trade flows were triplicated when both Polity IV and trade freeness variables were included in the model

JEL Codes: C23, C87, F13, F16, F50, F59

Keywords: Bilateral Gravity Model, Polity_IV index, Trade Freedom index, MENA region, PPML.

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I.   INTRODUCTION
Integration Outlook of MENA Region compared to other Regional Blocs

Recent history witnessed the birth of highly integrated regional blocs with their aspiration to reach the deeper scale of integration and they started over the last 50 years chronologically as follows: ASEAN 1967, GCC 1981, Mercosur 1990, NAFTA 1994 & the Euro zone 1999. The deeper integration scale is based on their harmonized political, economic and institutional policies, economies of scale in manufacturing and production, pooling of resources for investment and at optimum the implementation of unified currency zones (Seshan and Casero, 2010). In contrast, other regions at the shallower side of integration scale as defined by Evans et al. (2006) rely only upon tariff and non-tariff eliminations schemes. MENA region remains to be labelled holistically [i] as a region of mere integration efforts and one in need of more reforms to unlock its hidden intra-trade potential.

Over the last thirty years MENA countries suffered from several wars, political fragmentation, authoritarian regimes in most of its countries. This fact was verified by Nabli and Jauregui and Aysan (2008), pointing out that the political disruptions and challenges the region embarked on led to the slowing down in its developmental pace and dysfunctional institutions. Unfortunately, deficiency of political institutions became contagious to economic and trade policies causing contraction in growth rates, higher inflation, large fiscal and current account deficits (ACHY 2000; Abed and Davoodi 2003; Khamis 2014). Up till the moment MENA countries are facing daunting challenges with respect to their political and trade institutions evident from the lagging governance indicators, heavy bureaucracy and arbitrary regulations, high unemployment rates, low productivity levels and instability of exchange rate policies and lower trade performance on an intra-level.

The main motivation behind why MENA region was selected as the focus of this chapter lies in the region's 21 countries[ii]; which acted as a remarkable market potential of 400 million individuals; grabbing a share of 7.5% of the world´s trade during 2015 (e.g, Hätinger 2009 and Hoekman, 2016). It is endowed with world´s natural oil & gas reserves at 65% and 45% of respectively, rendering it as a hub for many energy intensive manufacture. Besides, the region's common geographical proximity, language (Shang, 1996) and cultural ties and its considerable trade flows with the E.U. and Rest of the World (RoW). All the above criteria leave the region with so much potential yet at the same time the need for 'Lock *in Reforms*'[iii] for further intra-trade and integration benefits (Auad, 2008; Agadir technical Unit report, 2008; Hätinger, 2009).

Although the MENA was involved in 8 intra and inter-regional agreements; described by the 'Veritable Spaghetti Bowl of intertwined and overlapping agreements [iv]'; yet it did not reach the projected trade gains and integration benefits aspired due to the complexity and conflicting executive regulations associated with each of these agreements. Some of the most significant intra initiatives within the region are: 'Agadir Association Agreement'[v] , 'Arab Maghreb Union[vi]' (AMU), 'Gulf Cooperation Council[vii]' (GCC)*, '*Euromed association agreements'[viii] in addition to 'Free Trade agreements with the United States**[ix],** 'Greater Arab Free Trade Area'[x] (GAFTA) known now as 'Pan Arab Free Trade Area' (PAFTA)[xi] (e.g., Abed and Davoodi 2003; ACHY 2006; Dadush and Falcao 2009; Rouis and Tabor 2013). There has been a considerable scope of the literature by Al Atrash and Yousef (2000), So-derling (2005); Miniesy and Nugent (2005); Cieslik and Hagemejer (2009) and Bhattacharya and Worlde

(2010) and Lutmar (2011) estimating and predicting the intra-regional benefits in MENA through trade gravity equations and computable general equilibrium models.

The chapter tends to shed light on both the fragility of political and trade institutions encountered in MENA countries through providing empirical evidence that the transformation of MENA countries from autocracies to democracies will certainly lead to greater effectiveness and vigour in governing institutions and above all trade institutions. The quality of institutions for MENA countries has been captured through Polity IV and Trade Freedom indices introduced to the classical bilateral gravity model aimed to measure intra-trade flow and as well modelled previously by (e.g.Duc and Lavallée and Siroën, 2008, Bhattacharya and Worlde, 2009; Lutmar, 2011) for other regional blocs. In second argument, the paper has shown that the region's intra-trade flows were accelerated, when MENA was broken down into a number of significant smaller sub trade areas, accounted for through dummies and they are: GCC, Agadir agreement, PAFTA and AMU as previously recommended by the literature (Al-Atrash and Yousef, 2000; Abedini and Péridy, 2006; Ekanayake and Embry-Riddle, 2009)

The empirical methodology was conducted via 'Bilateral Trade Gravity Model' based on that of Rose (2004) and Mayer's CEPII Gravity data set (2011). The dataset for gravity is measuring MENA's bilateral intra-trade from among 167 countries by origin and destination and for a period covering 25 years. In addition to the gravity's classical variables, additional augmentative variables accounting for quality of political and trade institutions will be employed in Scenario 1 and 2. The third Scenario will particularly incorporate sub-regional dummies decomposing MENA into 4 groups of trade areas. Results indicated that coefficients for both Polity_IV and Trade Freedom raised MENA's intra-trade by almost 3 times. As well PAFTA area and Agadir agreement dummies significantly contributed to the region's intra-trade growth. This chapter starts by section1 giving a descriptive overview on MENA countries trade flow, section 2. Moves on to the literature review. Section. 3 will present the empirical estimation and different gravity model scenarios and followed by results in section 4 and finally policy implications and conclusion

II.   INTRA-MENA'S TRADE DESCRIPTIVE DATA AND MODEL'S SETTING

Model's Descriptive Data

MENA's region's GDP per capita reached approximately 7,831 dollars during 2011; thus, based on Hoekman (2013) and WTO Statistical reports (2014) and seen in Figure 1, it accounted for 7 percent of the world's merchandise trade during 2014 and 3.9 percent of the world's GDP. The region is suffering from income disparities among its countries with a per capita income of US $ 34,684 for Gulf countries, compared to an average of US $ 1,346 in other North African countries recorded during 2006 (Mashayekhi and Onguglo, 2006; World Bank 2011). Figure 2 illustrates that majority stake of the region's trading goes to RoW within which falls Asian, African, agreements COMESA, SADC ASEAN and Latina and Central American countries outside Mercosur. In second position came European Union at 25% and followed by U.S.A at 12% and intra-MENA at 8% (Hätinger, 2009; World Bank 2011; Aktar and Bolle and Nelson 2013).

Location Figure 1 and Figure 2

Inspecting MENA's intra merchandise trade from the data has shown that its regional share of intra-trade has not exceeded 10 percent during 2010; which is consistent with the findings by Ekanayake and Embry (2009) ranging from; [10 -12] percent allocated to intra-MENA merchandise trade during the periods between 2001-2006. According to Rouis and Tabor (2013), the region's intra-regional exports by far did not exceed 8 percent and is relatively low compared to 25 percent and 66 percent for Intra-ASEAN and EU exports. Figure 3 will illustrate a timeline for MENA's sub-regional initiatives. The sharp decline for the region's intra-trade performance witnessed during 2000 coincided with first consolidated integration initiatives between the region and E.U. members and the first wave of Euro-med bilateral association agreements between E.U. 27 and MENA's countries; when E.U. trade to the region grew progressively since the inception of the Barcelona Process 1995[xii], followed by bilateral association agreements between E.U. members and MENA[xiii] countries[xiv] ; giving some evidence that intra-regional trade between MENA countries was re-directed to other regional blocs in Asia, and E.U. The entrance of some of the region's countries in 'Free Trade Agreements' [xv]and 'QIZ'[xvi] with the U.S.A weighted out in favour of the merchandise trade balance of MENA_RoW on the account of MENA's intra trade performance (Rouis and Tabor 2013).

Location Figure 3

For analytical purposes and to facilitate the estimation of Intra-MENA trade for this paper, the region will be re-classified into a number of sub-regional initiatives[xvii] as shown in Table 1; in consistency with the classical approach taken by the literature and regional experts; starting by Bolle (2006) suggesting that MENA countries should be re-grouped according to their geographical proximity to production and location sites. More on this behalf, some empirical models developed by Bhattacharya and Worlde (2010) using the trade gravity equation have proven the lower significance of MENA, when it is taken holistically as a region formed of more than 20 countries compared to dividing the region into smaller sub-regional initiatives. Accordingly, most of the theoretical and empirical literature divided the region into:

First, 'Gulf Cooperation Countries' (GCC) representing the most successful integration model in MENA formed of a group of 6 Gulf countries and as evident in Table 1 their special emphasis on oil exports grabbed the lion's share of MENA's intra trade to reach 41% during 2009 (Boughanmi 2008; Hätinger, 2009; Rouis and Tabor 2013).

Second, 'Pan Arab Free Trade Area' (PAFTA) known before as Greater Arab Free Trade Area (GAFTA); the first Free trade area between 17 MENA countries [xviii]with the conception of boosting intraregional trade re-launched to be the PAFTA during 1997. The wide discrepancy for average tariff rates across the MENA countries with GCC import tariffs not exceeding 5 percent in contrast to AMU at 30 percent; rendered countries paying custom duties at higher vulnerability to suffer from trade distortions. PAFTA's managed to bring down the average ad valorem tariff form nearly 15 percent during 2002 to 6 percent in 2009, which due to Abedini and Péridy (2006) raised the area's intra-export flows by 15.1% (IMF Trade Data base 2007; Hätinger 2009; Shui and Walkenhorst 2010)

Third, Arab Maghreb Union (AMU): The free trade area between Libya, Algeria, Tunisia and Morocco mainly dependent on tariff reduction, however, behind the border, non-tariff and technical barriers are not yet fully functional for this trade area.

Fourth, Agadir Agreement Countries Acts as a sub-initiative under the umbrella of the Euro-Mediterranean Free Trade area ratified between Morocco, Jordan, Egypt and Tunisia and EU 26 members; considering trade facilitation measures, services liberalization, enhancing investments, besides preserving intellectual property rights and applying Paneuro rules of origin. Moreover, Agadir's agreement intra trade pattern yielded some promising results since its inception during 2006; reaching a 1.32 times increase in trade between its members between 2005 and 2009; according to the mainstream literature on the agreement motivated by Brunel (2008); ATU[xix] (2009); Dogruel and Tekce (2010); Hoekman (2013).

Location Table 1

III.   LITERATURE CRITIQUE ON POLITY IV AS A BENCHMARK AND ITS IMPACT ON TRADE INSTITUTIONS

The Model capturing Polity IV and Trade Freedom indices:
Polity IV and Trade Freedom indices are the two key variables selected to capture MENA region's intra-trade flow in the bilateral gravity model. First one is the polity index [xx]being able to monitor regime changes and their impact on the governance of institutions across all countries and covering a graded scale of 21 points; with +10 score denoted at upper part pf the scale as 'Consolidated Democracy'[xxi] and -10 marked the 'Hereditary Monarchy'[xxii]. According to Schmidt (2015), polity IV captures most of the countries' transformation from autocracies to democracies and it covers four pillars[xxiii] indicative to the quality of institutions. These pillars are 'Openness of Elections', 'Competition in Executive Recruitment', 'Executive Authority Constraints' and 'Participation Competition'. In addition, this index accounts for the convergences between governing authorities across different countries. Almagro (2015) revealed that democracies spontaneously tend to sign more PTA's and identified the positive significant relation between polity and PTA's, meanwhile, Zeynalov (2016) supported this argument proving that the similarity of institutional framework between trading countries would reduce the cost of trade and affect the informal business environment. Table 2 exhibits Marshall and Gurr and Jaggers (2016) categorized MENA region countries based on their Polity IV scores; showing most of the region's countries falling within the autocratic and mixed scores for Polity IV and only two countries during 2016 were able to reach the towards the upper scale of democracy.

Location Table 2

Second Trade freeness[xxiv] is a variable derived from code book of Quality of government dataset; assessing the same elements of trade freedom index brought by Heritage Foundation and denoted as irai_t. Trade Freeness is composed of two main parts at an overall weighted score comprising a measure of trade restrictiveness regime at 0.75; which reflects upon the height of tariff and non-tariff barriers and it accounts for trade administrative and logistic impediments such as 'Administrative Impediments'[xxv], transport constraints and inefficiencies in custom clearance (Djankov et al. 2006; Bhattacharya and Wolde 2010). Meanwhile, its second part of trade facilitation measure of 0.25 taking into consideration the extent to which

custom services are free from corruption, reliance on transparent risk management and prompt duties collection and refunds. The index has been previously indicated by Dee and Findlay (2006) to its importance as a trade facilitation index, which will allow for the inclusion of a wide spectrum of tariff control price, finance, monopolistic mad technical measures to reduce trade compliance and rent seeking costs.

Before bringing to the readers' attention the methodology used in this chapter and its impact on MENA's intra-regional integration efforts, light will be shed briefly on some of the principal papers linking between economic and trade growth and their impact on democracy precisely on governance of all the country's and trade institutions. Starting with the proposition suggested by Whalley (1998) and Mansfields et al. (2002) and Wu (2004) that countries moving at compatible democratic paces are readier to sign trade agreements in commitment to their voters' credibility. As well Zouhaier and Karim (2012); advocated positive effect of civil liberties on economic growth. Later-on Rosendurff and Shin (2014) re-instated that democratic states sign more agreements than autocracies as a means of self-insurance against policy uncertainty. Looking more closely on MENA region, with opinions and works of Abed and Davoodi (2003) and Nabli and Jauregui and Aysan (2008) all emphasised that Lagging political and institutional reforms typical of the region's countries were always standing at political fragmentation, recurring conflicts and authoritarian ruling hampering the development of democratic and accountable institutions. Eight years later Lutmar (2011) predicted existence of a positive relationship between trade openness and democracy over the long-run across all regions except for MENA region[xxvi]. Again Nabli and Jáuregui (2012) asserted that democracy is not a 'Binding Constraint' [xxvii]to the region's growth; however, it is a step-forward to guarantee better governance, greater accountability towards enabling trade and investment climate.

The econometric treatment considering the fragility of trade institutions in MENA has been captured throughout the literature by using different variables such as war, conflicts, polity IV, weak governance indicators, trade restrictiveness dummies[xxviii], lower voice and accountability variables to measure fragility of trade institutions in MENA (Al-Atrash and Yousef 2000; Miniesy and Nugent 2005; Cieslik and Hagemejer 2009; Bhattacharya and Worlde 2010; Lutmar 2011).

First to account for the quality of political institutions and its impact on bilateral trade flow in MENA region, the 'Polity IV index' (Polity_IV) will be introduced and which was previously used to capture the strength of trade institutions by DUC and Lavallée and Siroën (2008) for European countries. The Polity IV index was extracted from a code book encompassing a wide range of composite indices, used to evaluate the quality of governments; setting certain measurement standards for international governance quality. The index's 6 elements include the executive recruitment and regulations of Chief Executive recruitment, competitiveness of executive recruitment, openness of executive recruitment, independence of executive authority, and the degree of civil interaction (Teorell et al. 2011; Lutmar 2011; Marshall and Gurr and Jaggers, 2015).To the very best of the available knowledge Polity IV index was not commonly used in the literature to a account for MENA region's democratic scale and how democracy impacted trade institutions; similarly to being used in other regions by (e.g. Mansfield et al, 2002; Wu,2004; Carrere,2006; Rosendurff and Shin, 2014; Almargo,2015).

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Second, on the aspect of capturing fragility of trade institutions, another relevant variable will be 'Trade Freeness'; (irai_t Index) encompassing height of tariff barriers and the extent to which non-tariff trade barriers reflect upon the transparency and predictability of trade regime[xxix] in MENA region to incorporate deficiency in cargo tracking, port congestion problems, complicated transhipment regulations, absence of cross border transit procedures, improving trade facilitation measures and connectedness among firms (Hummels 2001; Djankov et al. 2006; Shui and Walkenhorst, 2010; Quality of Government D1ataset Book Code, 2011; Chauffour and Hoekman, 2013). Normally presence of the above mentioned non-tariff barriers adds an extra 10% margin above the value of goods shipped & tagged; as part of compliance costs for nontariff measures (Zarrouk, 2003).

Third, difficulty of measuring separately the impact of each sub-regional trade agreement within MENA and their intertwined RoO and tariff schemes, raised the need to treat this problem econometrically through separating MENA region into 4 sub-regional agreements based on geographical proximity and their share of MENA's intra-trade (Bolle 2006; Abedini and Perdiy 2008; Romagnoli and Mengoni 2009; El Khafifi at el. 2012). As a robustness to the previous scenario, the last part of the study will classify the MENA region into the 4 sub-regional initiatives (GCC, AMU, Agadir agreement and PAFTA) and as well into three groups of (Group I Middle Income countries[xxx], Group II Resource rich countries [xxxi]and finally Group III conflict and post conflict countries[xxxii]; based on the degree of convergence and proximity between countries in their economic activities and their trade reforms, facilitation systems, resources allocation and presence of conflict and similarity in the performance of their institutions (Rouis and Tabor 2013).

IV.   MODEL'S SPECIFICATION AND ESTIMATION METHODOLOGY

The gravity model reflects the theoretical depth of international trade; as Tinbergen (1962) emphasized that the amount of trade between country pairs increases, as the size of their economies equivalent to masses increases, and the geographical distance equivalent to transport costs decreases. In line with the considerable amount of empirical literature developed by Anderson (1979), Bergstrand (1985), Deardorff, (1998) and Anderson and Wincoop (2003) and (Fazio, 2006) revisiting the use of gravity model, as the power horse of bilateral trade flows estimations between countries, this paper focuses on proposing the standard classical bilateral gravity model to capture the intra-regional trade flow between MENA countries. The model's explanatory power will be increased by adding economic, geographical, historical and cultural affinity variables and data for gravity specifications were derived from the comprehensive CEPII's gravity dataset [xxxiii] taking into account a 25 year timespan; beginning from 1985 up till 2010.

Proxies for economic masses will be accounted for through GDP by origin and destination and bilateral distance to capture multilateral resistance taken into the estimations (Anderson and Wincoop 2003). This dataset could be easily merged with other indicators and dummies needed for measuring bilateral intra-trade flows between MENA countries. The bilateral version of the polity IV and trade freeness indices for MENA countries and the rest of the world were both transformed and re-coded into two variables of dichotomous nature; i.e. having Polity and Trade Freeness for origin and destination countries accounting for MENA region dummies and

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their bilateral measure on the index in consistency with the approach used by Bacchetta et al., (2012).

The baseline estimation method relies on OLS regression [xxxiv]and incorporates set of year & country fixed effects dummies [xxxvxxxvi]; serving to analyse the impact of time invariant characteristics that may impact our dependent variable in robustness and in consistency with previous studies employed by Rose (2003), Rose (2004) and Vogelsan (2008). With Exception of the Baseline scenario, all across rest of the scenarios 'Poisson Pseudo Maximum likelihood' Estimator (PPML) will be applied to validate consistency of the expected signs and estimations across the gravity model and to resolve for the 'Zero Trade Flows'; thus, accounting for the largest number of information possible in the model.

The first scenario demonstrated by Eq.2 plans to incorporate bilateral polity IV dummy to capture its effect on bilateral intra-trade flows between MENA countries and followed by second scenario augmenting the robustness of the model through inception of bilateral Trade Freeness measure; customized to MENA countries intra trade flow. The third scenario will divide the region into four sub-regional dummies (PAFTA_17, Agadir_4, GCC and AMU), meanwhile, the fourth and last scenario will divide the region's countries based on their income groups and political and trade institutions status into three groups of countries broken down accordingly into: (middle_5, GCC and Conflict_6).

Location Table 3

Standard Gravity Variables Responsiveness and Expected Signs:

As intra-MENA, bilateral gravity model variables of Eq.1 behave as predicted showing highly significant coefficients for GDP_i, GDP_j and $dist_{ij}$ with the expected signs and magnitudes conducted through OLS and PPML Estimation. As illustrated in table 4, the coefficient of GDP variables and distance increasing by 1.5, 1.6 and 1.7 times respectively; has shown that the bigger economic size for MENA countries, leads to the higher reciprocity of intra-trade between country pairs, meanwhile, increasing trade costs taken as a proxy for distance reversely impacts intra-trade flows. As anticipated OLS coefficients are slightly higher in absolute values than those of PPML results . For PPML estimations the difference in GDP_i log is expected to have a marginal effect of 0.97 units higher on bilateral intra trade between MENA countries and the same goes for GDP_j at 1.212 points higher on trade. The expected signs for both common language and border dummies seem to work correctly and are highly significant causing a partial increase in bilateral trade between MENA countries sharing a common language due to the higher level of mutual understanding and harmony in legal aspects concerning trade institutions contrasted to other regional blocs in the world (Bethune and Ledgerwood and Riddle 2009). Common border effects between MENA countries resulted in a [exp(0.208) =] 1.23; which is translated to 23% increase in trade and this result is in line with those derived by Helliwell (1998) and McCallum (1995)[xxxvii]. Once again colonial history and ties play a substantial role in enhancing trade flow between MENA countries at [exp(0.609)=] 1.83 by at least increasing trade at 83%; particularly for those of the region's countries sharing a past common colony[xxxviii]

Location Equation 1 & Table 4

The standard gravity equation denoting the dependent variable as T_{ijt} to measure bilateral trade between country i of origin and country j of destination during a certain year t and given a set of independent variables as follows:

Eq.1:

$$T_{ijt} = \beta_0 + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Y_{jt}) + \beta_3 \ln(Dist_{ij}) + \beta_4 \ln(Bord.\ ) + \beta_5 \ln(Lang\ ) + \beta_6 \ln(CurCul.) + \beta_7 \ln(Colony) + \beta_8 \ln(bothin.) + \beta_9 \ln(GSP_{ij}) + \beta_{10} \ln(rta\_eu_{ij,t}) + \varepsilon_{ij}$$
(1)

The augmented gravity equation estimating the dependent variable as T_{ijt} to measure the value of bilateral trade between country i of origin and country j of destination for t time in MENA region; given set of all possible independent variables, in addition to incorporating bilateral polity IV index , trade freeness indices:

Eq.2:

$$T_{ijt} = \beta_0 + \beta_1 \ln(Y_{it}) + \beta_2 \ln(Y_{jt}) + \beta_3 \ln(Dist_{ij}) + \beta_4(Bord.) + \beta_5(Lang.) + \beta_6(CurCol.) + \beta_7(Colony) + \beta_8(bothin.) + \beta_9(GSP_{ij}) + \beta_{10}(rta\_eu_{ij,t}) + \beta_{11}\ Polity\ IV\_MENA_{ij} + \beta_{12} Trade\_Freeness_{ij} + \beta_{13}\ PAFTA\_17_{ij,t} + \beta_{14}\ GCC_{ij,t} + \beta_{15}\ AMU_{ij,t} + \beta_{16}\ Agadir\_4_{ij,t} + \pi_{i,t} + \chi_{j,t} + \eta_{ij} + \varepsilon_{ij}$$
(2)

Results for Baseline and four scenarios

Proceeding with an accurate contrast between the two baselines, scenarios 1 & 2 using OLS and PPML estimations with a noticeable difference of the PPML coefficients showing significance but at smaller magnitudes. In most cases as expressed by Silva and Tenreyro (2006), PPML results and estimates are preferred to OLS's; as they minimize the possible over exaggerated impact of geographical proximity and colonial ties on trade flows.

Contrasting Gravity Scenarios Result for augmented variables:

Scenario 1 and comparative: Polity IV –MENA variable:

The Polity IV_MENA dummy for the first scenario shown on table 4 and recorded a positive coefficient at highly significant levels with a one point move up towards the polity IV score leading to partial increase of 2.3 points for MENA's intra-trade. Across all studies inspecting the quality of institution measures and its impact on trade and precisely emphasizing the response of Polity IV dummy variable in European countries for Due, Lavalleé and Siören (2009); Qureshi (2009); Almargo (2015); whom comparatively detected mixed negative and positive results of this variable on bilateral trade in consistency for results obtained for MENA region.

Furthermore, the comparative first scenario will be decomposing Polity IV variable for MENA into three new variables as follows: democratic, autocratic and mixed states to verify the results. The first dummy denoted as 'Polity_demo'; with a variable equal to one when two countries are in MENA region and both hold a democratic score and otherwise zero. The second known as 'polity_a' reserving the value of 1; when both countries are autocratic, meanwhile, the third is a mixed variable 'polity_anoc'; referring to anocratic regimes at value of 1 when two countries are characterized by having a mixed regime. In line with the literature initiated by

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Aidt and Gassenbner (2008); Qureshi (2009) and Zeynalov (2016), results maintained the same robustness when tested on MENA countries with autocratic regimes imposing higher costs on trading and they turned out to trade 0.81 points less between each other, meanwhile, countries going up the polity IV scale by one point towards the threshold of democracy are trading at 4.2 points higher. As for the third dummy, which involved mixed regimes trading with each other, the results were towards less trade between two countries but at lower coefficient not demonstrating to be highly significant.

Scenario 2: Trade Freeness for MENA

Moving on to the second augmented dummy in this case trade freeness denoted in the model's estimations by irai_t (e,g.Teorell et al. 2011) and measuring trade freeness as a weighted scale decomposed out of two parts 0.75 for trade restrictiveness and 0.25 for trade facilitation as mentioned above. As for the overall score of this variable, it indicated that a one point shift higher in the irai_t scale, would result in a 0.68 points increase in intra-trade between MENA countries and this result was compatible to those variables and results[xxxix] generated by Abedini and Péridy (2006). The results for trade freeness maintained robustness across all other remaining scenarios and estimations, even when other dummies were introduced. This draws attention to the importance of controlling for tariff, non-tariff and behind the borders barriers to trade; particularly for MENA region and finding the appropriate policy formulation supporting the regulatory reforms in trade institutions; thus to guarantee lower trade barriers.

Location Table 4

Scenario 3: Sub-regional initiatives in the MENA.

Capturing the actual intra-trade flow between MENA countries would only be accurately estimated when the region is classified into the sub-regional initiatives included on Eq.2: as PAFTA_17$_{ij,t}$, GCC$_{ij,t}$, AMU$_{ij,t}$ Agadir_4$_{ij,t}$. This classification of the region was contemplated by many in the literature; such as Bolbol and Fatheeldin (2006), Abedini and Péridy (2008) and Bethune and Ledgerwood and Riddle (2009) and finally Bhattacharya and Worlde (2010). PAFTA demonstrated a positive coefficient but with the least significance; where a one point increase in the PAFTA dummy caused a 1.5 points increase in intra-trade between 17 of the MENA countries. In second position came GCC dummy with positive and highly significant results; based on Dogruel and Tecke (2010), stating that GCC as oil-rich countries show complementarity between their exports composition and basket of goods. Results for GCC dummy are robust with those driven by Bethune and Ledgerwood and Riddle (2009); Bhattacharya and Worlde (2010) and finally Carrére and Gourdan (2012). As for the AMU dummy, similar to other previous estimations did not turn to show high significance and contribution to the region's intra-trade flow. The last dummy denoted as Agadir had a pronounced effect at a highly significant coefficient and increasing intra-trade flow between MENA countries by 3.1 points and it matched empirical estimations regarding the Agadir Agreement's dummy pinpointed by Gylfason and Zarzoso and Wijkman (2015)

Scenario 4: Dividing the MENA countries according to degree of trade convergence:

The last scenario focused on sub-dividing MENA countries to three groups of countries in line with the same classification conducted by Rouis and Tabor (2013). The Middle_5 group of countries' dummy has shown the same robustness sustained throughout all scenarios with for

middle_5 dummy[xl] and its intra-trade expanded by 3.4 points, meanwhile, a contra intuitive contribution was detected for intra-trade by 0,20 points for GCC dummy and finally conflict_6 dummy caused a 1.15 points decline in the region's intra-trade due to turbulent position of their countries.

Location Table 5

Possible econometric problems and limitations:

Many econometric problems could arise from the literature relating to trade and democracy, especially the endogeneity problem as suggested by Aidt and Gassenbner (2008). The endogeneity problem could be partially resolved by introducing lags of a variable as previously done by Karam and Zaki (2015) through taking the lag of the polity IV variable to determine its effect on intra-trade. In line with the same model estimations, the lagged value of polity IV MENA dummy was introduced and the results indicated that lagged dummy is persistent and retains a positive, significant coefficient but smaller in magnitude. This does not confirm that the endogeneity problem is completely resolved using instrumental variables correlated with the dependent variable but not correlated to the error term, however, it is quite challenging to use the right, viable instrument in modelling endogeneity. Accordingly, it is behind the scope of this work to use instrumental variables and it could represent an opportunity for further avenues of research to be conducted in this area.

V.   POLICY IMPLICATIONS

Political and economic diversity and heterogeneity across countries of the MENA region has introduced difficulties and challenges to the fully harmonized integration vision of its countries, needless to mention that all history of successive wars, conflicts, upheavals and economic turbulences the region suffered made it harder for this integration vision to be accomplished in the near future. Backed up by the results and scenarios generated by the empirical gravity model and literature review, it was explained why MENA's past and present integration efforts, did not fully in yielding the anticipated results for trade flows. Finally, the work was able to draw on three essential dimensions that should be worked upon that are in harmony with the empirical results obtained and should guarantee higher intraregional trade for MENA countries in the future and they are the following:

1) Implementing a wide range of political reform policies designed to serve the region's specific political needs especially for MENA countries in conflict. Political reforms should be aimed at improving the quality of governance in all the countries institutions, in recruitment and election of executives and in decision making process; especially concerned with conceiving and implementing well-structured and equilibrated trade policies. This strong governance should guarantee institutional credibility, transparency, red tape elimination, minimizing bureaucracy and control of corruption.

2) Focusing on removal of at the Border and behind the border impediments against trade for MENA countries; to account for import duties, custom clearance and certifying imports in compliance with domestic quality control standards, lengthy stringent regulations and rigid rules of origin imposing additional transaction costs and taxes on trade. The inclusion of the

freeness to trade dummy in our empirical gravity model, partially attempted to control for both tariff and non-tariff barriers.

3) Taking the MENA region as a one bloc approach can lead to missed integration opportunities between the region's countries. Therefore, further investigation and focus on more research in the areas of promising and successful sub integration initiatives within the MENA region will lead to better estimation of the successful intra-regional efforts in MENA.

VI.   CONCLUSION

This chapter focused on revealing some of the dimensions, fostering MENA region's intra trade performance and due to the fact that MENA region has been suffering from three major integration challenges: deficits in governance and fragility of institutions since a long time , presence of non-tariff , technical and procedural barriers to trade and intertwined multitude of regional agreements introducing conflicting regulations, thus all of the previously mentioned integration challenges prevented the integration benefits from fully proliferating to enhance the region's intra trade performance.

The empirical methodology was conducted via classical Trade Gravity Model. The baseline scenario summarized the standard gravity model independent variables indicative of economic size, distance used as a proxy for multilateral resistance and a set of cultural, historical and language affinities and regional trade area dummies. In addition to the gravity's classical variables, the quality of institutions for MENA countries has been captured in scenario 1 and 2 through the augmentative variables of Polity IV and Trade Freedom indices, added to the classical gravity model and both variables covering aspects of executive constraints influencing trade policies and preventing the existence of restrictive trade Policies. Apart from this a third scenario proposed to sub-divide MENA region into smaller trade areas and investigated how this breakdown intensified the region's intra-trade.

The results exhibited by testing all the underlying scenarios that Polity_IV and Trade Freedom dummies had shown both together consistency across all scenarios on triplicating MENA region's intra trade flow; which gives a strong position that using the right variables and dummies, the gravity of intuitions should work in MENA region. As well results came in line with the literature's main stream indicating that presence of democratic institutions, increased MENA intra trade flows, meanwhile, the contrary evidence of less intra-trade flows between autocratic and mixed regimes in MENA countries were detected. Finally, coefficients of high significance were derived when the region is sub-divided into areas of the same income level and status of political and economic institutions; implying to higher intra-trade for sub-MENA initiatives derived through: Agadir_4, PAFTA_17 and GCC.

The gravity estimations and scenarios for the MENA region has made this paper conclude that the continuous improvement in the quality of governance and self-regulated process of the recruitment, election of executives and decision making process; particularly concerning MENA's trade institutions is at this stage of paramount importance. Second attempting to eliminate unnecessary bureaucratic behind the border and technical impediments to trade will certainly speed up the recovery and growth of MENA's intra-trade flow. Finally, it has been

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proven that the region should not only harness its integration efforts by approaching the region holistically as MENA region, however, fostering some of the promising smaller trade areas and initiatives in region like Agadir association agreement, GCC and PAFTA through detailed introspection of its sector specific bilateral trade flows should subject to further investigation and research.

VII.   APPENDIX OF GRAPHS AND TABLES

Figure 1: Times series of Merchandise trade for the region broken down into Intra-MENA/E.U-MENA/ Row-MENA.

Merchandise Trade in Billion of Dollars

Own's elaboration derived from CEPII dataset to estimate intra-trade flows for MENA countries

Figure 2: MENA Region's share of Trade with other partners
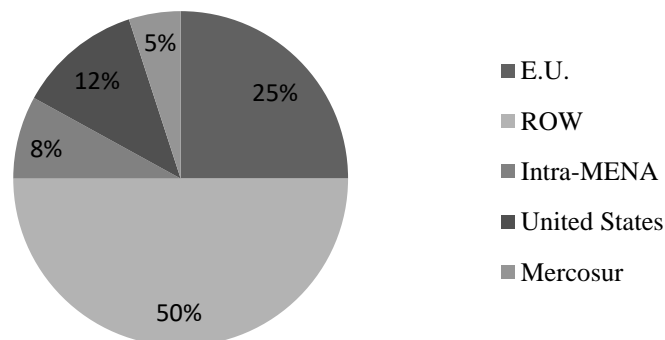
Source: Owned elaboration with data derived from the CEPII gravity dataset

Figure 3: Time line for sub-regional Trade Initiatives in MENA Region 1985-2010

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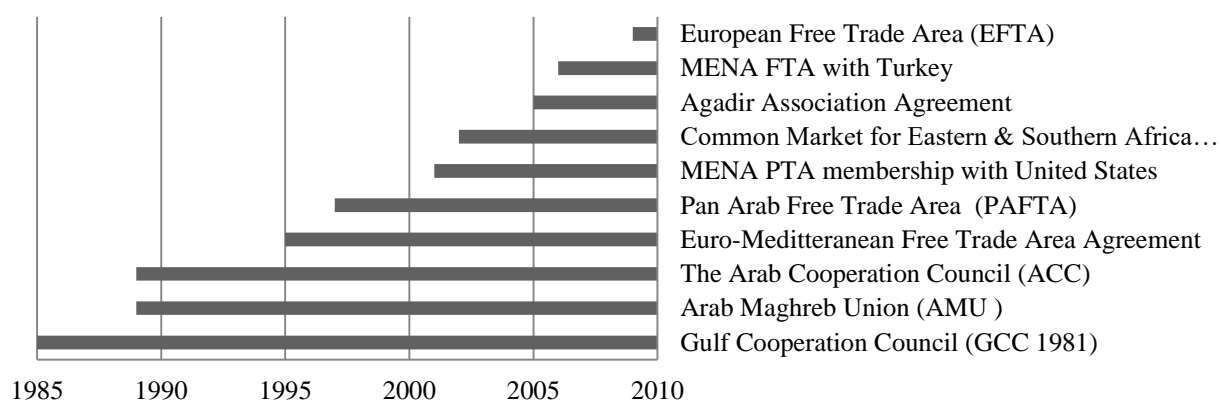
Figure 4: MENA region's exports to the world and intra-regional exports as % of GDP
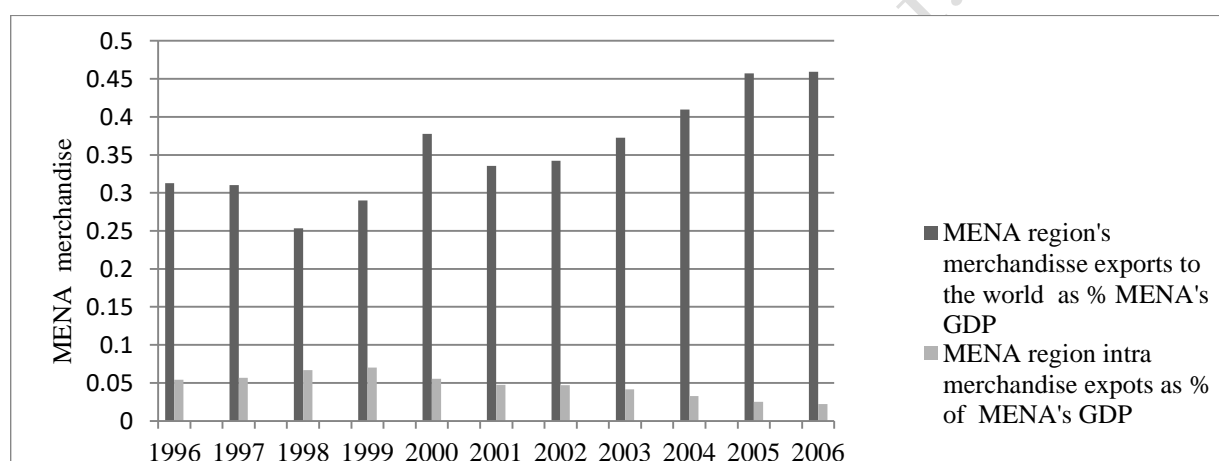
Table 1: MENA region intra-trade break-down into sub-blocs during three years 2000-2005 - 2010

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MENA's Intra Trade in Billions of Dollars	2000	2005	2010
GCC	13	30	75
AMU	13	10	15
Agadir Countries	0	25	40
PAFTA	4	5	50

Primary data extracted from CEPII dataset to estimate intra-trade flows for MENA countries

Table 2: Categorization of MENA countries based their Polity IV index Scores 2013

Based on polity IV index and their relevant scores 2013		
Autocracies [-10 : -6]	Mixed [-5 : 5]	Democracies [+6 : +10]
Libya	Egypt	Lebanon
Oman	Algeria	Tunisia
Qatar	Iraq	
Saudi Arabia	Jordan	
Syria	Morocco	
United Arab Emirates	Sudan	
Kuwait	Yemen	
Bahrain		

Primary data from Polity IV Project by Marshall and Gurr (2013)

Table 3: Summarizing Different Scenarios with Key results

Scenarios	Augmented Variables	Estimation Method	sign	Magnitude	Literature Intuition
Base line 1	Normal gravity Variables	OLS	+ve. -ve	High	Pro-intuitive
Base line 2	Normal gravity Variables	PPML	+ve -ve	Low	Pro-intuitive
First Scenario	Polity IV	PPML	+ve	High	Pro-intuitive Mixed
Comparative First scenario	Demo. Auto. Mixed	PPML	+ve –ve –ve	High High Low	Pro-initiative
Second Scenario	Trade Freeness irai_t	PPML	+ve	Low	Pro-initiative
Third Scenario	PAFTA GCC AMU Agadir_4	PPML	+ve +ve -ve +ve	High	Mixed
Fourth Scenario	Middle income GCC Conflict_6	PPML	+ve -ve +ve	Low	Mixed

Own's elaboration through MENA intra-trade Gravity model calculation

Table 4: Regression Benchmark Results for default OLS and PPML Estimation for scenarios 1,2, 3

VARIABLES	OLS_1 Baseline 1	PPML_1 Baseline 2	PPML_2 Scenario 1	PPML_3 Comparative 1	PPML_4 Scenario 2	PPML_5 Scenario 3
lrgdp_o	1.514 (0)	0.978 (0.087)	0.995 (0.067)	0.897 (0.284)	0.678 (0.184)	0.942 (1.239)
lrgdp_d	1.645 (0)	1.212 (0.0235)	1.182 (0.0237)	1.201 (0.023)	1.401 (0.023)	1.109 (0.023)
Ldist	-1.771	-1.771	-1.751	-1.762	-1.739***	-1.824***

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	(0)	(0)	(0)	(0)	(0.026)	(0.038)
Landl	-0.0830	-0.0830	-0.615	-0.0898	-0.617	-0.0655
	(0)	(0)	(0)	(0)	(1.188)	(1.277)
Island	-0.403	-0.403	-0.988	-0.370	-0.943	-0.191
	(0)	(0)	(0)	(0)	(2.277)	(2.108)
Border	0.208	0.208	0.256	0.318	0.361	0.421
	(0)	(0)	(0)	(0)	(0.275)	(0.290)
Comlang	0.910	0.510	0.625	0.629	0.639**	0.778***
	(0)	(0)	(0)	(0)	(0.057)	(0.041)
Curcol	0.198	0.142	0.142	0.142	0.142	0.142
	(0.09)	(0.170)	(0.170)	(0.170)	(0.170)	(0.170)
Colony	0.709***	0.609***	0.609***	0.609***	0.609***	0.609***
	(0.0651)	(0.0851)	(0.0851)	(0.0851)	(0.0851)	(0.0851)
Bothin	-0.406	-0.406	-0.413	-0.284	-0.290	-0.228
	(0)	(0)	(0)	(0)	(0.208)	(0.205)
Gsp	0.972	0.972	1.022	0.843	0.892***	0.726**
	(0)	(0)	(0)	(0)	(0.341)	(0.356)
rta_eu.	0.127***	0.125***	0.127***	0.125***	0.125***	0.127***
	(0.0237)	(0.0235)	(0.0237)	(0.0235)	(0.0235)	(0.0237)
polity_MENA			1.185***	1.220	1.220	1.215***
			(0)	(0)	(0)	(0.034)
Polity_demo				1.665	1.666	1.667
				(0.0281)	(0.0281)	(0.0281)
Polity_a				-1.158	-1.159	-1.160
				(0.089)	(0.089)	(0.089)
Polity_mixed				-0.0215	-0.0216	-0.0217
				(0.627)	(0.627)	(0.627)
Trade_Freedom_MENA					0.508	0.509
					(0.036)	(0.016)
PAFTA_17					0.929*	1.081***
					(0.085)	(0.105)
GCC						0.133
						(0.050)
AMU						0.00719
						(0.164)
Agadir_4						1.412***
						(0.328)
Constant		3.045	2.858	2.668	2.423	2.997
		(0)	(0)	(0)	(15.46)	(16.00)
Observations	2,500	7,050	7,050	7,050	7,050	7,050
R-squared	0.654	0.821	0.827	0.825	0.831	0.826
Year Fixed Effect	No	Yes	Yes	Yes	Yes	Yes
Origin Fixed Effects	No	Yes	Yes	Yes	Yes	Yes
Destination Fixed Effects	No	Yes	Yes	Yes	Yes	Yes

Own's elaboration for Gravity's model output based on Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

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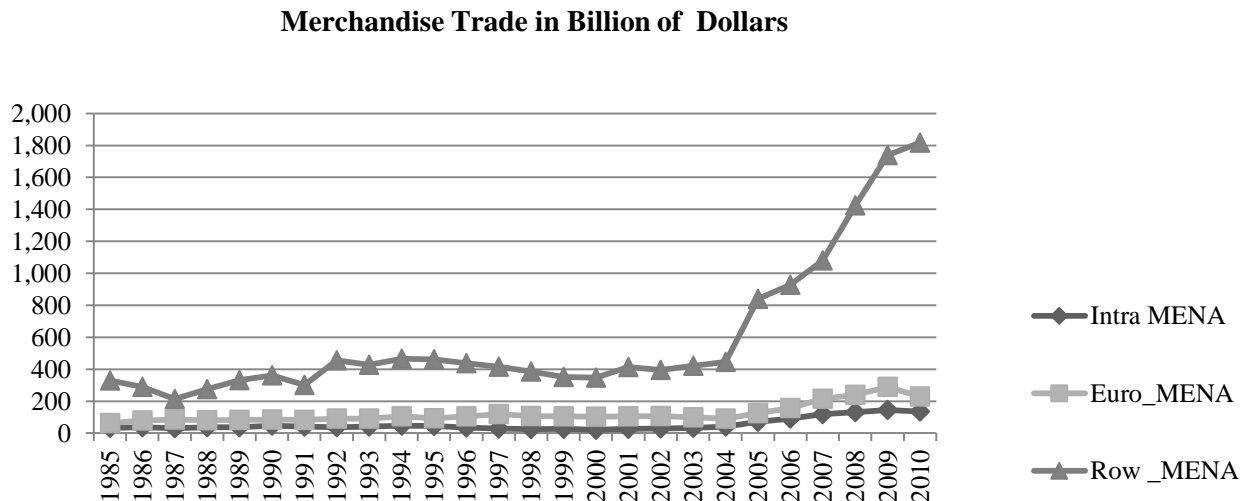**CIK- 5th International Conference in collaboration with ISG/MIT**
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Table 5: Regression Benchmark Results default OLS and PPML breakdown of polity IV & income groups

VARIABLES	OLS_1 Baseline 1	PPML_1 Baseline 2	PPML_2 Scenario 1	PPML_3 Comparative 1	PPML_4 Scenario 2	PPML_5 Scenario 3
lrgdp_o	1.514	0.978	0.995	0.897	0.678	0.942
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	(0)	(0)	(0)	(0)	(2.277)	(2.108)
border	0.208	0.208	0.256	0.318	0.361	0.421
	(0)	(0)	(0)	(0)	(0.275)	(0.290)
comlang	0.910	0.510	0.625	0.629	0.639**	0.778***
	(0)	(0)	(0)	(0)	(0.057)	(0.041)
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	(0.09)	(0.170)	(0.170)	(0.170)	(0.170)	(0.170)
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	(0.0651)	(0.0851)	(0.0851)	(0.0851)	(0.0851)	(0.0851)
bothin	-0.406	-0.406	-0.413	-0.284	-0.290	-0.228
	(0)	(0)	(0)	(0)	(0.208)	(0.205)
Gsp	0.972	0.972	1.022	0.843	0.892***	0.726**
	(0)	(0)	(0)	(0)	(0.341)	(0.356)
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	(0.0237)	(0.0235)	(0.0237)	(0.0235)	(0.0235)	(0.0237)
polity_MENA			1.185***	1.220	1.220	1.215***
			(0)	(0)	(0)	(0.034)
Polity_demo				1.665	1.666	1.667
				(0.0281)	(0.0281)	(0.0281)
Polity_a				-1.158	-1.159	-1.160
				(0.089)	(0.089)	(0.089)
Polity_mixed				-0.0215	-0.0216	-0.0217
				(0.627)	(0.627)	(0.627)
Trade_Freedom_MENA					0.508	0.509
					(0.036)	(0.016)
Middle_5						1.479***
						(0)
Conflict_6						-0.766***
						(0.184)
GCC						0.0924
						(0.846)
Constant		3.045	2.858	2.668	2.423	2.997

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		(0)	(0)	(0)	(15.46)	(16.00)
Observations	2,500	7,050	7,050	7,050	7,050	7,050
R-squared	0.654	0.821	0.827	0.825	0.831	0.826
Year Fixed Effect	No	Yes	Yes	Yes	Yes	Yes
Origin Fixed Effects	No	Yes	Yes	Yes	Yes	Yes
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Own's elaboration for Gravity's model output based on Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

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INSTITUTIONAL IMAGE AND THE ROLE OF THE MANAGERS OF A MAJOR BRAZILIAN FINANCIAL INSTITUTION: ANALYSIS OF PERCEPTIONS OF HIGH INCOME CUSTOMERS

José Edson Lara,

Ronaldo Lamounier Locatelli

Wanderley Ramalho

And

Samantha Alice de Freitas Silva

Fundação Pedro Leopoldo,

Brazil

ABSTRACT

The economic system has undergone profound transformations due to recurrent technological advances making room for new international relations that have repercussions on the organizations. Particularly, as far as financial institutions are concerned, this situation entails a fierce competition that translates into mergers, incorporations and the development of new organizational cultures and leaderships. Additionally, there is a demand coming from an affluent social class that, in turn, demands a customized service. It is therefore important to develop a corporate strategy that includes differentiated products and services and a focus on the agility and reliability of the business, in accordance with the dictates of the market. This paper analyses the dynamic of the high income customers' perceptions regarding to the services provided by an Brazilian financial institution taking into account its institutional image and the role played by its managers. The selected model is based on a mixing of three constructs, namely the customers evaluation of institutional operating characteristics, the quality of interaction between customers and managers and the propensity to indicated new customers to the bank. The study approach is quantitative by means of a survey followed by a factorial analysis for the selection of the indicators of each of the aforementioned constructs. A multiple regression model was then estimated, having the institutional image and managers performance as predictors (independent variables), using the OLS method and the ordinal logistic function. The results showed that the customer satisfaction and its propensity to indicate new customers to the bank is properly explained by two predictors as suggested by the model. Furthermore, it was identified a greater influence of the construct which depicts the managers performance. Such conclusions contain fundamental elements for the design of corporate strategies.

Keywords: Customer Relations, Banking Services, Institutional Image

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I.   INTRODUCTION

The financial market is undergoing major transformations, accentuated by acute financial crises and scenarios of uncertainty, increasing the demands of more transparent and ethical practices that affect both customers and bankers. Furthermore, the advances in information technology, the growth of international trade and the intense competition promoting mergers and acquisitions, as well as the concern   for the welfare of society, and the attention given to the environment and social responsibility directly affect the banking sector, redefining purposes and re-dimensioning operational processes, oriented to corporate and social results (Xavier Jr. et al., 2014, Zavareh et al., 2012, Kamiab & Singaravelloo, 2017, Lee, 2016), as well as to new values of contemporary society (Almquist et al., 2016).

In contemporary Brazil, there is a change in the income profile of the population in several regions, with new participants at the top of the economic pyramid, with impacts on the context and behavior of the individual as a customers, as well as promoting a greater demand for customized and directed attention to the segment of high income, indicating a new pattern of competitive intensity (Martins, et al., 2014).

The themes of customer structure, strategy, behavior, and customer loyalty in banking have often been addressed in the literature, both in the field of strategy theory and marketing, by academic authors, financial institutions, and consulting firms. Some recent contributions, such as the future role of banking (Nordea, 2017), bank capital structure (Gropp & Heider, 2010), retention (Haldane & May, 2011), customer profitability (Guibaud et al., 2004), and credit risk (Silva et al., 2004), 2016), the dimensions of service quality and customer satisfaction (Minb & Huu, 2016) and the role of the manager in the banking relationship (Neto & Marques, 2016), among other investigations.

Seeking to match the private competition, the financial institution, object of this research, whose name is not revealed because of corporate questions, identified the need to offer these customers differentiated products and services, ensuring personalized services, focused on security, agility and convenience. A pilot project was created within the scope of the institution with the objective of performing personalized and differentiated service to the customers belonging to the "affluent niche", that is, the one that has a minimum investment amount of one million reais. Such project foresees a behavioral change in the relationship with this customers, as well as the adequacy of products and procedures to the new market standards and a new posture in the service together with the modern and effective negotiation techniques. The orientation of the relationship with the high-income customers is based on a clear positioning for this public, the optimization of the relationship with the customers and the profitability of the portfolios, as discussed by Cohn et al. (2014).

In this context, this study aims to evaluate the perceptions of customers of this "niche", which was done through econometric estimations of a proposed model for this research, relying on the concept of the Net Promoter Score (NPS). The NPS is an evaluation method that seeks to measure the satisfaction and loyalty of consumers of any type of organization, focusing on calculating the degree of propensity to appoint a new customer from those who maintain a business relationship with the company. According to its creator, Fred Reichheld of Bain & Company's Loyalty Practice, the NPS aims to convert "most customers into promoters and few into detractors" (Reichheld 2006; 2011).

It should be noted, however, that the study is not limited to raising a customer satisfaction index, but to present and test a model that allows the identification of variables that explain customers perceptions about the institution and its managers, as well as quantify the likelihood of him becoming a detractor instead of being a promoter of the company's image. In other words, the dependent variable is the propensity to indicate the organization by a customer to other prospects, reflecting the degree of customer satisfaction with the institution, demonstrated by the scores obtained from a simple NPS-type question. The predictive variables are the intensity of the image and the confidence aroused by the financial institution, as well as the performance of its managers, according to perceptions of this same customer base. Data were obtained from a random sample of "affluent" customers.

II.   LITERATURE REVIEW

Organizations are increasingly seeking the power to intervene in the customer's decision-making process, in a direct, favorable and supportive way to achieve a sustainable business. One way to achieve this attribute is to study consumer motivation. According to Fullerton (2013) the birth of researches on consumer motivation took place in the 1940s, with studies intensifying in the following decades assuming concepts, taxonomies and nomologies from various areas of knowledge. For Blackwell, Miniard and Engel (2011) consumer motivation represents the attempt to satisfy the physiological and psychological needs through the purchase and consumption of a product. Sousa et al. (2016) highlight the intense evolution of studies in the context of the areas of Neurosciences, from the mapping and evaluation of the brain in vivo, enabling the emergence, in the social sciences, of research fields called Neuromarketing, oriented to environmental perception and evaluation and rational or emotional decision making.

In the banking area focused on the private individual, the analysis of customer behavior is of paramount importance for the design of corporate actions and strategies, especially since it is a complex service, in the perception of the customers. In this sense, management of the relationship with special customers, or high income ones, carried out through the managers, has evolved from the status of eventual competitive advantage to a latent need in companies. Thus, negotiations over time between these customers and banks have been oriented toward dense relationships, requiring continuous business and individual consulting interactions, approaching the intimacy of the individual-customers (Peppers & Rogers, 2016).

For this, it is necessary to understand each individual in its peculiarities and different needs and requirements, going from the traditional marketing view, based on transactions, to the focus on the customers and advancing to the relationship between customers and companies. The structural and strategic alignment of financial institutions determine competitiveness in the sector (Rhee & Mehra, 2006). On the other hand, the most common situation is that the banking customers is simultaneously the customers of several banks, which requires the implementation of effective strategies, with the essential purpose that the customers maintains his preference for a certain institution (Cortiñaset al. 2010). Thus, relationship marketing seeks the development of perennial relationships between the companies and all the stakeholders involved, from consumers and distributors to their suppliers (Kumaret al., 2010). According to George & Kumar (2014) the provision of banking services requires attributes such as reliability, responsiveness, fulfilling commitments, efficiency, privacy and security in relation to customers. Traditional marketing strategies can still be, and are, used to attract new customers, which depends on the stage of the company's positioning, while relationship marketing seeks to deepen the bond by bringing individuals who are already customers for the consolidation of loyalty. Lehtinen & Järvinen (2015) revisit classical authors and re-discuss the four intrinsic characteristics of the universe of services, which make up their peculiarity, being intangibility, variability, inseparability between production and consumption and perishability, applying them to innovations, including banking services. Strategic performance in these characteristics implies an increase in corporate competitiveness, as responses to the actions of developing long-term relationships between the company and its direct customers and other stakeholders.

In establishing the business relationship, the company makes the customer a series of promises, in the form of products and services, financial solutions, transfer of information, social contacts and new experiences, leading to future commitments and loyalty.

Studies on consumer behavior, particularly on the financial business sector, are aimed at segmenting the various markets, which in essence consists of bringing together and characterizing groups of customers that share common traits. The actions aimed at such a public are based on the structure of market segmentation, when the segregation of different groups allows equal treatment among the niches, more effective and adequate to the standard of customer demands and expectations (Tavares, Afonso & Locatelli, 2012). In the banking market directed to the high-income niche, the main products demanded by the customers involve financial consultancy in applications, financing of ventures, insurance, credit cards and pension plans, which

are created with significant frequency by the market. Because of the specificity and differentiation of the segment, it is often necessary to provide exclusive managers, qualified for the special service, who are willing to visit the customers at his or her place of work or residence.

The simple opening of a checking account establishes a set of transactions, such as transfers, deposits, investments, withdrawals and payments, which result in a relationship between the institution and the individual, unlike purchases of consumer goods, which, in order to be configured in a relationship, must occur successively over a significant period of time. Other peculiarities of bank consumers are the great diversity of customers and the strong governmental regulation of the sector, either through the supply of currency or by supervisory measures by competent bodies (Hoskinset al, 2016).

Weber (1988, p.18), when referring to the American banking market of high-income individuals, object of the present study, explained the importance of knowing deeply the expectations of the consumers and offering products and services customized and adherent to such expectations, and warning that the conquest and maintenance of these customers are not a simple mission and are far from being based only on aspects related to rates or tariffs. Razaket al., (2016) deepen the theme, but they conclude that, for high-income customers, satisfaction does not guarantee the loyalty of the banking customers. In short, the high-income customers of a financial institution demand elements such as solidity and security in the business, personalized service, long-term relationship and convenience for transactions, mainly through internet banking. It also demands agility in service, availability of the manager, good quality and low interest rates and administration of products and services, as well as other conveniences.

III.   THEORETICAL MODEL

The adherence to the theoretical framework previously outlined permits to opt for the Net Promoter Score (NPS) as an adequate synthesis indicator to an evaluation of the degree of customer satisfaction with the services provided by the institution studied.

To determine the Net Promoter Score it suffice to formulate a simple question, as represented in Figure 1.

FIGURE 1

GRAPHICAL REPRESENTATION OF THE NPS QUESTION.

Source: Reichheld (2006).

The answer to this question allows companies to keep track of their index of detractor, neutral and promoter customers producing a clear average for the organization from the customer's point of view. According to Duarte (2012), the permanent calculation of the Net Promoter Score and the monitoring of its evolution, brings

benefits to any type of organization in any context. It is a way to keep up with business evolution based on customer's feedback, from their propensity to refer others. The premise is that the preservation of customers promoters makes any company more solid in the long run, and the spread of corporate values is done spontaneously by satisfied customers.

Despite the NPS's ability to quantify perceptual satisfaction and customer propensity to refer an institution to its reference groups, the instrumentality is limited to understanding the aspects responsible for such positioning. Thus, in this study, only the idea of a simple question to quantify customers satisfaction is absorbed from the NPS, and is complemented by a causal model appropriate to the examination of the motivations.

From the reference framework presented in section 2 and a restricted disclosure survey for Private Banking customers in Brazil commissioned by the financial institution object of this study, two constructs emerged that are considered essential in relation to customers, in a logic of complementarity and mutual dependence: The institutional image and the relations with the account manager.

The institutional image encompasses aspects such as security, solidity, low operational risk, transparency and ethics in the relationship with customers, and an institution capable of offering more sophisticated services and products inherent to a private banking service in Brazil and abroad. The attributes of the account manager's evaluation portray the behaviors, skills and attitudes of the professional involved in meeting the demands and requests of products and services by the customers. If the customers feels secure and comfortable with the institution and is well served by the management body, there will be no reason to move to another financial institution and he can probably refer the Bank / Manager to their relationship group.

The questions that represent the indicators of each of the constructs that together make up the adopted model are detailed in Figure 2.

FIGURE 2: THE CONTRUCTS OF THE ANALYTICAL MODEL

Evaluation of the bank image	Account manager Evaluation
. A bank that combines efficiency, safety, liquity and profitability . Confidence in the financial institution . Need to concentrate / diversify investments . Customers migration from regular to preferred . Excellence in service . Ability of the bank to protect the value of investment . Relationship with the financial institution . Competence of the bank to create and structure solutions . Access to managers and sophisticated products . The bank has expertise in product/services to preferred	. The managers is always available . Knowledge of products and services needed . Manager is organized, objective and efficient . Manager who knows the customer . Appearance, sincerity and reliability of the manager . Speed in troubleshooting . Competence to study and propose new investmente alternatives . Presents creative and innovative solutions . Competence to indicate new international business opportunities . Competence to indicate new opportunities in Brazil

Syntesis Questions	
Does the institution provides motives and conditions for customer maintenance?	Is the manager competent and able to fully serve the customer?

Propensity to appoint a new customer

Source: Elaborated by the authors.

In summary, the examination of the nomological chain that embodies the model that represents the three constructs: "Perception of Customers in Relation to the Institutional Image", "Perception of Customers in Relation to the Service of Account Managers" and the "Propensity to Indicate New Customers To the Bank' constitutes the essence and purpose of this study. In other words, the incursion carried out in the conceptual framework that deals with the theme in question allowed us to examine the dynamics underlying the process of evaluating the image of the institution through a model that consists essentially in the relationship among these three constructs.

The data survey, covering ten (10) questions/indicators for each one of the constructs and one (01) to portray the Bank's willingness to refer to potential customer, was done through the application of a structured questionnaire. However, in order to facilitate the answers to the questionnaire, a form of evaluation that was closer to the day to day life of the people was used, translated into a Likert scale of seven points, namely: 1 - I totally disagree; 2 - Partially disagree; 3 - Having to agree; 4 - Having to disagree; 5 - I neither agree nor disagree; 6 - I partially agree; 7 - I totally agree.

The questionnaire was answered by 203 customers in the high-income niche, and respondents received the questionnaire through emails or messages from WhatsApp containing the search link housed in Google Drive. The research was performed in the months of November and December 2015 and there were no data missing in the answers.

The procedure adopted in the research consisted in the development of a triangulation that is characterized by the use of different methodological treatments to examine a single question. In this aspect, it is emphasized that there is a high degree of agreement among the methodologists in relation to the assertion that this type of

triangulation increases the validity of the research, besides providing a more comprehensive view regarding the phenomenon investigated.

In the present study, triangulation consisted of the use of two different statistical treatments using the same database, which, in turn, were extracted via forms applied to obtain the numerical values of the indicators that depict the constructs constituting the adopted model.

Initially, the average value of customer satisfaction (question derived from the NPS) was computed for each of the 203 customers, which depicts the variable to be explained (dependent). Then, factorial analysis was used to verify how many indicators, out of 10, were needed to explain each one of the constructs (satisfaction with the bank's image and satisfaction with the manager) in line with the responses of 203 customers. Identifying the factors that depict the various dimensions or attributes of the hypothetical constructs, which can not be measured directly, we calculated their means for each of the customers and these represent the metrics of the predictive (explanatory) variables of the model.

Then, the ordinary least squares (OLS) method was applied to estimate a customer satisfaction with the financial institution regression on the metrics of the two constructs used as explanatory variables, and the coefficients obtained reflect the influence of each factor on customer satisfaction.

The limitations resulting from the application of such statistical treatment to the data generated by using a Likert scale (ordinal) can not, of course, be ignored. Thus, a second adjustment of the data was additionally used by an ordinal logistic model considered more appropriate to the data obtained with the use of a Likert scale, which was used in the study. In addition, the ordinal logistic model provides evidence about the likelihood of a new customer being indicated or not by former bank customers in this niche. In other words, the use of such a model allows us to identify the probability of a customers being a detractor of the institution studied. Finally, a triangulation was performed to examine the consistency of the conclusions obtained.

IV. EMPIRICAL SECTION

After that, an analysis of the sample profile and a statistical treatment of the sample was carried out by means of a descriptive analysis of the data used to fit the model.

4.1 Descriptive Analysis

As pointed out, information was obtained from a sample of 203 high-income customers, the majority of whom were men (65%). The majority of the interviewees are in the age group of 31 to 40 years of age (32.02%) and the group over 60 years of age has the lowest representation, with 10.84%. According to information in Table 1, customers over the age of 40 correspond to approximately 53% of respondents.

TABLE 1: DISTRIBUTION OF FREQUENCIES OF THE INTERVIEWEES' AGE GROUP

Age	Absolute Frequency	Relative Frequency
Up to Up to 30 years	30	14,78%
De 31 From 31 to 40 years old	65	32,02%
De Fr From 41 to 50 years old	44	21,67%
De 51 From 51 to 60 years	42	20,69%
Above 60 years	22	10,84%

Total	203	100,00%

Source: Research data.

Data on the reasons why customers maintain business relationships with the financial institution are presented in Table 2. In addition to the average, the standard deviation and the coefficient of variation were calculated to make explicit the variability generated by each indicator of the construct.

The answers to Question 7, which involves the relationship between the customer's business activities and the personalized service provided by the bank to the individual, were the most heterogeneous indicator of the construct, indicating that deviations from the average amount to 46.49% of it. This shows the variety in the use or not of the bank by the customers in its business activities. It also shows the possible unique nature of the customers, who does not have business activities that justify a relationship with a bank or, if he or she owns a company, may not concentrate all the demands on a single institution, either for safety or convenience.

TABLE 2: PERCEPTION OF THE IMAGE OF THE FINANCIAL INSTITUTION BY CUSTOMERS

Indicators	Mean	Standard Deviation	Coefficient of Variation (%)
1. It is a private banking that efficiently combines the objectives of security, liquidity and profitability.	5.946	1.2594	21,18
2. I trust the financial institution, knowing that it is able to manage my resources efficiently, without having to follow these operations closely	5.335	1.6992	31,85
3. I need to diversify investments in a larger number of banks	4.468	2.0568	46,03
4. I was already a client of the institution and I was invited to have a personalized service	4.764	2.1717	45,59
5. The financial institution has an excellent service in Brazil	4.611	1.7495	37,94
6. The financial institution has the capacity to protect the value of my assets, preserving, at least, its purchasing power	5.596	1.484	26,52
7. I have a very strong relationship with the financial institution in my business activities	4.744	2.2056	46,49
8. The financial institution is responsible for structuring tailor-made resource management solutions for my needs	5.084	1.6464	32,39
9. I have access to the table, to the specialized managers and to the more sophisticated products so that I can follow and always give an opinion on the operations of resource management	4.892	1.8743	38,32

	Mean	Standard Deviation	Coefficient of Variation
10.The financial institution has expertise in the products and services that I need	5.296	1.529	28,87

Source: Research data.

The question that claims that the bank combines security, liquidity and profitability objectives was the one that presented more homogeneous perceptions, indicating that deviations from the average amount to 21.18% of it. It is observed that there is a general perception by the customers invited to answer the questionnaire of this research that these benefits are associated to the bank, which motivates them to have reasons for their regular use, corroborating the market research that associates security with the brand of a financial institution.

TABLE 3: PERCEPTION OF MANAGERS' PERFORMANCE BY CUSTOMERS

Indicators	Mean	Standard Deviation	Coefficient of Variation (%)
1. It has availability whenever I need it.	5.606	1.6864	30,08%
2. It presents knowledge of the products and services they offer.	5.926	1.3495	22,77%
3. It has organization, objectivity and efficiency in service.	5.793	1.4612	25,22%
4. It knows the client's financial needs and proposes strategies to serve the	5.567	1.4723	26,45%
5. It shows transparency and sincerity in the relationship it maintains wi the customer.	6.108	1.2056	19,74%
6. It provides speed in problem solving.	5.734	1.4753	25,73%
7. It has competence, in times of economic tension, to reallocate and / or revise my positions.	5.246	1.5885	30,28%
8. It presents creative and innovative solutions..	5.039	1.5474	30,71%
9. It has competence to prospect and present new business opportunities i the Brazilian environment.	5.103	1.6088	31,52%
10.It has competence to prospect and present new business opportunities in the international environment.	4.128	1.8112	43,88%

Source: Research data.

Responses to Question 10 that refers to the competence of the account manager to prospect and present new business opportunities in the international environment was the most heterogeneous of the construct, indicating that, on average, deviations from the average amount to 43.88% of the value of this. This result is consistent with the reality of the financial institution that is the object of this study, since its distribution channel outside Brazil is still incipient and often even unknown by customers and account managers themselves. Thus, the disparity of responses is shown as a sign of this point of attention of the bank in question.

The fact that the account manager shows transparency and sincerity in the relationship he maintains with the customers is the most homogeneous indicator of this construct, and indicates that the deviations from the average amount to 19.74% of the value of the latter. This attribute of trust in the relationship between the manager and the customer is of great importance, as it is not uncommon to come across opinions in the media that the supply of products by managers is only aimed at meeting goals defined by the corporation.

As already presented, in the form suggested by the Net Promoter Score, as it is sought, with a single question, to evaluate the services provided by an organization. In the present case, the synthesis question was: "with this personalized service would you indicate a new customer to the Bank?" The descriptive statistics of customer satisfaction are presented in Table 4.

TABLE 4: LEVEL OF CUSTOMER SATISFACTION WITH THE FINANCIAL INSTITUTION

Mean *	Standard deviation	Coefficient of variation
5.961	1.4551	24,41%

Note: * Scale used from 1 to 7.

Source: Research data.

The average customer satisfaction score is around 6.0, which, normalized by the maximum possible score (7.0), provides a figure of 86% in relation to full satisfaction (100%).

4.2 Factor analysis - selection of relevant indicators for each construct

The use of ten indicators to portray the construct "image of the institution" and eleven to represent the "satisfaction with the manager's service" was the result of the examination of the theoretical reference examined but represented, in the last instance, an interpretation of the authors. Thus, aiming not to damage the principle of parsimony so respected by the scientific method it was used a factorial analysis to allow to extract the least number of factors capable of explaining the maximum of the total variance existing in the set of initial variables. The application of this statistical technique showed that the "institutional image" could be significantly represented by only two indicators portrayed by questions 04 and 07 that group around a factor and manage to explain 68.65% of the total variance presented by the set of the 10 questions considered. By analogous procedure, it was concluded that for the "manager evaluation" construct, it was necessary to use all eleven questions in the questionnaire, which were grouped around a factor that explained 63.9% of the total variability of the data.

4.3 The estimates of the adopted model

In order to identify the influence of each of the constructs (image of the financial institution and the performance of the manager), the following regression was estimated:

$$Y_t = \alpha + \beta_1 X_{1t} + \beta_2 X_{2t} + \varepsilon_t \qquad (t = 1,..., 203) \qquad (1)$$

Yt - dependent variable that portrays customer satisfaction with the financial institution;

X_{1t} - variable indicative of the perception of the institutional image;

X_{2t} - variable that refers to the perception of the manager's performance.

α - regression line intercept, which indicates the mean value of the dependent variable when the independent variable equals zero;

β_1 - coefficient that indicates the intensity of the relationship between the institutional image and customer satisfaction with the bank;

β_2 - coefficient that indicates the intensity of the relationship between the manager's assessment and the bank's customer satisfaction;

εt - regression error term, or stochastic disturbance, indicating the difference between the observed value and the estimated value of the dependent variable;

t - a particular customer.

The results of this estimation using the ordinary least squares method are shown in table 5, which contains the estimated coefficients and the main statistical tests. It can be seen that the coefficients for the two constructs are positive and statistically significant, that is, the bank's image and the evaluation of its managers in the perception of customers positively impact the indicator of customer satisfaction, conditioning them to indicate the bank to the people in their relationship.

TABLE 5: MODEL ESTIMATES

	Coefficients	Standard Deviation	t	Prob. Sig
Intercept	,685	,295	2,321	021
Evaluation of Bank's image	,077	,038	2,022	,045
Evaluation of the managers	,901	,057	15,689	,000

$R^2 = 0{,}627$ R^2 adjusted $= 0{,}623$ F- Statistics $= 168.15$

Source: Authors' estimates.

It can be verified that the manager's evaluation exerts a greater effect on customer satisfaction, so that for each additional point conferred by the customers on the evaluation of the managers, the increase in the satisfaction indicator with the bank increases 0.90. This result shows how relevant is the training and qualification of specialized managers to meet the expectations of the highest-income customers, so that this niche market demands a skilled workforce, well trained and prepared to face the challenges of serving a more sophisticated and demanding clientele.

As pointed out, the variables that make up the causal model are of the categorical ordinal politomic type. Thus, the use of ordinary least squares is not fully appropriate. According to analysts, it is advisable to adjust the model in non-linear cumulative probabilistic form (Long & Freese, 2001), It was chosen in this study by the adoption of the logit model:

$$logit = ln\left[\frac{P(Y \leq k|X)}{P(Y > k|X)}\right] = \alpha_k + \beta x_j \quad (j = 1, \dots, n; k = 1, \dots, k-1) \tag{2}$$

Where αk represents the location parameter for k = 1,..., k - 1 classes of the dependent variable, β is the vector of the regression coefficients and Xj is the matrix of the independent variable.

In the case of the Link function being Logit, taking the inverse of the Logit function, it is possible to define the generic function of the accumulated probability (logistic distribution function) of class k:

$$F(\alpha_k - \beta X_j) = P[Y \leq k] = \frac{1}{1 + e^{-(\alpha_k - \beta X_j)}}$$

Since the dependent variable has 7 classes, the model has 6 thresholds (αk). The slope estimates (regression coefficients) are used to infer the significance of the independent variables on the probabilities of the classes of the dependent variable.

To test the significance of the adjusted model, we use the likelihood ratio test between the null model (without some independent variable) and the complete model (with all independent variables). If the adjusted model is not significant, it is not possible to predict the probability of each class of the dependent variable from the independent variables of the model.

The "Model Fitting Information" reveals that the adjusted model (Final) is significantly better than the null (intercept only) model (G2 (2) = 175.687; p = 0.000), and that at least one of the model independent variables significantly affects the probabilities of occurrence of the classes of the dependent variable. The model fits well to the data according to the Goodness-of-Fit information, because for these tests (Pearson and Deviance) it is necessary not to reject H0. It is verified that this condition is met, since the probability of significance has a value higher than 5%.

The statistics "Pseudo R-square" presented in table 8 are moderate to low, in particular the McFadden statistic.

TABLE 6: MODEL FITTING INFORMATION

Model Fitting	(-2 Log) Likehood	Chi-Square	DF	*P*. Sig.
Intercept Only	368.261			

Final	200.348	167.912	2	0.000

Goodness-of-Fit		Chi-Square	DF	*P*. Sig.
Pearson		185.872	202	0.786
Deviance		131.861	202	1.000

Pseudo R Square	Estimates
Cox and Snell	0.563
Nagelkerke	0.600
McFadden	0.299

Source: Authors' estimates.

Table 7 presents the estimates of the Treshold and the regression coefficients associated with the independent variables, their standard errors, the Wald statistic and the p-value of the test.

TABLE 7: PARAMETERS ESTIMATES

		Estimate	Standard Erro	Wald	*P*.Sig.
Threshold	[NPS = 1]	4,295	,828	26,894	,000
	[NPS = 2]	5,442	,809	45,280	,000
	[NPS = 3]	6,312	,824	58,636	,000
	[NPS = 4]	7,214	,857	70,924	,000
	[NPS = 5]	8,994	,952	89,199	,000
	[NPS = 6]	10,813	1,049	106,164	,000
Location	Bank	,139	,085	2,693	,101
	Managers	1,820	,184	97,381	,000

Source: Authors' estimates.

With the coefficients estimated, the relation can be written as:

$$Ln\left\{\frac{P[Y \leq K]}{P[Y > K]}\right\} = \alpha k - (0.139\,B + 1.820G)$$

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It was verified in the linear model that there is a positive relation between the propensity to indicate new customers and the perception of the customers of the institution image and the performance of the managers, being more remarkable the role of the manager. These conclusions are maintained when using the logit model (Table 7).

However, the ordinal logit model does not allow for a direct relationship between the variables, but is formulated to quantify the Ln of the odds ratio, which in the present case reports the ratio between the probability of not indicating and the probability of indicating a new customer to the bank. According to the results presented in Table 7, it is verified that when the customer's perception about the bank image increases from a point on the Likert scale, the Ln of the probability of observing a lower order class (not indication), relative to to a higher order class (display) reduces 0.139. The effect represented by the performance of the manager in the perception of the customers is more pronounced, being represented by the coefficient 1.82.

Given that the Logit function was employed, we can calculate the accumulated odds ratio using the expression e-0.139, obtaining the value 0.8702. That is, the odds of not indicating the institution's indication by current high-income customers decreases by 12.98% (0.8702 - 1.0), when the variable considered is the bank's image. In the case of the variable considered to be the manager's performance, the odds ratio is -1.82 = 0.1620, so that the probability of not indicating a new customers in relation to the probability of indication reduces by 83.8% (0.1620 -1.0).

A final analysis consisted of detailing the predictive capacity of the model, which is presented in Table 8.

TABLE 8: CUSTOMER SATISFACTION PREDICTED RESPONSE CATEGORY CROSSTABULATION*

		Predicted Response Category						
		1	2	3	5	6	7	Total
	1	3	1	0	1	0	0	5
	2	0	1	0	4	0	0	5
	3	1	2	0	1	2	0	6
Customer Satisfaction	4	0	0	0	7	1	1	9
	5	1	0	1	9	16	3	30
	6	0	0	0	7	18	20	45
	7	0	0	0	1	11	91	103
Total		5	4	1	30	48	115	203

Notes: * I totally disagree = 1, I partially disagree = 2, Having to disagree = 3, I do not agree or

disagree = 4, Having to agree = 5, Partially agree = 6, Totally agree = 7.

Source: Authors' estimates.

Of the seven original classes only the four answer (neither agree nor disagree) is not provided by the model. The model correctly predicts 60% (3/5) of the "totally disagree" class. The percentage of correct predictions is 20% (1/5) for the "partially disagree" class, 0% for the "disagreeing" class. For the "having to agree" class the forecast was 30% (9/30), the forecast of 40% (18/45) was observed for the "partially agree" option, while for the "totally agree" class. The model correctly ranks 3 + 1 + 0 + 9 + 18 + 91 = 104 customers and the

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percentage of customers correctly classified by model is $(122/203) \times 100 = 60\%$. On the other hand, the percentage of correct proportional classification by chance is $[(5/203)^2 + (5/203)^2 + (6/203)^2 + (9/203)^2 + (30/203)^2 + (45/203)^2 + (103/203)^2] \times 100 = = 33.24\%$. Thus, the model ranks reasonably better than the classification by chance.

In summary, both model estimates (multiple linear regression and logit ordinal regression) confirm the importance of the institution image variables and the role played by the managers in the satisfaction of the customers to determine whether or not new customers are indicated, and revealed that the performance of the managers is the construct of greater importance as a predictive variable.

V.   CONCLUSION

The purpose of this study was to identify the satisfaction of customers in the high income segment of a large Brazilian bank and also to analyze their propensity to indicate new customers to the institution. The data used were extracted through a survey with customers of bank branches in different regions of the country.

A model based on the Net Promoter Score was used to portray customer satisfaction from a single simple question. However, the study is broader, since it aimed to identify determinants of customer satisfaction and that are capable of exerting influence in the condition of the customers being detractor or divulger of the financial institution.

The factors were organized into two constructs titled "image strength" and "role of bank managers". To portray each of these constructs, questions were asked - measured on a Likert 7-point scale - that refer to the different factors that may exert influence on customer satisfaction. Specifically, the image construct was the subject of 10 questions and the role of managers of 10 questions.

Factor analysis was applied to identify which indicators were, in fact, relevant to portray each of the two constructs, and then a model was set that places customer satisfaction (dependent variable) on the bank's image / security and of the role / performance of managers (independent variables).

The multiple regression analysis estimated by the OLS was used initially and the coefficients were statistically significant. The evaluation of managers emerged as the most important factor in explaining the customer's condition of becoming a promoter of the services provided by the financial institution.

Considering the use of an ordinal scale (Likert) we chose to estimate the same model by using an ordinal logistic function. This econometric specification, probably more adequate, allowed us to calculate the probability of a customer being a supporter instead of being detractor of the services provided by the financial institution. The results confirmed the importance of both the bank's image and the managers' performance, and that (the latter) is crucial for customer satisfaction.

These results are indicative that the skills, qualifications and training of managers should deserve a great deal of attention in the banks' corporate management and strategies. However, it is recommended that the model developed here be subject to further testing, involving the use of more extensive samples with application in other financial institutions.

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MANAGERIAL INFLUENCE OF THE MODEL OF OPEN INNOVATION TOWARDS ORGANIZATIONAL DEVELOPMENT: COMPARATIVE ANALYSES FROM THE ADVANCED NATIONAL ECONOMIES

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ABSTRACT

The contemporary importance and influencing potential of the innovation towards the organizational changes and development implies to the managerial imperative of establishing the basis for an innovative processes and behavior, predominantly stimulated through the changes in the organizational structure, culture and model of leadership. Therefore, the scope and depth of the innovative changes, initially linked to innovative managerial harmonization of policies and employee relations, determines the need for a proper categorization and distinction between the traditional, closed innovative model, to the advanced and multi-dimensional model of open innovation, as a precondition for a public differentiation in creating and developing a sustainable competitive advantage.

Initially originating from Chesbrough model in 2003, the process of enabling an organization to develop the model of open innovation is, in fact, a managerial strive to achieve an optimal benefit from unifying the internally with externally driven innovation, ultimately aimed at transferring and multiplying their essence and effects in the prevailing business model, best perceived in several sectors, such as foods and beverages, logistics, services, particularly insurance ones etc. While enforcing the key elements for implementing and evaluating the model of open innovation, it is quite critical to emphasize that the capacity for acquiring new and applicative knowledge and expertise, derives not only from the internal organizational potential, but also from the intensive external interactions, especially with the stake-holders that add value to the overall business proposition. Therefore, having in mind that each consistent modeling of the organizational development requires planned and continuous organizational changes, the prevalence and influence that open innovation possess to the organizational development is placed in the success management criteria, in terms of increased quality of the business, advanced performances, as well as innovative and collaborative employees.

In this contextual managerial framework, the empirical experiences with modeling of open innovation that originate from the advanced national economies, such as USA, Great Britain, Germany, Holland, Italy etc., would be the methodological pathway for creating a particular innovative development model that could be, in near perspective, used in transitional economies, such as in the Republic of Macedonia, aimed at broadening the inter-organizational networks, on one hand, as well as increasing the business flexibility and integrity, on the other hand.

Keywords: Open innovation, organizational development, business model, competitive advantage

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I.   INTRODUCTION AND LITERATURE OVERVIEW

Probably the most influential contemporary developmental model nowadays, i.e., the model of open innovation is fundamentally deeply rooted to the aspects of the evolution and applicative exercise of the modern and applied business strategy, especially having in mind the corporate strategy concept as a supra absorber of the numerous, distinctive and complementary value adding business strategies, analyzed as a sub-strategic elements.

Initially originating from Chesbrough model in 2003, the process of enabling an organization to develop the model of open innovation is, in fact, a managerial strive to achieve an optimal benefit from unifying the internally with externally driven innovation, ultimately aimed at transferring and multiplying their essence and effects in the prevailing business model, best perceived in several sectors, such as foods and beverages, logistics, services, particularly insurance ones etc. While trying to merge open innovative contributions of Andrews, Chandler and Ansoff, we can conclude that adopting and accommodating the open innovative concept into business strategy is a co-integrated process, without official beginning and end. In this process, it is crucial to define the change and readiness to acerbate new shift from the traditional business strategy towards the open business strategy, namely to redefine and refine the traditional creation and capture of the innovation based value, thus shifting from the ownership focus to the openness paradigm, almost equaling to public good, and cope with the new managerial challenges immanent with the open business strategy (Chesbrough and Appleyard, 2007).
In essence, open innovation model means constant search for the broader horizons for contributors from the innovation, by creating constant openness for acquiring and benefiting from the new innovative practices, created with the network cooperation with external innovative researchers. Therefore, the concept of introducing the open business model emphasizes that management should define, adopt and implement constant attraction for innovation source, for which the customer-centered paradigm is of major importance, as classic answer to nowadays demand driven business, but more over for the purpose of creating innovative value for customers, increasing their base and loyalty, as a prerequisite and, at the same time, consequence for companies competitive advantage and market share, via performance of different modes of customers collaborative (co-design, co-construction) approach as one of the four models of mass-customization. Today, the key innovative developmental dilemma shifted to the importance of choosing the right mode for customer utilization with the open innovation model, by collaborating between the internal R&D sectors and external contributors to profitability and sustainability.

By focusing on the mode of design by customers, or *active integration of customer participation in innovation* (Ramirez 1999; von Hippel 2005), companies can built stronger ties with the customers and involve them in the early stages of the innovation, stressing them in addition as important stakeholder of the open innovation model. In this context, managerial decisions should focus on providing unique and competitive combination of the three crucial setting, namely *degrees of freedom,* of the tasks that has been assigned to customers, the *degree of collaboration ,i.e.* relationships in an open innovation setting and the *progress of the NPD process* refers to the stage where customer input from open innovation activities enters the new product development (NPD) process, for which the managerial implications for success are threaded into difficult decisions and actions for creating capacities for disclosure, appropriation and integration competences within the company's business model.(Piller and Ihl, 2009).
Even though the traditional business strategy can be defined as a static one, with regards to value creation and capture, the open strategy makes dynamic and balanced approach, opting to the internal sustainability in a perpetual way, predominantly throughout the four primary categories such as *deployment, hybridization, complements, and self-service* (Chesbrough, Appleyard, 2007). All this burdens, still configures the open innovation model as open as the traditional business model allows to be open, but yet profitable and moreover sustainable, thus expecting to have more evolving open

business strategies, necessary for the competition and growth rooted in the traditional ones, necessary for the profitability and sustainability. It is quite interesting that, some survey data confirm the firms greater orientation in open innovation towards suppliers and customers, rather than with the Universities or research centers, as well as with the public research centers that predominantly deal with the upstream research and broad exploration activities, as a portion of the complex Open Innovation process (de Backer et al.,2008)

II.   NATURE AND MANAGERIAL ASPECTS OF THE MODEL OF OPEN INNOVATION

Fundamentally, model of open innovation is deeply connected with the managerial decisions and determination to change, applied in particular when large and established companies are the case, as mature firms has needs for radical innovation to create new platform for *renewal, change and growth* in saturated and over-competitive markets (Colarelli, 2005). It is quite obvious that open innovation is crucial for introduction and implementation of the most effective type of radical innovation, understood as system for commercialization of new products and services or launching business lines. Even though being radical in innovation means acting open in innovation, still quite dilemmas and managerial difficulties appear for the process of internal change and adoption for the external implementation. This radical to open innovation linkage is limited and challenged with paramount aspects, in relation to managerial practices, especially when the internal capabilities are taken into consideration, differing contextual and substantial influences of the open innovation to radical innovation three various internal competencies of *discovery, incubation and acceleration model*.

The open innovation is principally a *process that should start with profound change and transformation of the firms setting from just pure market share mindset to competence based mindset, by transforming the organizational culture and their leadership, incentives, skills, operational process, and a whole host of internal systems from traditionally closed to open innovation system, and by simply defining themselves and their unique products, and subsequently applying the open innovation processes* (Rufat-Latre et al, 2010), and finally obtaining distinctive competitive advantage. Similar to all change management processes, it all starts from the top to bottom, not vice versa at all.

One of the most advancing issues for the open innovation model is the managerial aspects of the company's location, as a complementary element of companies' organizational culture. Several theoretical and limited empirical evidences confirm that sustainable and successful open innovation model is linked to the *values of trust and confidence, as well as by cosmopolitanism, openness for global interaction and social tolerance, namely socio-cultural aspects that stipulates innovation through network engaging, mobility of qualified staff, open information flow* (Saxenian, 1994; Florida, 2000), and *presence of attitudes such as willingness to experiment and take risks, informality of work styles and high occupational mobility* (Saxenian, 1994; To¨dtling and Trippl, 2007), that could be summarized as "*quality of place*" (Florida, 2000, 2005). Managers should analyze the country or moreover the region to place their hubs or units, as the regional open innovation strategies, enforced by public policies initiatives that correlate to greater open innovation culture and processes, and to use the outmost of the inter-connections between the regional innovation networks, knowledge and universities centers, companies and governmental bodies (To¨dtling et al.,2011). In our view, understanding that there isn't uniform causality, we can state that organizational culture values towards the open innovation model and strategy, implemented by the successful company examples, is at the beginning stage more important to create a micro region for open innovation that subsequently that followed regional innovative culture that promote additional innovative value.

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The in-forcing of the organizational culture as a part of the corporative culture, is substantially influencing the open innovation model. As an illustration by the empirical study on 232 US CEO's from different size companies, it has been showed *strong influence of corporate culture, and within it, adhocracy culture and thus, a combination of flexibility and external orientation, on exploration and exploitation and subsequently on innovation success and performance* (Matzler K. et al.2013), as a follow up of the earlier findings of Deshpandé et al. (1993), initiating the relation of the firms innovation to its higher performance and external orientation and openness. Managerial decisions and attitudes towards enhancing flexible and external corporative culture appears as the basics for the open innovation model establishment and even success measured by market performances.

II.a MANAGING OPEN INNOVATION AT CORPORATIONS AND SME'S

With regards to the distribution of its applicability to various modality of enterprises, certain theoretical and limited empirical work shows findings on symmetry and intensity of "openness" in the open Innovation model, vis a vis *large to small company relation*. In this regards, without pretension to be taken as definite, the work of Torkkeli et al. (2009) showed asymmetry in relations in the large to small firms and their open innovative market approach and their interactions. From the contingency perspective, these testing appear to emphasize *the larger firms' managerial operations to buy more important to absorb external core knowledge, and to sell non-core knowledge to the market* (Torkkeli et al,2009).

One of the focal points of the further development of integrated open innovation model and managerial aspects of the process is linked to *the role of SME in the open innovation*. The investigation shows *greater prevalence of open innovation strategy for the large companies than for the SME's* (De Backer et al.,2008). However, prevalence of the large firms in the open Innovation, equally for manufacturing as for the services, is changing, by increasing and intensifying involvement of the SME's for open innovation, by acting more open than before. Bearing in mind the differences in sizes and clusters, by fostering medium-size companies in relation to small ones, for open innovation, the focus is put on *technology exploration, and inflow of knowledge and creation of innovation by customer collaboration, that allows to confirm constant increase of SME's adoption of open innovation, as e key answer for competitive advantage in their environment that lacks of resources for developing and commercialization of new products and services, regardless of the industry* (van de Vrande et al., 2009). This approach, implicitly suggests a sequence in the adoption of open innovation for SMEs, starting with the following (van de Vrande et al., 2009):

- *customer involvement, following with*
- *employee involvement and external networking, and ending with*
- *more 'advanced' practices like IP licensing, R&D outsourcing, venturing and external participations, while*
- *managerial barriers presented into organizational and cultural issues are still present challenges for the SMEs more intensive open innovation business strategy and model*.

Implementing an open Innovation Model for the SME's, besides the already established models and various executions for the large companies, is one of the best recipe for their survival and development on the market. In his regards, we can argue that SME's in different ways can develop business adoptions and strategies for open innovation as a means for the Porter strategies for differentiation, diversification and efficiency (Crema et al,2014), and yet to conclude that the overall process allows SME's consistent development in different manners as a consequence. In all three strategies, managerial implications of *the open innovation model implementation, would increase internal capabilities, expertise and relations with external partners, as well of parallel development of the ICT tools and practices for sustaining the*

model. Overall, it would benefit the core SME's strategic management and finally its market share and market role improvements.

Creating and increasing a potential for open innovation model adopting significantly improves firms capabilities and capacities for further innovation at a lower cost, especially when at the beginning or in situation when companies R&D isn't available or suitable. Qualitative and quantities analyses on the sample of 180 top Europe' 500 companies (FT,2009) additionally from SME's from 24 EU countries, show *the prevalence of the in-bound open innovation characteristics, meaning the business strategy set by the managers, converges with internalization and commercialization of the external knowledge in the company or in the newest form to do the combination or mix, involving creation and commercialization outside the firm* (Schroll and Mild,2011), in order to either compensate the limited or non-existing internal R&D or to act cost efficiently and increase revenue opportunities(West and Bogers,2010).

In detailing the developmental character of open innovation model we must emphasize that at the moment, key engine was and still are academic literature and large companies innovative practices in some sectors, detailed as best benchmarking. In addition, weak linkage between firms and universities and public research centers, can be overcome by career incentives for researchers and stimulation for their focus on valorization. However, *public policies fostering open innovation should change and approach more conceptually, beyond actual financial incentives for R&D, interventions for interactions among the innovative partners and better access to financial resources for innovation, and deal with coherent and consistent change in the market competition regulations, labour markets and education structuring*.

Positive examples of developed countries for the regional clusters or technology parks, for example, show that slight improvement and policy adaptation and focus can increase greatly the open innovation towards developing countries and global markets, as well as to better diffusion of knowledge transfer among the industries and different size companies, illustrated as *greater collaboration between firms and users, by support for technology platforms, user communities and repositories for intellectual commons, followed by fostering patent maintenance fees as an incentive to diffuse unused knowledge and technology, as well as to promote public policies for corporate entrepreneurship via raising awareness for incumbent enterprises, best practices and consulting services for entrepreneurial strategies* (de Jong et al.,2010). Finally, there should be shift of the labour markets, science and education policies from consideration towards open innovation new business opportunities, by aligning public policies across different policy areas (Edler and Kuhlmann 2008).

III. DEVELOPMENTAL IMPLICATIONS OF OPEN INNOVATION

In determining the developmental potential of the open innovation, vast number of surveys of the firms internal capabilities and outcomes by open innovation business strategies, resulted in treating the open innovation models as a *general tendency with multidimensional forms of expression, and it can be more effectively understood as an umbrella term for different organizational behaviors which have meaning in different contexts*. As an illustration, the results of the survey of the data set of more than 16.000 different size and sector UK firms (Acha, 2010), show that low correlation between different measures of openness important for theoretical understanding of multi-faceted and therefore multi typology of openness and open innovation styles, and furthermore, empirical level confirms that firms that acquire knowledge and R&D externally and firms that source information broadly has grater consistency to open innovation measures and need more developed design capabilities, in particular the sectors for complex products and services, as the main sector in which firms undertake profound design activities, necessary for pursue and control of the innovation processes and strategies. Such a survey, emphasize

the design capability as a core issue for the depth, broad and success of the open innovation strategy and an important issue for the managers per se.

The open innovation model understands the holistic and in-depth nature of change. The open innovation model means managers are prepared for change, and it changes the managers consequently in reverse. That is the additional value of the model, besides the core value of innovation and its valorization. Therefore, the level of managerial change by and towards the model is crucial. The managerial orientation, in *the first phase*, is to follow and open the best ideas process in the open innovation throughout opening the idea-creation process and more important the idea selection process. However, positive industry examples show the great positive impact of the open creation ideas process, and reasonable regulation of the disadvantages, by improving the patent procedures for securing the intellectual ownership, and creating firms reputation for fair dealings for stimulating ideas and innovation (Lakhani and King, 2013). *The second phase*, open selection ideas process, should be led by managers, by balancing and aligning the external decisions to the company's internal strategy, goals and organizational development. However, the best empirical evidence is *a unique configuration and acceptance of open, generation and selection process*. This a serious job for the managers, and yet, it's more an advantage and opportunity rather than a problem. It just requires readiness for change and creating the developmental capacity to accept open innovation via this wide open phases, and by understanding the value form outside to revalorize as a profit for and growth for inside.

Managerial challenge for sustaining the Open Innovation Model, from the point of view of its cost and effectiveness, needs a persistent and efficient open innovation user communication as a part of collaborative mechanism. The analyses of the internet opportunities for user application, conducted on the 75 firms of the BusinessWeek's lists from 2009 and of the 50 most innovative firms (BusinessWeek 2009a) and the 100 most valuable brands (BusinessWeek 2009c), showed *limited opportunities of the most recognizable most innovative world firms and brands for the end users to offer additional innovative solutions, measured by propulsiveness of the existing web sites for doing so, precisely offering open innovation approach on website by the third of the analyzed firms and brands and quarter of the them offering online communities on web sites.* This results express the firms and brands need to remain continuously openness and innovative, in order to communicate and utilize the users ideas and solutions (Laine and Maisch,2010) as an important managerial obligation for organizational change orientated to innovation and sustainability.

Open innovation model means, in developmental context, open business model per se. The evolving technology and increase market competition, put a pressure on the managers to constantly define or re-define firm's business strategy and primarily the prevalent business model. The open innovation model is linked to open business model and addresses the fundamental growth challenges, such as *on the cost side by leveraging external R&D to save resources in the innovation process, and use the most of commercialization of own or external product using instruments of patenting, licensing, joint ventures and spin offs etc.* In essence, introducing Open Innovation Model, means firms ability to transfer to the open business after managerial decision and coherent transformation of the old to the new.

It is evident by the Figure 2-1 that the intention to perform with open business model possesses high cost – benefit effect, and in this process, it is important to make the open model adjustments in order to make the difference to previous closed business model constituencies.

Managerial approaches to develop Open Innovation Model

In detailing exact managerial approaches for enabling the open innovation model, it is useful to specify the researches of the "*early innovative adopters*" in Italy. Their fundamental conclusion happens to be that there is *obvious heterogeneity in open innovation model application*, especially

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with regards to innovation network configuration and dedication to applicative changes in the company's organizational structure and development. In practice of the Italian early adopters, exist two types of open innovation platform, exploitative Innovation Model one with strong ties with the users, suppliers and Universities and research centers and second, exploitative Innovation Model practiced with weak ties, except with the Universities, followed by differences in the organizational development model, again divided in the group with significant changes in the organization model, focused on formal, dedicated and strict model of open innovation model and the group with informal structures and lower level of changes, still based on the existing internal processes as dominant for accepting external knowledge in the less formal open innovation model, for which differences in the research results proxies are R&D intensity, appropriability, uncertainty and time factor.(Buganza et al, 2011)

The illustration of integrating the open innovation dimensions, through managerial levers and phases of adoption process, is illustrated on the Figure 2-2.

It is evident that 10 years ago, the perception for the open innovation adoption has been that the core motive for industries attempted to adopt and sustain competiveness with certain model of open innovation that aims at *dealing with the developmental issues and fulfilling the profitable and sustainable growth goals, for which the external sources of R&D and innovation resources in general, are the best way to satisfy, adding that this developmental model requires appropriate management capability to effectively interact with external and to internal business functions*.

Open innovation Model can be substantial engine for company's growth under complex and numerous circumstances. The precise details why some companies with extensive open innovation model are less successful than others lead to the fact that *one core issue is the management obligation to create the procedures and processes for continuous and close connection between the idea scouts and idea connectors, as an important relation for having the innovation initiation, development and market successes*. In this regard, the managerial innovational focus is put on the internal management capability and processes, precisely employee network that can bring out the innovation (Whelan et al, 2011), emphasizing, the importance of internal network, knowledge and know-how, transformation into applicative and valuable innovative product or service, distinguishing the particular role of innovative brokers. Therefore, this successful chain of open innovation processes comprises of *ideation, selection, diffusion and exploitation*.

The theoretical managerial background for the value of inter-connectivity among the idea suppliers and idea seekers, processes within the inside companies business model, i.e. *culture and employees*, stressing the issue of innovative brokers, it is not backed up in the practice in general. This phenomena is important to note, since intermediaries in the Open Innovation Model should play the classic push up role for fostering the model itself, while accepting the risks on themselves. Most of the threats are the challenges for the OI model, repeatedly IP regulation and security, time lags, valorization and commercialization of the innovation among the rest. However, *the role of the intermediaries should be more important than actual, if the potential is fully used for linking the external knowledge and innovation initiators and companies seeking innovation*. Therefore, this issues are pending in particular for the academic community.

The final explanation of the managerial applicative innovative tendencies show *convergence of the open innovation model in the sector of services, i.e. transforming the traditional chain of value, that relativized services in the product orientated company seems as paramount as with the beginning of the open innovation model*. Nowadays, services are, more than ever, core of every economy, regardless of the level and size. In this context, the founder of open innovation model, Chesbrough, proposes *whole new shift to services innovation exploration in product orientated companies*, based on his theoretical

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background and few positive US based examples. Concisely, this innovation is aimed at *reorganization of the business model and creation closer ties with the customers, offering service as an added value for no or lower cost for the customers, and use it as an insight and opportunity to create new service and value that would be additional revenue for the supplier company.* (Chesbrough,2011)

IV. EMPIRICAL EVIDENCE OF OPEN INNOVATION PRACTICES IN SELECTED ADVANCED NATIONAL ECONOMIES

The applicative value of the model of open innovation is the most illustrative indicator of its potential to change and further develop all types of organizations and institutions that benefit from it. It is of an utmost importance initially to categorize the scope of developmental implications that open innovation possesses in the contemporary functioning of the transformative systems, which, in accordance with our explorations, varies on the following *modalities of development by open innovation:*

- *Stimulating a creation and improvement of business models,*
- *Systematic versus incidental institutional support for an OI environment,*
- *Particular versus sectoral character of influencing the business development, and*
- *Research experience in achieving a developmental goals by open innovation.*

Stimulating a creation and improvement of business models

The potential of open innovation for changing the prevalent way of adopting to the external environment and integrating to internal environment fundamentally lies in the prior categorization of the *basic stages of the innovative process*, on the following way (Der Meer, 2007):

- *The concept stage* – where new idea have been created, implies to the importance of invention and stimulating the creative effort for changes,
- *The development stage* – implies to the phase where ideas that possess major capacity for implementation are transformed in unified projects, and
- *The business stage* – relates to the moment where projects are converted into completely new business.

The consecutive application of conceptualization, development and business modeling is performed in a vast number of advanced national economies, through a closer determination of the content of each of these stages, implying to the following changing aspects of open innovation:

- *In the concept stage,* fundamental importance is placed at creating an innovation climate, developing the model of organizational culture, establishing a regular concept of team identifying and solving the problems and stimulating changes from within etc.,
- *In the developmental stage,* prior orientation is placed on establishing a methodology for proper project development, for continuous process and behavior improvements, for clearing up the difference between closed and open innovation model, as well as securing that all project details have been properly identified and placed etc.,
- *During the final, business stage,* prevalent attention should be given to detailing all managerial dimensions for a consistent use of the open innovation model, in which particular attention should be given to planning and implementing the unification of the improvements done in the process and behavior that derive from the previous stage.

The above constituting elements of the innovation process lead to the necessity of creating a pathway for establishing and developing a modern business modeling, through *the change stimulating business elements* for each organization and institution, on the following way:

- Possessing an intensive research and development unit and expertise,
- Focusing on radical innovation, especially those that have the potential for external technological commercialization (Lichtenthaler, 2008),
- The commitment of the top management in promoting the transition towards the OI approach (Pisano and Verganti, 2008), as well as,
- Changing the prevailing success indicators, from quantitative ratios to far more applicable creativity, sustainability, excellence in obtaining and sharing knowledge, skills and expertise, enabling an innovative measuring of the business performances etc.

It is evident that such an innovation approach has been applied in several companies from the Netherlands, such as DSM, through changing from conservative production to more advanced adding value producing elements; Philips, by creating a High tech Campus in Eindhoven, that enriched the potential for other companies and firms to spun off and to develop a high tech start up; as well as Twentse Kabelfabrieken, due to the managerial approach of broadening the context and individuals that are responsible for the overall business success made by the use of the open innovation modelling.

SYSTEMATIC VERSUS INCIDENTAL INSTITUTIONAL SUPPORT FOR AN OI ENVIRONMENT

In stimulating the overall empirical importance of the model of open innovation, one of the most challenging segments happens to be the creation of an *open innovation perspective OIP* (Mortara et al, 2009), through the following constitutive elements:

- *Employment models* – fundamentally relates to the inter-connectivity of the business model with the potential for further employment sustainability, analyzed through openness, decreasing the cultural misunderstandings, harmonizing the employee expectations etc.
- *Partner selection* – implies to establishing a long-term relationship between the beneficiary from the open innovation, on one hand, and the change research institution, like universities, technology parks etc., in such a way that both of them are not necessarily expected to be from one national economy, which in return increases the capacity for a more efficient transfer of new innovative knowledge, skills and abilities,
- *Knowledge transfer* – is fundamentally connected to the need for a closer and more intensive interactions while transferring the knowledge, with a particular emphasis on perceiving, understanding and further developing of the transferred knowledge. In this context, each manager should enrich its own potential for explaining the newly acquired knowledge to the employees, due to the fact that the excessive knowledge understanding is critical in developing a more intensive knowledge application, and
- *Interaction models* – specifically explaining the sources for enabling a full benefit from the cultural modalities of creating trust and respect, differently placed in various cultural environments. In this context, the eastern Asian countries pay attention to trusting prior to detailing, whereas western American and European countries focus on specifying and signing the formalities and contract elements, as a pre-requisite for increasing the respect and trust among partners in the open innovation process.

By emphasizing the fact that in open innovation model, the dependence of organization is placed on several developmental business fields, such as harmonizing the internal and external use of resources, technology, markets and networks, the developmental orientation of open innovation should be

perceived in broadening the boundaries for a more intensive and integrated use of this contemporary model.

The systematic institutional support of the model of open innovation in advanced European countries is best explained through the *European Innovation Scoreboard*, illustrated through, in our analyzes of the policies of the European union towards the open innovation model:

- *Broadening the scope, depth and applied business sectors, for a more consistent and transparent use of OI,*
- *Introducing the criteria for an open innovation development within the chapters of the European union, especially as a pre-condition for transforming the economic sector of the countries candidates for a full EU membership,*
- *Increasing the level of coordinating potential of various policies, measures and instruments of each European country for enabling an innovative environment,*
- *Broadening the fields for innovative expertise transfer, predominantly while analyzing the economic, social and environmental sustainability aspects of the open innovation process,*
- *Distinctive distribution of stimulating mechanisms for open innovation models in the public and private sector.*

The illustration of differences between various European experiences for a vivid application of the open innovation states that, as an illustration, in the Netherlands (Groenveld, 2009), mostly used institutional support is conducted by taxation, public ownership, subsidies and detailed regulations; whereas in Belgium (De Jong et al.,2008), due to the differences and inequalities between the central and regional policies, localized fiscal measures for stimulation of innovative research & development, socially secure contributions, state emphasizing of the knowledge intensive enterprises etc.

Highly important dimension of the consistent, not incidental support to advancement in the OI model is the broader support not only to the public, but also to the private sector, in their strives for a profound developmental innovative approach. In this context, the public and, in general, non for profit sector, is attempting to perform in a 'collaborative platform for open innovation' (Bommert, 2010). Therefore, this sector is focused of establishing networks of citizen cooperation, as well as increasing the number of initiatives for a collaborative development of new ideas into applicable business potential.

Compared to the public sector, the performing of the private sector manifests strive for applying the open innovative cycle, within the prevalent business model. The innovative orientation of private businesses is best detailed through the *key processes for open innovation* (Gassman and Enkel, 2004), on the following way:

- *Outside-in process,* which is predominantly based on expanding the enterprise's knowledge base, by integrating the external resources and capabilities, best illustrated as academic field, suppliers, customers, as well as the overall specific industry profile. This modality of innovative process can be seen in various use of technology, creating added value to certain product or services, and in developing particular skills and abilities at the members of teams, applied in the numerous business cases, such as 3M,
- *Inside-out process,* that reflects the capacity and inspirational attempt of each manager to export its' own overall business potential to outside beneficiaries, starting from developing the innovative idea, through modeling the exact product/service, up to modeling the success innovative model. While developing this kind of process, it is expected from each innovative organization to create value from the elements of the intellectual capital of the specific organization, on one hand, and to be capable of creating networks for further development of own business models with the changes that are needed for accommodating to the changing external environment,

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- *Coupled innovative process,* which attempts to emphasize the positive aspects of the previous key innovative processes, in such a way that the exact business would become a member of strategic alliance, joint ventures etc., while paying attention to benefiting from the business processes and behavior that each partner is strong at and can develop other collaborative networks of enterprises.

Illustrations of application of above innovative processes can be seen in numerous business logos, like Transparency and integrity, Open government (USA), MindLab (Danmark), Public Sector Lab as well as the national institutions like Department for Business innovation and skills, National Endowment for science, technology and arts (NESTA), all of them in the UK (Lee Sang. et al., 2012). At the same time it is quite preferable to explain the practice of MIT University in South Africa, being the first university to contribute to the advancement in the intellectual property benefiting.

PARTICULAR VERSUS SECTORAL CHARACTER OF INFLUENCING THE BUSINESS DEVELOPMENT

One of the most challenging issues in categorizing the developmental capacity of the open innovation model undoubtedly lies in establishing a solid fundamentals for increasing the success rate of the innovative practices, especially the open ones. This managerial orientation is connected to identifying the *main success criteria for the innovative processes* (Afuah, 2003), on the following way:

- *First,* any competitive advantage a company a firm may have is, in fact, lost if it stops to innovate – indicating that in rising and falling business periods, the innovative orientation should be kept consistent and vivid,
- *Second,* innovation doesn't relate only to technology – signalizing that innovative researches should fundamentally be placed in all business dimensions that can create a competitive advantage, whereas possessing an advanced technology contributes to emphasizing the positive competitive model, consisted of all business components,
- *Third,* innovation always deals with change, signalizing that in creating an innovative practices, it is highly important initially to plan the scope and depth of the change needed for increasing the overall business competitiveness,
- *Fourth,* new knowledge has to be put together in new and novel ways – aiming at clearing up the need for a new managerial approach for implementing the ides into concept and afterwards concept into business model, a dimension that makes distinctiveness among businesses,

The integration of all above criteria for increasing the effects of the innovation practices leads to emphasizing and advancing in innovative absorptive capacity, identified as (Zahra and George, 2002):

- *Dynamic capability embedded in a firm's routines and processes, making it possible to analyze the stocks and flows of a firm's knowledge and relate these variables to the creation and sustainability of competitive advantage.*

In attempting to use the innovation, especially the open innovation, in increasing the competitive advantage, it is critical to identify the phases of the business developmental model, in relation to *the stages of the innovative process*, in our analyzes determined as:

- *The intrapreneural developmental phase is linked to the conceptualizing the ideas innovative stage,*
- *The managerial developmental stage is to a great extent in relation with the developmental innovative phase, whereas,*

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- *The professional developmental phase implies to a more advanced benefiting from the business innovative phase.*

Above relations are crucial for enabling a particular influence of the open innovation to the business advances of all enterprises. Therefore, in order to complete the potential effects of open innovation, it is needed to integrate also the sectoral approach of innovative influence. The process of determining the most benefitting business sectors for applying the open innovation approach leads to embedding the open innovative strategy within the prevailing model of doing business. In this context, far most in its application are businesses from the following sectors, such as ICT sector (Apple), pharmaceutical (Bayer Pharma) and telecommunication and electronic sector (Nokia, Nintendo, Philips), chemical industry (DSM) etc.

When pharmaceutical industry is taken into a consideration, as one of the top industry absorbers and producers of innovation, correlation between open innovation model and market performances is, to aggregate extent, confirmed, reaffirming the developmental capacity of consistent open innovation model for the organizational growth. The industries survey, showed that *pharmaceutical companies that performed more than half of R&D and innovative projects from external sources, is having substantial and higher growth, measured by earnings and stock capitalization compared to the competition that depended greatly to internal R&D and innovation projects* (Schuhmacher et al.,2013). Authors thoroughly discussed the new open innovation models for the respected industry, depending of the managerial orientation and business strategy with regards to open innovation model combination, thus declaring model of "*knowledge creator*" with domination of inbound innovation projects, model of "*knowledge integrator*" meaning integration of externally adopted projects and know how via internal model of innovation, in addition the model of "*knowledge translator*" which they define as a combination of internal initiative, know-how and core project with external outsourcing and implementation and finally, the newest and rarely adopted so far, the model of "*knowledge leverage*" that is dominated by external innovation and external valorization by the externally oriented business open management model.

The specific usage of the open innovation strategy intends to go beyond the importance of research and development practice, aimed at increasing the potential for more thorough benefiting from the key business functions, with the application of open business model, created as a combination of modern technology and business modeling.

The capacity for an entire use of the OI strategies would be illustrated through its influence towards the relationship between the external and internal innovation, through the Table 3-1.

In applying the open business model, it is highly recommended for each organization to establish a long-term relationship with its prevalent environment, in such a way that it should pay particular attention to the following most influential *policy implications from open innovation* (Di Minin et al.,2016):

- *Local eco-systems build for open innovation,*
- *Orchestrating a global eco-system through open relationships,*
- *Intellectual property helping open innovation,*
- *Facilitating users' involvement for communities,*
- *Policymakers should strike a balance between encouraging basic research, applied research and innovation models,*
- *Remaining open to new forms of open innovation and other growth models, and,*
- *Policymakers can contribute to creating the conditions for the growth and the diffusion of a strong innovation culture.*

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The proper and transparent harmonization of above open innovation policy implications is placed at higher absorptive capacity for the signal for innovative behavior that come from the environmental sustainability developmental segment.

RESEARCH EXPERIENCE IN ACHIEVING A DEVELOPMENTAL GOALS BY OPEN INNOVATION

Each national orientation for a more intensive use of the model of open innovation in effecting the developmental goals is related to the position of the research and development (R&D) on a national scale, particularly its relation to the open innovation researches.

The most illustrative indication of the internal and external benefiting from open innovation researches would be presented (Knudsen, 2007) on the Figure 3-1, which integrates the most applicative dimensions of creating, evaluating, conceptualizing and market segmenting of the effects that arise from the open innovation model. While analyzing the content of the below illustrated model, it is important to pay particular attention that without profound national researches and development, it is not possible to expand the intensity and change capacity of the open innovation.

Having in mind that the majority of the enterprises in all national economies belong to the sector of SME's, we would present the most prevailing *strategic developmental tendencies, research based*, from the application of the model of open innovation at SME's, in accordance with the Di Minin et al.(2016):

- *Opening up through business model innovation,*
- *Participation in large R&D networks and strong engagement in academic eco-systems,*
- *Open innovation culture and strong appropriability strategies etc.*

The application of the research orientation in the SME sector would be detailed finally on the case of one developed national economy, as it is the Republic of Slovenia. In this advanced European country, were determined the following *innovative developmental implications* (Rangus and Drnovsek, 2013) by the excessive use of the open innovation model in the SME's:

- *Enterprises with open innovation can enter market faster, can better exploit the internal resources and create more integrated solutions,*
- *Implementation at all levels within the company requires a team of people who understand the processes and discipline of innovation and are willing to maintain an open dialogue as well as a business model in which participants feel relaxed, develop their thoughts and ideas and see the achievements of their goals in the work they are doing,*
- *Main obstacles in the implementation of the open innovation is the employee resistance, a vertical organizational structure, cultural issues and problems related to different partnerships (lack of understanding of each other, different cultures and different models of thinking),*
- *Slovenian SME's fear to operate openly, they lack ideas and knowledge of innovation and innovation processes, and lack the knowledge for effective management and moderation of such teams,*
- *Majority of analyzed enterprises need to create a more solid network of external partners with whom they will apply the open innovation model etc.*

It is evident that without an integral research perspective for the open innovation, the developmental potential would be seriously constrained.

V.   CONCLUSION

In essence, open innovation model means constant search for the broader horizons for contributors from the innovation, by creating constant openness for acquiring and benefiting from the new innovative practices, created with the network cooperation with external innovative researchers. Today, the key innovative developmental dilemma shifted to the importance of choosing the right mode for customer utilization with the open innovation model, by collaborating between the internal R&D sectors and external contributors to profitability and sustainability.

Fundamentally, model of open innovation is deeply connected with the managerial decisions and determination to change, applied in particular when large and established companies are the case, as mature firms has needs for radical innovation to create new platform for renewal, change and growth in saturated and over-competitive markets. Managers should analyze the country or moreover the region to place their hubs or units, as the regional open innovation strategies, enforced by public policies initiatives that correlate to greater open innovation culture and processes, and to use the outmost of the inter-connections between the regional innovation networks, knowledge and universities centers, companies and governmental bodies.

One of the focal points of the further development of integrated open innovation model and managerial aspects of the process is linked to the role of SME in the open innovation. The investigation shows greater prevalence of open innovation strategy for the large companies than for the SME's. SME's in different ways can develop business adoptions and strategies for open innovation as a means for the Porter strategies for differentiation, diversification and efficiency.

Public policies fostering open innovation should change and approach more conceptually, beyond actual financial incentives for R&D, interventions for interactions among the innovative partners and better access to financial resources for innovation, and deal with coherent and consistent change in the market competition regulations, labor markets and education structuring. The open innovation model understands the holistic and in-depth nature of change. The open innovation model is linked to open business model and addresses the fundamental growth challenges, such as on the cost side by leveraging external R&D to save resources in the innovation process, and use the most of commercialization of own or external product using instruments of patenting, licensing, joint ventures and spin offs etc.
The precise details why some companies with extensive open innovation model are less successful than others lead to the fact that one core issue is the management obligation to create the procedures and processes for continuous and close connection between the idea scouts and idea connectors, as an important relation for having the innovation initiation, development and market successes. Successful chain of open innovation processes comprises of ideation, selection, diffusion and exploitation.

The potential of open innovation for changing the prevalent way of adopting to the external environment and integrating to internal environment fundamentally lies in the prior categorization of the basic stages of the innovative process, i.e. concept, development and business one. In stimulating the overall empirical importance of the model of open innovation, one of the most challenging segments happens to be the creation of an open innovation perspective OIP, relating to the employment models, partner selection, knowledge transfer and interaction models. The systematic institutional support of the model of open innovation in advanced European countries is best explained through the European Innovation Scoreboard.

Compared to the public sector, the performing of the private sector manifests strive for applying the open innovative cycle, within the prevalent business model. The innovative orientation of private businesses is best detailed through the key processes for open innovation, referring to outside-in, inside-out and coupled innovative processes. The integration of criteria for increasing the effects of the innovation practices leads to emphasizing and advancing in innovative absorptive capacity, well known as the dynamic capability embedded in a firm's routines and processes, making it possible to analyze

the stocks and flows of a firm's knowledge and relate these variables to the creation and sustainability of competitive advantage. On a sectoral level, far most in its application are businesses from the following sectors, such as ICT sector (Apple), pharmaceutical (Bayer Pharma) and telecommunication and electronic sector (Nokia, Nintendo, Philips), chemical industry (DSM) etc.

The specific usage of the open innovation strategy intends to go beyond the importance of research and development practice, aimed at increasing the potential for more thorough benefiting from the key business functions, with the application of open business model, created as a combination of modern technology and business modeling. The most illustrative indication of the internal and external benefiting from open innovation researches integrates the most applicative dimensions of creating, evaluating, conceptualizing and market segmenting of the effects that arise from the open innovation model.

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VII.   APPENDIX

Figure 2-1   *Cost – benefit comparison at business models*

Source: According to Chesbrough W. Henry (2007), Why Companies should have Open Business Models, *MIT Sloan Management Review,Vol.48,No.2,*

Figure 2-2   *Theoretical framework of adopting Open Innovation*
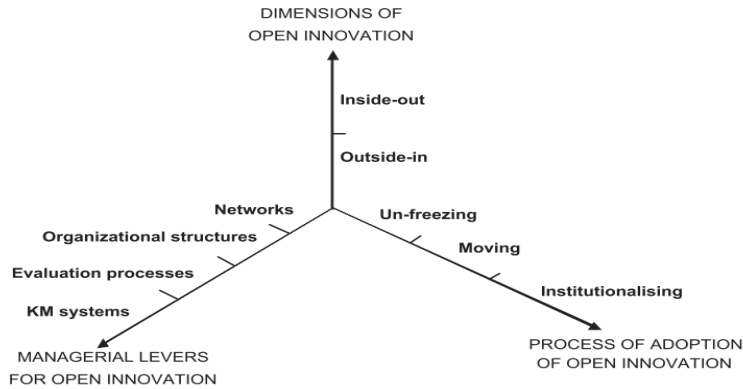
Source: According to Chiaroni D. et al. (2011), The Open Innovation Journey: How Firms dynamically implement the emerging Innovation Management Paradigm, *Technovation,* Vol.31

Table 3-1   *Strategies to solve the challenges in open innovation*

Strategies from open sources	Challenges	Maximizing returns from internal innovation	Role of external innovation	Motivation for external innovation
R&D organization	Coordination and alignment of interests	Participants contribute as a team and share efforts.	Gathering contributions that are available for all.	Institutions should establish legitimacy and continuity incessantly
Spin-outs	Sustainability of third party interests.	Seed non commercial technologies in order to reach other objectives.	Implement internal innovation based on continuous innovation	Free Access to valuable Technologies.
Sales of complements	Maintenance of differences in shared components and capabilities	The most valued target is the solution of all parts of a product.	External components are the basis for internal development.	Firms coordinate continuous supply of components.
Donation of complements	Third party can control users.	Offer a platform that can be extended to external partners.	Add up a variety of novelties in acclaimed products	Acknowledge non-monetary forms of rewarding.

Source: Adapted according to West J. and Gallagher S. (2006), Challenges of open innovation, the paradox of firm investment in open source software, *R&D management,* Vol.36, No.3

Figure 3-1   *Role of R&D to the Open innovation model*
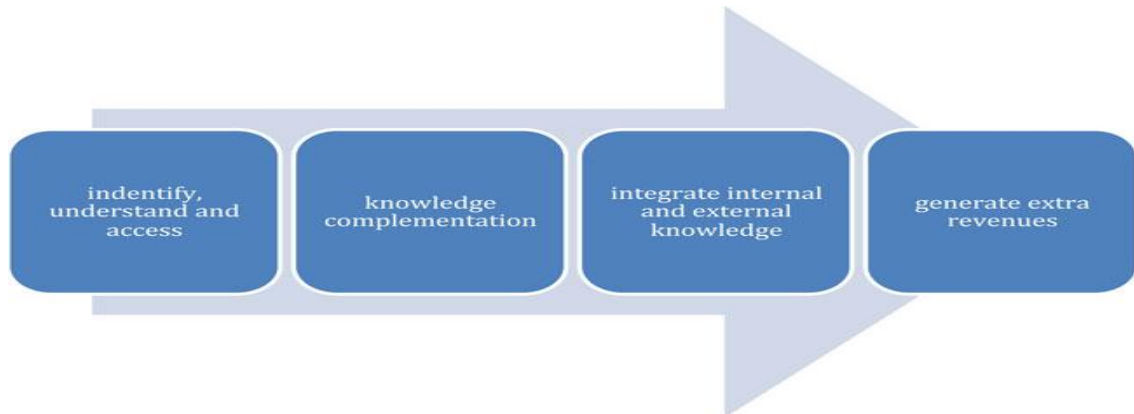
Source: According to Knudsen, L.G. (2007), Opening the Black Box of open innovation: organizational practice, employee competences and knowledge processes, *Druid-Dime Academy Winter Ph.D. Conference on Geography, Innovation and Industrial Dynamics,* Alborg, Danmark, January

PERFORMANCE EVALUATION OF "INTELLIGENT" BUILDINGS - CASE STUDY OF TWO BUILDINGS LOCATED IN THE CENTER OF RIO DE JANEIRO

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ABSTRACT

The traits of modernity surrender to the benefits of sustainability! Investments in real estate constitute an old practice and among the aspects that elevate it or not in the category, currently being ecologically correct can be a decisive differential. Acquisitions of real estate constructed represent simple transfers that aim to reserve value, not necessarily a business, due to the high alternative cost.

It is, in fact, a support to the diversification of investments. This concept is justified by the massive introduction of modern technologies in so-called "smart" buildings. Investors should not only maintain the value reserve, but must also understand that modern buildings must increase value by the facility of technological change required by the project. Otherwise, they will see their real estate turn into scrap, with a more rapid devaluation than the relative management of costs through unplausible economies.

In this investor branch, attention must be paid to location, taking into account transportation, security, as well as structural beauty, giving a certain status that will influence the purchase of the property.

The location values may also be related to certain geographical points of scenic value, such as the sea, lake or river, proximity to squares or parks, or the location relative to certain equipment of greater scope in the city, such as Shopping malls, educational institutions, etc. (LOUREIRO & AMORIM, 2002).

I. INTRODUCTION

Investments in real estate are characterized by "good", an increase in the value of the National Product. Acquisitions of real estate constructed represent simple transfers that aim to reserve value, not necessarily a business, due to the high alternative cost. It is, in fact, a support to the diversification of investments. This concept is justified by the massive introduction of modern technologies in so-called "intelligent" buildings. Investors should not only maintain the value reserve, but must also understand that modern buildings must increase value by the facility of technological change required by the project. Otherwise, they will see their real estate turn into scrap, with a faster devaluation than the relative management of costs by the practice of less intelligent economies.

From the point of view of the investor, the need to acquire a property, where are considered aspects such as location, taking into account transportation, security, as well as structural beauty, giving a certain status that will influence the purchase of the property.

The location values may also be related to certain geographical points of scenic value, such as the sea, lake or river, proximity to squares or parks, or the location relative to certain equipment of greater scope in the city, such as Shopping malls, educational institutions, etc. (LOUREIRO & AMORIM, 2002).

THEORETICAL REFRENTIAL

APO-POST-OCCUPATION EVALUATION

The APO is a methodology that enables the identification of the satisfaction of the final customer and the determinants of this satisfaction, with the built environment, and may involve a specialized technical evaluation aiming at the evaluation of the performance, according to the users' demands, expressed in the form of Requirements for the parts and for the building as a whole (SOUZA, Op. Cit. P.213).

In Brazil, the production phase of the building is well known, however the view of the production process becomes incomplete in that there are still few researches aimed at the use, operation and maintenance phase, reducing the useful life of these environments Because of the absence, since the project, of this type of preventive analysis. In addition, there is a recurrence of flaws in future projects of similar buildings, due to the ignorance of the facts that occurred in environments already in use. This vicious cycle can be broken, insofar as one seeks to know these constructions, both from a technical point of view and from the point of view of users (ORNSTEIN, 2002).

According to ORNSTEIN (2002), in developed countries, any product put into use, including the built environment, goes through a process that necessarily requires a quality control mechanism, in order to meet the needs of its users. Thus, any product placed on the market passes, to a lesser or greater extent, by systematic evaluations, with the end user / consumer being the one who will detect any problems during its useful life, requiring, if necessary, a higher frequency In the maintenance of parts of the whole, and even, full replacement or disposal of that product, if health, health or life-threatening problems are confirmed.

In Brazil, on the other hand, there is a repetition of several products that are not very satisfactory to the user, especially highlighting those that constitute a monumental mass built of public and private buildings, put into use in the last 40 years, without control Quality assessments or systematic performance appraisals.

Thus, a new field of knowledge for administration, architecture, urbanism, and engineering in Brazil, called APO, proposes to systematically evaluate built environments and also to create procedures that stimulate the development of proposals aimed at the well being of the user (ORNSTEIN, 2002).

CONCEPT OF ENTROPIA

Entropy measures the degree of disturbance of function (ZIMMERMANN, 1991). It is a measure of disorder, of uncertainty. In the case of the study, the degree of performance of the building is measured. The higher the entropy, the greater the disturbance and the weaker the performance of the building.'

The entropy goes from 0 to ∞ +. If the entropy is 0, the building has perfect or flawless performance. The further you move away from 0, the weaker your performance.

The entropy as a measure of a fuzzy set $\tilde{A} = \{[X, \mu \tilde{A} (X)]\}$, is defined as $(\tilde{A}) = H (\tilde{A}) + H (\notin \tilde{A})$, $x \in X$.

$$H (\tilde{A}) = [-K \sum_{I=1}^{n} \mu_{\tilde{A}}(X_i) \ln (\mu_{\tilde{A}}(X_i)]$$

Where n is the number of elements in the support of $\tilde{A}$ and K a positive constant. We can simplify this formula with Shannon

$$S (x) = -x \ln x - (1 - x) .\ln (1 - x).$$

CONCEPT OF CARDINALITY

When X is a finite set, the cardinality of a fuzzy set A in X is defined by:

$$\left| A \right| = \sum \mu_{\tilde{A}}(x), \ x \in X$$

RELATIVE CARDINALITY

The Relative Cardinality of a fuzzy set A is defined by:

$$|| A || = \frac{|A|}{|X|}$$

Where $\left| X \right|$ is the number of bracket elements.

THE FUZZY LOGIC

Boole (1951), through his book "In Investigation of the Laws of Thought on Which are Founded The Mathematical Theories of Logic and Probabilities," translates the arrhythmic operators of addition, subtraction, and multiplication by creating their equivalents for set theory, The joining operation by means of the minima, the intersection operation by means of the maxima and the "no" connection. In the mid-1960s Lotfi A. Zadeh observed that the available technological resources were not able to automate activities related to ambiguous situations that could not be processed through Boolean logic-based computational logic. Classical mathematics failed to account for the modeling of imperfections of knowledge. Thus, in 1965, Zadeh published an article on Fuzzy Sets, initiating a series of studies on applications of fuzzy systems.

With the successful development of applications of Fuzzy system concepts, the International Fuzzy System Association (IFSA) was created in 1984. This entity was the first academic organization of fuzzy logic and was formed by the researchers of the most technologically advanced countries. Then, precise engineering controls began to make room for other fuzzes based on fuzzy logic due to the limitations of such accuracy. Zadeh referred to his idea as the principle of incompatibility in his article written in 1973. This principle says that because the complexity of a system exceeds a certain limit, accurate description of the behavior of a system becomes impossible. According to Smithson (1987), "... the mathematics of fuzzy sets is based on a strange and, indeed, obtuse, notation that becomes prohibitive even for the most literate behavioral scientists in mathematics."

Fuzzy consists of a theory in which everything is graded, everything has elasticity. The transition between whether or not to belong to a set is gradual rather than abrupt.

FUNDAMENTALS OF FUZZY SETS

While the boundaries of classical sets are well defined (crisp logic), those of fuzzy sets are clouded, that is, attempts are made to approximate inaccuracies in the mode of human reasoning. In the classical theory of sets, the concept of belonging from an element to a set is well defined. The elements belong or not to that set, and can be expressed as:

$$f_A(x) = \begin{cases} 1 \text{ , if and only if } x \in A \\ \\ 0 \text{ , if and only if } x \in A \end{cases}$$

However, if there is cloudiness at the boundaries of the set, not being able to limit it within a crisp set, the membership function is defined as: $\mu A = X \rightarrow [0,1]$, where μA indicates how much x is compatible with set A.

An element may belong to more than one fuzzy set, with different degrees of pertinence. Pertinence functions can be defined from experience and user perspective, but it is common to use standard membership functions such as triangular, trapezoidal, and Gaussian.

The linguistic variables are variables whose values are names of fuzzy sets. They have as their main function to provide, in a systematic way, an approximate characterization of complex or ill-defined phenomena, which can not be analyzed by conventional mathematical terms. In the case of the linguistic variable temperature, for example, we can have the values low, medium and high, whose pertinence functions can be represented in figure 1.

Figure 1 - Relevance functions for the temperature variable.

Thus, the values of a linguistic variable can be sentences constructed from primary terms (high, low, small, medium, large, zero, etc.), of logical connectors (not, and, or, etc.), of modifiers , Slightly, lightly, extremely, etc.) and delimiters.

The Fuzzy Numbers are defined as follows: In a universe X, we have the fuzzy subset A, whose membership function fa (x) can be exemplified by $fa(x) = (1+ (x - 5)^2)^{-1}$. Since B is a fuzzy subset of real numbers, consider the characteristics of its membership function:

• $f_B(x) = 0$ for all $x \in (-\infty, \alpha]$ U $[\delta, \infty)$

• f_B is increasing in $[\alpha, \beta]$ and decreasing in $[\gamma, \delta]$

• $f_B(x) = 1$ for all $x \in [\beta, \gamma]$

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• Eventually, $\alpha = -\infty$ or $\alpha = \beta$ or $\beta = \gamma$ or $\gamma = \infty$. We can consider trapezoidal fuzzy numbers, for example, the case of $f_B(x)$ in $[\alpha, \beta]$ and $[\gamma, \delta]$. A fuzzy number A in R is a trapezoidal fuzzy number if its membership function $f_A: R \rightarrow [0,1]$.

The trapezoidal fuzzy number can be represented by (c, a, b, d), according to figure 2.

Figure 2 - Relevance function of a trapezoidal fuzzy number A = (c, a, b, d)

II.   METHODOLOGY

The proposed methodology considers that the focus given to the projects and the evaluation of the premises for corporate use has progressively evolved. The questionnaires were structured with the objective of obtaining the highest fidelity in the answers. Taking into account the underlying population and previous experiences, the number of questionnaires distributed would imply negligible deviations of results.

The present work emphasized the descriptive and significant identification of faults and positive aspects of two buildings (A and B), based on the factual knowledge of people who experience the environment in the most diverse conditions. The methodology necessarily implies the consideration of the following:

a) Delineation of the problem;

b) Identification of relevant attributes;

c) Location and dimensioning of attributes;

d) Identification and categorization of the elements of the sample;

e) Preparation of the questionnaires;

f) Testing the questionnaires;

g) Plotting information and consistency tests;

h) Application of the chosen methods (A.P.O, Fuzzy and Entropia).

THE METHOD

The study for the performance evaluation of buildings A and B to meet their objective took into account that assumptions should be modeled based on the opinions of users and "experts" (how they perceive the environment and how it interacts with it). As opinions are impregnated with a high degree of subjectivity, we have provided the means to represent and analyze uncertainties and inaccuracies. These means or resources are made explicit through qualitative structures that model the different degrees of subjectivity. For this, weights and environments with respect to attributes are given as normalized fuzzy sets expressed in terms of linguistic variables. Table 1 is an example of the use of linguistic variables defining degrees assumed by all attributes and functions, and respective weights.

Table 1 - Use of Linguistic Variables.

Let x1, x2, ..., xn be the different environments to be compared, and let a_1, a_2, ...,a_n the different attributes on which they will be evaluated. Each environment i receives a degree r_{ij} with respect to attribute j. This denotes a clear subjectivity, uncertainties that should be treated as fuzzy categories. (Table 2).

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If, according to the theoretical basis, $X = \{x_i / i = 1, ..., n\}$ is a set of environments and $A = \{a_j / j = 1, ..., m\}$, the set of attributes, r_{ij} is the degree of the environment i with respect to the attribute je $w_j \in R^1$ is the weight, or the importance of the attribute j: it is assumed that the degree of attendance of the environment i related to the attribute j is a fuzzy variable, And is represented by the membership function $\mu_{R_{ij}}(r_{ij})$ in R^1. Similarly, r_{ij} is the fuzzy value of the environment i with respect to the attribute j, where $0 \leq r_{ij} \leq 1$. Analogously w_j is a fuzzy variable that shows the relative importance of the attribute j, where $0 \leq w_j \leq 1$, and $\mu_j(w_j)$ is its function of pertinence.

The membership functions $\mu_{Rij}(r_{ij})$ e $\mu_{wj}(w_j)$ assume the values in the interval [0, 1]. All fuzzy sets are considered normalized, that is, they have finite supports and assume the value 1 at least once. For the evaluation of an environment X_j, a fuzzy set is assumed which is computed on the bases of r_{ij} and w_j, as follows:

$$f(z) = \frac{\sum_{j=1}^{m} w_j r_j}{\sum_{j=1}^{m} w_j}$$

where, the vector $z = (w_1, w_2, ..., w_m, r_1, r_2, ..., r_n)$.

The relevance function for the weighted degrees is given by:

$$\mu_{\tilde{R}i}(\bar{r}_i) = \sup \mu_{Zi}(z) \quad \bar{r}_i \in R; \ Z: (z) = \bar{r}_i$$

The normalized value $\bar{r}_i$ for alternative i is given by the expression:

$$\bar{r}_i = \frac{\sum_{j=1}^{m} w_j r_{ij}}{\sum_{j=1}^{m} w_j}$$

If the final grades are crisp, r1,r2,...,rn, then:

$$p_i = \bar{r}_i - \frac{1}{n-1} \sum_{j=1}^{m} \bar{r}_j$$

Since r_{ij}'s and w_j's are fuzzy variables, p_i is also a fuzzy variable with membership function

$$\mu_{pi}(p) = \sup \mu_{\bar{R}}(\bar{r}_1, \bar{r}_2, ..., \bar{r}_n) \ p_i \in R; \ \bar{r}_1, \bar{r}_2, ..., \bar{r}_n: \mu_i(\bar{r}_1, \bar{r}_2, ..., \bar{r}_n) = p_i$$

At the end, considering the entropies and the relative cardinalities, a large comparison between the internal environments of buildings A and B, thus, the total values for the buildings, comparing the pertinence of the different attributes in the subset great.

III.   EVALUATION CRITERIA

Attributes identified as environmental elements are classified into groups and vary according to the project or set of projects. In general, the following stand out:

a) those related to comfort;

b) those related to security and;

c) those related to location.

The problem typifies the case where there is inherent uncertainty associated with the degree of importance of attributes.

For the field work methodological resources are used that allow to constitute the fuzzy logic in mere scientific technique. The first contact with the social group that one wants to study allows the sociological stratification, with all its dimensions and importance and thus to minimize the possible biases. The registration process is systematic, parameterized by the general propositions. Initially, one seeks by logic the rigor in observation by determining the most important data to be observed and scaled hierarchizing the others in an exploratory field defined by the scope of the research.

The attitudes and behaviors of the group under study should constitute the later environment of the analysis through fuzzy logic. This at a time constitutes the best instrument for understanding the idea of the principle of incompatibility. The principle of incompatibility proposes that when the complexity of a system exceeds a certain limit, deterministic and accurate description of the system of behavior become impossible, explaining the fragility of formal logic. Some mathematicians even consider that the "incompatibility principle" is the origin of fuzzy logic. Fuzzy logic is a structure that includes fuzzy set theory, fuzzy relations, fuzzy thinking, and so on. In this work it is used to analyze the uncertainties, imprecisions and vagueness mainly related to explicit thinking and human linguistics. It has been found that several decisions supported in fuzzy logic system supports have had extraordinary success with accurate diagnoses in various sectors, such as: medicine, investment priority, business strategy, etc.

Our main focus is on the sizing and analysis of information and thus facilitate the management of decisions.

The fuzzy logic features, which will later be used to model inaccuracies and vagueness, will decrease random deviations by using matrices of five modalities, not just two of formal logic, (0,1).

TREATMENT OF DATA

The first stage consists in characterizing the importance of attributes in terms of "Relatively No Importance" (RSI), "Relatively Important" (RI), "No Importance" (NI), "Important" (I) and "Very Important" (MI), according to table 3. In the second stage, the weights are defined for each attribute on a scale of [0 to 1]. Based on the opinions of experts and users, consensus can be reached quickly, resulting in weighted functions of pertinence, by the demanded side of users.

Table 3: Importance of environmental attributes for user demand conditions.

For the evaluation conditions, the attributes degrees are identified using the linguistic variables "Great", "Good", "Regular", "Bad" and "Poor". The empirically developed membership functions are used to compile $\mu_{Ri}(\widetilde{R_i}) = \sup \mu_{Zi}(z)$ $\bar{r}_i \in R$, which is a fuzzy measure of the degree of hierarchy of one environment relative to the others.

It is possible to calculate the degree of hierarchy of an environment in relation to the others through several operators, known the values and the number of elements of the support, number of attributes considered and the pertinence of sets $\tilde{A}$ and $\widetilde{B}$, requirement and service respectively. Knowing the support elements of the different subsets (pertinence functions) we can generate their pertinence from

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an operator. The operator was generated by an iterative process, aimed at bringing the pertinence of the "good" and the "optimum" closer together.

A great difficulty was found even among the "experts" to clearly differentiate the "great" from the "good", within the criterion of qualification of the attributes.

$$\frac{\mu_A(x)}{x} = \frac{xi^2}{0{,}02(7{,}071)^2} \cdot [\, Z_i \,]$$

$$= 1/1{,}0 + 0{,}96/0{,}8 + 0{,}72/0{,}6 + 0{,}48/0{,}4 + 0{,}14/0{,}2$$

where, $0{,}2\,(7{,}071) \cong 1$,

then: $x_i^2 \cdot [Z_i]$; $Z_i = y_i$, where,

X = Value of the support, and

y = weighting defined in the iterative process.

Table 4 – Weighting

BULDING A

In the two modal models, the attributes are clearly differentiated, with extreme values 1 and 0. In the adopted model of 5 (five) modalities the values vary in the interval [0,1] with well-distant extremes, close to 1 or close to 0 , Given a very acceptable hierarchy. The operator meets the need to establish a hierarchy with a good approximation of reality. The algebraic product and confined product operations readjust the pertinences, allowing the calculation of entropy that measures the degree of fuziness of the membership functions. Other operations were tested with algebra, but the two above were the only ones that allowed the identification of the degree of disturbance of the functions.

Table 5 – Requirements Demand (w_j)

Table 6 – Service or Offer (r_{ij})

Table 7 – Demand x Offer

THE OPERATIONS

CALCULATION OF ENTROPY.

$0{,}54 + 0{,}41 + 0{,}54 + 0{,}41 + 0{,}54 + 0{,}26 + 0{,}54 + 0{,}41 + 0{,}54 + 0{,}54 + 0{,}41 + 0{,}41 + 0{,}54 = 7{,}87$

0 = Absence of entropy or disturbance.

Sets $\tilde{A}$ and $\widetilde{\mathbf{B}}$

Discrete expressions in a finite universe X.

$X = \{\, x_1, x_2, ..., x_n \}$

$\tilde{A} = \mu_{\tilde{A}}(x_1)/x_1 + \mu_{\tilde{A}}(x_2)/x_2 + ... + \mu_{\tilde{A}}(x_n)/x_n$

$\widetilde{\mathbf{B}} = \mu_{\tilde{B}}(x_1)/x_1 + \mu_{\tilde{B}}(x_2)/x_2 + ... + \mu_{\tilde{B}}(x_n)/x_n$

Soon,

A(x)   = 0,96/Confort + 0,14/Garage + 0,72/ External Appearance + 0,96/ Internal Appearance + 1,0/Safety + 0,72/Location + 1,0/Maintenance + 0,96/Cleaning + 1,0/Air Quality + 0,72/Elevator + 1,0/Furniture + 0,96/Internal Signs + 1,0/Flow

B(x)   = 0,48/Confort + 0,14/Garage + 0,48/External Appearance + 0,14/Internal Appearance + 0,14/Safety + 0,96/Location + 0,48/Maintenance + 0,14/Cleaning   + 0,48/Air Quality + 0,48/Elevator + 0,14/Furniture + 0,14/Internal Signs + 0,48/Flow;

$|B| = 4{,}68$, soon: Relative Cardinality =

$||B|| = 4{,}68/13 = 0{,}36$

Confined difference: $\mu_{\tilde{A}\theta\tilde{B}}(x) = \max [0, \mu_{\tilde{A}}(x) - \mu_{\tilde{B}}(x)] = 0 \vee (\mu_{\tilde{A}}(x) - \mu_{\tilde{B}}(x))$

Ã θ $\widetilde{B}$ = 0,48/Confort + 0,0/Garage + 0,24/Externa Appearance + 0,82/Internal Appearance + 0,86/Safety + 0,24/Location + 0,52/Maintenance + 0,82/Cleaning   + 0,52/Air Quality + 0,24/Elevator + 0,82/Furniture + 0,58/Internal Signs + 0,52/Flow

Algebraic product: Ã . $\widetilde{B}$ = $\mu_{\tilde{A}.\tilde{B}}(x) = \mu_{\tilde{A}}(x) . \mu_{\tilde{B}}(x)$

Ã . $\widetilde{B}$ = 0,46/Confort + 0,02/Garage + 0,35/Externa Appearance + 0,13/Internal Appearance + 0,14/Safety + 0,69/Location + 0,48/Maintenance + 0,13/Cleaning   + 0,48/Air Quality + 0,35/Elevator + 0,13/Furniture + 0,10/Internal Signs + 0,48/Flow

Confined product: Ã o $\widetilde{B}$ = $\mu_{\tilde{A}o\tilde{B}}(x) = \max [0, \mu_{\tilde{A}}(x) + \mu_{\tilde{B}}(x)] = 0 \vee (\mu_{\tilde{A}}(x) + \mu_{\tilde{B}}(x) - 1)$

Ã o $\widetilde{B}$ = 0,44/Confort + 0,72/Garage + 0,20/Externa Appearance + 0,10/Internal Appearance + 0,14/Safety + 0,68/Location + 0,48/Maintenance + 0,10/Cleaning   + 0,48/Air Quality + 0,20/Elevator + 0,10/Furniture + 0,14/Internal Signs + 0,48/Flow

Table 8 – Operational Matrix of Relevance

Table 9 – Matrix $w_i \otimes r_i$ (Diagonal)

As can be seen, the fuzzy algebraic product consecrates the "location" with the highest resulting relevance value. The other attributes show results, in algebraic operation, below 0.5 indicating the existence of a high perception by users of critical problems. Here again, the "security" attribute has one of the smallest values (0.14) in relation to the "optimal" attribute. The operations with the algebraic structure of the fuzzy confined product have practically the same hierarchy as the algebraic product. The operators "algebraic sum" and "confined sum" do not fit the assumptions of the problem.

THE OPERATOR

The results of this operator are shown in the diagonal matrix that identifies the attendance indicators of the different requirements.

If > 1 the service is higher than the request;

If < 1 at least one of the characters of the application has not been served

If $= 1$ the requirement is fully met by the performance of the environment

Table 10 – Fuzzy values of the environmental conditions of building A

$$\frac{\sum_{j=1}^{m} w_j r_j}{\sum_{j=1}^{m} w_j} = 0.306$$

BULDING B

The degree to the item Appearance is given by the linguistic variable "great". The scale of the linguistic variables is, in principle, ordinal, becoming later cardinal by the method of fuzzy sets. The graph starts at 0.2 which refers to the smaller portion of the opinions on the item in question. The "great", in this case, is the fashion.

Table 11 – Demand x Offer

Level of Relevance in the Fuzzy Great Subset

$B(x)$ = 0,96/Confort + 0,97/Garage + 1,00/External Appearance + 0,72/Internal Appearance + 0,97/Safety + 0,96/Location + 0,96/Maintenance + 0,96/Cleaning + 0,96/Air Quality + 0,96/Elevator + 0,72/Furniture + 0,96/Internal Signs + 0,96/Flow

Relative Cardinality $=||B||= 11,10/3 = 0,85$

ANALYSIS OF RESULTS

The resulting values are compatible with the relatively depreciated product and should be the subject of a much deeper study to measure its capacity to incorporate new technologies and thus minimize risks and prevent the aging process from entailing the cost of maintenance and reform every time higher.

As for flow that is one of the essences of the optimization processes, it is clear that it is the result of a great effort to reconcile an inadequate physical structure to the typical operational process of a patent office. The improvement of the quality of a building is a consequence of the better conditions of the work environment and the optimization of the operational flow. Whatever the decision, the production process should be organized, since the flow is inadequate, minimizing security problems in a building of clear pathologies, which means taking the project as the source and guideline of the process of its implementation, making Transformations that will promote better quality of work, safety and protection to users.

The analysis of the results defined by the fuzzy operators, as already mentioned, clearly shows the inadequacy of building B, at present, to attend to the current operational process. The reversal of this situation will occur through a high investment, consequently of a high cost of capital and a high and disproportionate cost of maintenance. The degree of satisfaction of the users of building A represented a measure of sensitivity of a highly complex environment. The measures of the linguistic description of

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the human evaluation are confronted with results derived from the physical operators defining lines of convergence that allow very consistent conclusions.

The verbal expressions in synthesizing thought and emotions shaped the deterministic results of other studies. In this way it was possible to identify discomforts of various orders with the physical problems observed, such as: air quality, unbalanced lighting between natural and artificial, unpleasant odors and temperatures, accident risks, discomfort with finishing walls, ceilings and Floors, setting an unpleasant environment for the job. However, the values assigned to the "location" attribute are high, which can be seen in any type of operation. It is, however, a variable external to the building.

As regards building A, the results from the application of the fuzzy operators, present a very worrying picture, mainly regarding the possibility of claims, relatively high, and with regard to the operational process of a patent office. The location factor, external environment, was the only one that presented a relevant-positive indicator. The critical contrast was with the security item, with a very low relevance in the optimal subset. We found 20 (twenty) values of 0.216 derived from the initial base, demand for the "optimal" and "very good" offer. Demand is defined by the degree of importance of the item to the user. The offer is at the level defined by the intelligent buildings of the countries of the first world. Some negative values refer more to the low importance considered by the users, reflecting such consideration in the reduced magnitude of the weight. An "optimal" offer such as that of "Appearance" was not reflected in the resulting Fuzzy coefficients because of their relative relative importance. The Fuzzy Logic impute such result to the existence of a fully satisfactory item, whose importance has to be confronted with that of "Safety" and "Comfort". If, on the other hand, the "Appearance" was poor its relative importance would be greater. Nevertheless, the finding of 31 (positive) values in 42 (forty-two) items shows the quality of the services among the users of building B. By the fuzzy analysis it is clear the satisfaction of the users of the building with the services Rendered by the Condominium reflected in the aspects of "comfort" and functionality of the building. The "safety" items are highlighted as of great importance and their indicators are in the range between "good and very good". It is understood that comfort and safety derive from the best possible combination of the basic conception of the project, its execution and the appropriation of these conditions by the administration, so that the well-being and tranquility of the users are situated at the highest level. The indicators show the success of this conjugation.

COMPARATIVE RESULTS

Index of Attendance

The algebraic product and confined product operations readjust the pertinences, allowing the calculation of entropy that measures the degree of fuziness of the membership functions.

Other fuzzy operations were tested, but the two above were the only ones that allowed the identification of the degree of disturbance of the functions.

<div align="center">Table 12 – Index of Attendance, Demand and Offer.</div>

Relative Cardinality

BULDING A

(0,48/Confort) + (0,14/Garage) + (0,48/External Appearance) + (0,14/Internal Appearance) + (0,14/Safety) + (0,96/Location) + (0,48/Maintenance) + (0,14/Cleaning) + (0,48/Air Quality) + (0,48/Elevator) + (0,14/Furniture) + (0,14/Internal Signs) + (0,48/Flow) =

| B | = 4,68

$$||B|| = 0,36$$

BULDING B

(0,96/Confort) + (0,97/Garage) + (1,00/External Appearance) + (0,72/Internal Appearance) + (0,97/Safety) + (0,96/Location) + (0,96/Maintenance) + (0,96/Cleaning) + (0,96/Air Quality) + (0,96/Elevator) + (0,72/Furniture) + (0,96/Internal Signs) + (0,96/Flow) =

| B | = 11,10

$$|| B || = 0,85$$

MAXIMUM RELATIVE CARDINALITY = 1

Building A = 0.36; Building B = 0,85

Calculation of entropy.

BULDING A

0,54 + 0,41 + 0,54 + 0,41 + 0,54 + 0,26 + 0,54 + 0,41 + 0,54 + 0,54 + 0,41 + 0,41 + 0,54 = 7,87

BULDING B

0,26 + 0,26 + 0 + 0,54 + 0,26 + 0,26 + 0,26 + 0,26 + 0,26 + 0,26 + 0,54 + 0,26 + 0,26 = 3,94

0 = Absence of entropy or disturbance.

The above calculations show that building A has a high degree of entropy (7.87), that is, it has the highest perturbation and poor performance, while building B (3.94) has the highest degree of performance and The least disturbing.

IV.   CONCLUSION

As regards building A, the results from the application of the fuzzy operators, present a very worrying picture, mainly regarding the possibility of claims, relatively high, and with regard to the operational process of a patent office. The location factor, external environment, was the only one that presented a relevant-positive indicator. The critical contrast was with the security item, with a very low relevance in the optimal subset. As highlighted in the body of work, the review of the current diagnosed framework will be through a high investment, with high capital cost and disproportionate maintenance cost. The vertical configuration of the building hinders the internal flows of people and documents, as well as the internal communication between several sectors.

The evaluation of the performance of building B, allows to identify the building as one of the few existing in the city of Rio de Janeiro that can incorporate value, being suitable for technological modifications, is a building that can be modernized continuously. User satisfaction, shown by fuzzy analysis, is in line with the results of the technical analysis, which highlights the good level of comfort, safety and functionality of the building. Nevertheless, it should be noted that there is a need to review the general conditions of accessibility for the physically disabled, and, especially, to implement a special signaling system for the guidance of the visually impaired. Internal renovations are necessary for a better physical arrangement, avoiding wasted space and exposed wiring with the obvious risks of accidents and consequently improving the internal appearances of office floors and other environments.

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Figure 1 – Relevance functions for the temperature variable.
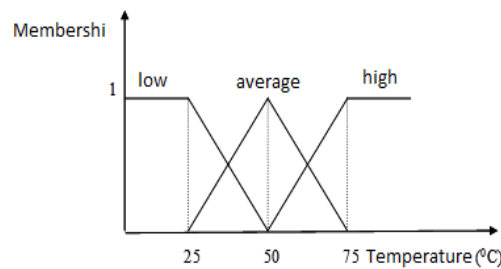
Figure 2 - Relevance function of a trapezoidal fuzzy number A = (c, a, b, d).
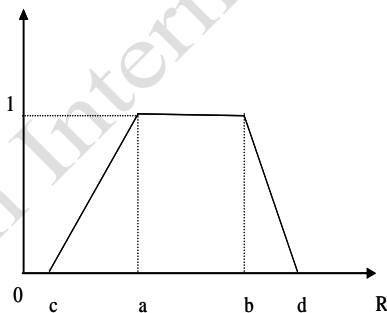
Table 1 – Use of Linguistic Variables.

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Attributes	Weights	degree $\tilde{r}_{ij}$ for environment x_i		
a_j	w_j	i =1	i = 2	i = 3
a_1	very important	good	great	regular
a_2	important	bed	terrible	great
a_3	relatively important	poor	poor	poor
a_4	little important	poor	regular for good	regular
a_5	no importance	good	no, sure	bed

Table 2 - Problem Structure.

		Enviroment			
		X1	X2	Xi	Xn
a_1	W1	r11	r21	ri1	rn1
a_2	W2	r12	r22	ri2	rn2
...	...		...	...	...
a_j	W3		r2i	rij	rni
...	...	...		...	...
a_m	Wm	R1m	r2m	rim	rnm

Table 3 – Importance of environmental attributes for user demand conditions.

X_i	Requirements
1 -	Very Important
0,8 -	Important
0,6 -	Relatively Important
0,4 -	Relatively No Importance
0,2 -	No Importance

Table 4 – Weighting

X_i	y_i
1,0	1
0,8	1,5
0,6	2,0
0,4	3,0
0,2	3,5

Table 5 – Requirements Demand (w_j)

Item	No Importance	Relatively No Importance	Relatively Important	Important	Very Important	w_j
Confort				0,8		0,8
Garage	0,2					0,2
External Appearance			0,6			0,6
Internal Appearance				0,8		0,8
Safety					1,0	1,0
Location			0,6			0,6
Maintenance					1,0	1,0
Cleaning				0,8		0,8
Air quality					1,0	1,0
Elevator			0,6			0,6
Furniture				0,8		0,8
Internal signs			0,6			0,6
Flow					1,0	1,0

Table 6 – Service or Offer (r_{ij})

Item	Terrible	Poor	Regular	Good	Great
Confort		0,4			
Garage	0,2				
External Appearance		0,4			
Internal Appearance	0,2				
Safety	0,2				
Location				0,8	
Maintenance		0,4			
Cleaning	0,2				
Air quality		0,4			
Elevator		0,4			
Furniture	0,2				
Internal signs	0,2				
Flow		0,4			

Table 7 – Demand x Offer

		$\bar{r}_i = \dfrac{\sum_{j=1}^{m} w_j r_{ij}}{\sum_{j=1}^{m} w_j}$	r_{ij}
		Index of Attendance	Level of Attendance
a_1	Confort	0,50	0,4
a_2	Garage	1,00	0,2
a_3	External Appearance	0,67	0,4
a_4	Internal Appearance	0,25	0,2
a_5	Safety	0,20	0,2
a_6	Location	1,33	0,8
a_7	Maintenance	0,40	0,4
a_8	Cleaning	0,25	0,2
a_9	Air quality	0,40	0,4
a_{10}	Elevator	0,50	0,4
a_{11}	Furniture	0,33	0,2
a_{12}	Internal signs	0,33	0,2
a_{13}	Flow	0,4	0,4

Table 8 – Operational Matrix of Relevance

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$$\widetilde{B} \ \Theta \ \tilde{A} = \min \ [\ \mu_{\tilde{B}}(x) \ \Theta \ \mu_{\tilde{A}}(x) \wedge 1 + \mu_{\tilde{B}}(x)]$$

	0	0,14	0,48	0,72	0,96	1
0	1/n!	0,14/n	0,48/n	0,72//n	0,96/n	1/n
0,14	0	1	1,14	1,48	1,72	1,96
0,48	0	0,292	1	1,14	1,48	1,72
0,72	0	0,194	0,667	1	1,14	1,389
0,96	0	0,146	0,50	0,750	1	1,042
1	0	0,140	0,48	0,720	0,960	1

Table 9 – Matrix $w_i \otimes r_i$ (Diagonal)

Demand x Offer	a_1	a_2	a_3	a_4	a_5	a_6	a_7	a_8	a_9	a_{10}	a_{11}	a_{12}	a_{13}
a_1	0,5												
a_2		1											
a_3			0,667										
a_4				0,146									
a_5					0,14								
a_6						1,14							
a_7							0,48						
a_8								0,146					
a_9									0,48				
a_{10}										0,50			
a_{11}											0,14		
a_{12}												0,194	
a_{13}													0,48

Table 10 – Fuzzy values of the environmental conditions of building A

$\otimes$	w_j	r_{ij}	$\sum_{j=1}^{m} w_j r_j$
A_1	0,8	0,4	0,32
A_2	0,2	0,2	0,04
A_3	0,6	0,4	0,24
A_4	0,8	0,2	0,16
A_5	1	0,2	0,2
A_6	0,6	0,8	0,48
A_7	1	0,4	0,04
A_8	0,8	0,2	0,16
A_9	1	0,4	0,4
A_{10}	0,8	0,4	0,32
A_{11}	0,6	0,2	0,12
A_{12}	0,6	0,2	0,12
A_{13}	1	0,4	0,4

Table 11 – Demand x Offer

$$\eta_i = \frac{\sum\limits_{j=1}^{m} w_j r_{ij}}{\sum\limits_{j=1}^{m} w_j}$$

		Index of Attendance	Level of Attendance
a_1	Confort	1,00	0,80
a_2	Garage	1,00	0,80
a_3	Externa Appearance	1,25	1,00
a_4	Internal Appearance	1,25	0,60
a_5	Safety	0,80	0,80
a_6	Location	1,25	1,00
a_7	Maintenance	0,80	0,80
a_8	Cleaning	1,00	0,80
a_9	Air Quality	0,80	0,80
a_{10}	Elevator	0,80	0,80
a_{11}	Furniture	1,00	0,80
a_{12}	Internal Signs	1,00	0,80
a_{13}	Flow	0,80	0,80

Table 12 – Index of Attendance, Demand and Offer.

	Item	A			B		
		D	O	Index of Attendance	D	O	Index of Attendance
1	Confort	0,8	0,4	0,5	0,8	0,8	1
2	Garage	0,2	0,2	1	0,9	0,8	1
3	Externa Appearance	0,6	0,4	0,67	1	1	1,25
4	Internal Appearance	0,8	0,2	0,25	0,8	0,6	1,25
5	Safety	1	0,2	0,2	1	0,8	0,8
6	Location	0,8	0,8	1	1	1	1
7	Maintenance	1	0,4	0,4	1	0,8	0,8
8	Cleaning	0,8	0,2	0,25	0,8	0,8	1
9	Air Quality	1	0,4	0,4	1	0,8	0,8
10	Elevator	0,8	0,4	0,5	1	0,8	0,8
11	Furniture	0,8	0,2	0,25	0,8	0,8	1
12	Internal Signs	0,6	0,2	0,33	0,8	0,8	1
13	Flow	1	0,4	0,4	0,8	0,8	0,8
Total		**10,2**	**4,4**	**6,15**	**11,7**	**10,6**	**12,5**

REFUGEE ENTREPRENEURSHIP IN MANCHESTER, NEW HAMPSHIRE: A CASE STUDY TO FURTHER RESEARCH INTO REFUGEE ECONOMIC INTEGRATION THROUGH ENTREPRENEURSHIP

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ABSTRACT

Manchester, New Hampshire has been a refugee resettlement city for over 40 years. Two to three hundred refugees have arrived in the city each year during that time from a wide range of countries and cultures. Today, the city is home to new American communities from Vietnam, Bosnia, Bhutan, The Congo, Somalia, Iraq, Sudan and many other countries. These former refugees have come to Manchester with a wide range of education, skills, and resources but they have in common a desire for safety, for a better future for themselves and, particularly, their children, and an appreciation for this nation that has taken them in and given them a home. Many of these new Americans have embraced the promise of this country through entrepreneurship, starting a range of businesses in their new city. While anecdotal knowledge of these businesses, that include restaurants, construction firms, an insurance agency, and grocery stores, exists, there has been no examination of the process that former refugees have gone through to start these businesses.

This research will add to the relatively limited knowledge of refugee integration following resettlement in the United States. In particular, refugee entrepreneurs have additional challenges beyond those most domestic and also other immigrant entrepreneurs face, including limited networks for capital and support, language challenges, cultural differences and meager resources. Understanding how these businesses have begun and what their unique challenges are will advance the understanding of both the resettlement program and entrepreneurship.

The primary source for the case study is direct interviews with the entrepreneurs. Although refugee resettlement is a national program (and international issue), this study is limited in scope to Manchester, New Hampshire but is not limited to any single group of refugee communities in Manchester.

Keywords: refugees entrepreneurship resettlement immigrants Manchester

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I.   INTRODUCTION

Tika Acharya arrived in Manchester, New Hampshire in 2009. He came from a refugee camp in Nepal where he had lived with his family since they were expelled, with over 70,000 members of their community, from their home country, Bhutan, in 1995. He arrived with his parents, his grandmother, and his pregnant wife. He was 34 years old and came with little more than a few clothes and only the limited funds he and his family received through the refugee resettlement program run by the United States State Department. His father, a small business owner and community leader in Bhutan, had been imprisoned and tortured then released immediately before the family fled Bhutan. Mr. Acharya was 12 years old.

The Bhutanese refugees were stripped of their citizenship and so had no passports or rights to work in any country. They were allowed to live in camps in Nepal due to their ethnic Nepali origins, most being the descendants of Nepalese who had moved to Bhutan three or more generations ago. They had limited opportunities to work or obtain an education outside of their seven camps. Although Mr. Acharya and his family spent the next 20 years in a refugee camp, he did manage, through scholarships, to earn a bachelor's degree in business administration in India. He also worked for a few years in India at an office of Sun Life Insurance Company but was forced to return to the camps to care for his family. Resettlement to the United States meant a chance for a life of safety and opportunity for Mr. Acharya and his family. It meant acceptance and, eventually, citizenship in the United States. It meant that, for the first time in over 20 years, Mr. Acharya and his family were no longer stateless. They were now new Americans.[xlii]

Mr. Acharya, over the five years following his arrival in Manchester, would be instrumental in the creation of a nonprofit organization supporting the Bhutanese community in New Hampshire, establish a grocery store to provide the same community with the foods that they grew up with in Bhutan and Nepal, and obtained his insurance agent's license and opened his own insurance agency. While there is no "typical" refugee who arrives in this country, Mr. Acharya is representative of a group of entrepreneurs who, arriving through the refugee resettlement program of the U.S. State Department in coordination with and the United Nations High Commissioner for Refugees (UNHCR), have started businesses in the United States.

This paper provides a summary of interviews with refugee entrepreneurs in Manchester in order to contribute to the very limited research in and understanding of the experience of refugees resettled in the U.S. who start their own businesses. The intent is to identify characteristics of refugee entrepreneurship separate from the much broader, and well-studied, category of immigrant entrepreneurship.

II.   RESEARCH AND LITERATURE REVIEW

There has been considerable research done around the impact of immigrant participation in the economy in the U.S. In particular, two studies by the National Academy of Sciences (National Academies of Sciences, Engineering, and Medicine, (2015), *The Integration of Immigrants into American Society*. Panel on the Integration of Immigrants into American Society, M.C. Waters and M.G. Pineau, Eds. Committee on Population, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press. Doi: 10.17226/21746. and The National Academies of Sciences, Engineering, and Medicine. (2016). *The Economic and Fiscal Consequences of Immigration.* Washington, DC: The National Academies Press. doi: 10.17226/23550) demonstrate the depth of this research. However, a particular challenge in this research is identifying immigrants within the U.S. As noted in one recent effort to address this challenge (Pekkala Kerr, Sari and Kerr, William R. (2016) *Immigrant Entrpreneurship*, National Bureau of Economic Research Working Paper No. 22385

nber.org/chapters/c13502.pdf), it is very difficult to find solid information on immigrant enterpreneurs due to the diversity of the group and their dispersal throughout the country. Kerr and Kerr utilize Census Bureau datasets to identify immigrants among business owners but the process does not allow for an easy or comprehensive identification. Given the difficulties of identifying immigrant business owners, refugee entrepreneurs are inherently even more difficult to identify as a distinct group. Accordingly, there has been very little examination of refugee entrepreneurship in the U.S. Gold, Steven J. (1992) *The Employment Potential of Refugee Entrepreneurship: Soviet Jews and Vietnamese in California.* Policy Studies Review, Summer 1992, 11:2 is one source of this research. The methodology of this paper is very similar to that undertaken here given the continued lack of available data for refugee entrepreneurs as a group. The characteristics of refugees, however, that distinguished them from entire immigrant population in 1992 and that contributed to the difficulty of accumulating and analyzing quantitative data with respect to their entrepreneurial efforts and their broader participation in and impact on the economy remain the same today.

III.   U.S. REFUGEE RESETTLEMENT AND CHARACTERISTICS

The current refugee resettlement program in the U.S. essentially began with the passage of the Refugee Act of 1980. Under this program, the U.S. State Department coordinates with the United Nations High Commissioner for Refugees (UNHCR) to identify refugee populations appropriate and available for resettlement to the U.S. Following an extensive examination process by the State Department and other agencies of the U.S. government, refugees are admitted to the U.S. with a refugee visa, entitling them to live and work in the country. They must apply for permanent resident status within one year and are eligible to apply for citizenship after five years in the country. The U.S. has admitted a high of approximately 225,000 refugees through the program in 1980 and a low of approximately 25,000 in 2002 and 2003 with an average of around 70,000 annually since passage of the Refugee Act (U.S. State Department information provided at http://www.wrapsnet.org/admissions-and-arrivals/).

In the U.S., the State Department works with a variety of national and local organizations to place newly arriving refugees in communities where they will have support and, ideally, either family members or others from their home country or community who speak their language and can assist in their integration into the U.S. However, refugees are admitted as permanent residents with the full right to work and travel freely within the country and there is no requirement that they remain in the cities and towns where they are initially resettled or report any changes to their residency. They can and do move to be closer to family, for better employment opportunities, or for education or lifestyle reasons. In addition, neither the federal government nor state or local agencies maintain any type of registration or tracking mechanism for refugees. For these reasons, there is very little quantitative data identifying refugees separately from either the immigrant population or the general population as they assimilate into the U.S. They do often form and maintain ethnic and cultural ties and communities within the U.S. but these frequently include non-refugee immigrants and others from similar cultural or national backgrounds. Refugee groups and businesses can be identified locally but most of those contacts are through community members and support organizations and are not in any way derived from official records or tracking data of all refugees.

In identifying and assessing refugee entrepreneurs, it is also necessary to consider certain characteristics of refugees that can be distinct from the broader immigrant population. Most refugees, by virtue of their flight from their home countries due to conflict or persecution, spend a considerable time in either refugee camps or in temporary situations that deplete any assets that they manage to bring from their homes. Most arrive in the U.S. after years of deprived existence and have little more than the clothes they wear to this country. They come with varied levels of education, often with limited or no English, and with skills that are frequently of limited value in the U.S. While other immigrants may have some or all of these limitations, most come to family members or with employment when they arrive.

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Refugees typically have a longer path to the point when they can start a business in this country, and, as a result, are less easy to identify through the resettlement agencies, with a limited service window, that initially support them when they arrive.

IV.   METHODOLOGY

While the State Department keeps track of the number and nationality of refugee arrivals each year, there is very limited official information kept on the location and status of refugees in the U.S. As a volunteer with the International Institute of New England, a resettlement agency that includes Manchester in its service area, since 2007, I have worked with and come to know a number of refugees and support personal in the city. Through these contacts, I have identified refugee entrepreneurs from a range of ethnic and national backgrounds and conducted interviews with those willing to participate. My focus has been on the formation and operation of their businesses and their employment and activities in the U.S. leading up to that formation. I have sought to identify experiences and approaches that may be unique or common to refugee entrepreneurs, separate from domestic and other immigrant entrepreneurs. This study does not include specific economic or financial information from the interviewees. Finally, I have no way of determining what percentage of the refugee entrepreneurs in Manchester and the area the interviewees represent, they are simply a group of entrepreneurs from as many refugee communities as I could track down.

The basis for the study are discussions and interviews with 20 refugee entrepreneurs and support personnel in the immigrant and refugee community in the Manchester area, conducted from October 2016 through March 2017. In addition, analyses of immigrant contributions to the economy, government reports and historical documentation have provided the context for the interviews and discussions with the individuals.

V.   MANCHESTER RESETTLEMENT HISTORY

Manchester, New Hampshire has long been a city full of and dependent upon immigrants. An historic New England mill town that was once a part of the largest industrial complex in the world, the city and its businesses welcomed French-Canadians, Poles, Irish, Italians and other Europeans to work in its textile mills throughout the 19th century. In the 20th century, a thriving Greek community grew. Manchester in many ways has been a microcosm of the story of immigration in New England and much of the nation. Beginning in the late 1978 and continuing with the passage of the Refugee Resettlement Act of 1980, Manchester saw the arrival of refugees from Romania and the Eastern Bloc as well as from Vietnam following the Communist takeover of South Vietnam. (Anne Sanderson, who would become the director of the International Institute of New Hampshire, managed the refugee resettlement process in Manchester from 1978 through 2008 and provided much of this history and contacts with refugee entrepreneurs.) Resettlement continued with Bosnian refugees fleeing the conflict in the Balkans and the 21st century included the arrival of African refugees from the Democratic Republic of the Congo, Somalia, and Sudan. In 2008, Bhutanese refugees, who had been living in refugee camps in Nepal for nearly 20 years began to arrive, followed shortly after by Iraqis, many forced to flee their homeland due to their work with U.S. forces during the Iraq War. While none of these groups came in numbers that resulted in a majority of the minority immigrant population of Manchester or even a majority of the refugee population, refugee resettlement numbers were reasonably steady at around 200 per year over much of that time. These groups also do not represent the only refugee groups to arrive in Manchester but each of these are notable for their continued visible presence in the city today.

Despite a long history of reliance on immigrant labor in Manchester and the arrivals of refugees since at least 1978, Dennis Delay and Daniel Barrick of the NH Center for Public Policy Studies pointed out

in 2015 that: "the state's overall foreign-born population remains relatively small at less than 6 percent (compared to 13 percent on average nationally). But it matters. In fact, without foreign immigration, New Hampshire would have seen a net outmigration during the past five years instead of the slight increase we did experience. Delay, D. and Barrick, D. (2015) *Immigrants to play key role in the NH economy*. NH Business Magazine. April 1, 2015.

The refugee population in Manchester, while not significant in terms of the state population, does represent a significant portion of the foreign-born population in Manchester and represents a measurable portion of the city's economic activity, including new businesses.

VI.   REFUGEE ENTREPRENEURSHIP IN MANCHESTER

As noted, this is not a comprehensive study of all refugee entrepreneurs in the Manchester area. However, through community leaders and support organizations, efforts were made to include as many original nationalities as possible. The study has revealed some commonalities among the participants and some distinctions from what might be considered the "typical' path for entrepreneurs. However, these relate to only the limited sample population included in the study. The refugee entrepreneurs who agreed to be interviewed came from six different countries, Iraq, Democratic Republic of the Congo, Bhutan, Romania, Somalia, and Vietnam. They arrived in the U.S. between 1979 and 2009. Some came with their immediate families, others more extended family groups, still others came alone. Although the refugee resettlement program accepts people of all ages, the refugee entrepreneur group in this study included those who were between 20 and 35 when they arrived. Most spent time in refugee camps before coming here, some, two or three years, others over 20 years.

Education levels of the study group vary widely. People become refugees at all ages including some who are born and live much or all of their childhood, in the camps. While the study group included no one who grew up entirely in a camp, some did enter the camps as young children and were resettled as adults. Some of the entrepreneurs arrived with no more than a high school education from their home country, others came with college degrees including one with a master's degree. Many pursued further education after arriving in the U.S., however, none used that education to start a business in a field in which they studied or earned a degree, other than limited general business training. With one exception, all of the businesses were either based upon expertise that the owner brought with him or her to the U.S. or, in the case of food markets and restaurants, begun to meet an identified need in the founder's own community or in their community and those of other immigrants.

It is interesting to note that the shortest time between arrival in the U.S. and the beginning of the entrepreneur's first business was approximately five years. The longest period was approximately 25 years. Since most studies of immigrant entrepreneurship include immigrants who came to the U.S. as children and those who came here with HB-1 visas, typically for skilled employees of large organizations, a comparison of the time periods between arrival and business opening for refugees as opposed to the broader immigrant population is not available. However, all of the refugee entrepreneurs in the study identified personal savings as the primary or sole source of the capital used to start the business. Since, almost by definition, refugees arrive with a bare minimum of assets and no access to business networks, the use of savings, rather than personal or commercial loans and other sources of capital, is not remarkable. It is also evidence, at least for these individuals, of successful integration into the economy, a goal of the refugee resettlement program but suggests that more could be done to provide access to start-up capital sources, particularly those that are available to lower income and first-time entrepreneurs.

The refugee entrepreneurs share many of the same experiences as other immigrant and domestic entrepreneurs. Their identification of businesses, their previous experience or relative lack thereof in the requirements of their new venture, and the intense effort and time put in to the new endeavors are

shared with all entrepreneurs. However, with one notable exception, the entrepreneurs in this study did not utilize and, for the most part, seemed unaware of, the various government and community programs that exist to encourage and support entrepreneurial efforts. New Hampshire has a number of programs designed to assist entrepreneurs. NH SCORE, an organization created through the U.S. Small Business Administration, The Center for Women's Business Development at Southern New Hampshire University, the NH Small Business Development Center at the University of New Hampshire as well as business incubators and accelerators such as Alpha Loft are examples of the active and successful organizations that have helped entrepreneurs start and grow businesses in many disciplines. In addition, there are organizations that can provide financial support such as the Community Loan Fund and the Regional Economic Development Center of Southern New Hampshire, also a Small Business Administration program.[xliii] Most, if not all, of the entrepreneurs in the study are fairly typical of and eligible for the services provided by these and other organizations. However, the entrepreneurs generally indicated that they were not aware of the services and opportunities available through these organizations. The sample in this study is far too small to attribute this lack of awareness to cultural, integration, outreach, or other factors. There is, however, a notable exception in the study affecting the integration of one refugee group in Manchester.

The refugee resettlement program is designed to move participants to self-sufficiency at quickly as possible.[xliv] Partially as a result of this goal, the funding from the State Department for the resettlement agencies for each refugee is limited to the first 90 days following arrival in the U.S.[xlv] The resettlement agencies that greet refugees when they arrive in the country and assist them in getting established in their new homes are almost exclusively private, non-profit organizations dependent upon private support to supplement federal and state funding. As such, they are not typically able to provide all of the support that refugees need to both fully integrate into their new homes and to become citizens over their first five years in the country. As a result, there are a number of other community organizations that comprise an informal network of support for refugees and immigrants.

The Bhutanese refugees began arriving in Manchester in 2008. Today, there are approximately 2,000 Bhutanese new Americans living in New Hampshire, part of some 70,000 Bhutanese former refugees who have been resettled throughout the U.S. over that time. In 2010, a group of Bhutanese in New Hampshire established the Bhutanese Community of New Hampshire (BCNH).[xlvi] BCNH, funded through grants, social service contracts, and private donations, was created to provide services to, and advocate for, the former refugees who were building new lives in the state. BCNH was created to fill in certain gaps in refugee support that existed due to the limited resources of the resettlement agencies and the absence of a coordinated effort to organize the various immigrant support groups to close those gaps. Established and staffed by former refugees, BCNH differed from most other immigrant and refugee support organizations in that it was directed at a specific group of arrivals and actually run by members of the group. The organizers and leaders of BCNH proved to be particularly adept at both understanding the needs of its refugee clients and understanding and interpreting for them the various support agencies and opportunities that existed for lower income Americans in New Hampshire. In particular, BCNH assisted two of the entrepreneurs in this study by identifying university programs and financing sources available and willing to help the new businesses get started. Contrasted with most of the refugee entrepreneurs, the Bhutanese were both aware of and utilized new business support created by government and private entities.

Most of the entrepreneurs started their businesses without partners or mentors other than, in some cases, family members. The businesses are small, employing between one and five persons and frequently employ only family members and friends, often, but not exclusively, from the entrepreneur's community. This is a natural corollary to those businesses that are targeted at a specific immigrant community or communities and it is quite common in small businesses that many or most of the employees are family members in order to keep costs down. Some of the entrepreneurs indicated that

the businesses were started both to serve a specific immigrant community or communities but also to provide employment options for some members of their own community. Most of the businesses do not appear to be on a track to grow into mid-sized or large businesses and their entrepreneurs do not express an intent to direct their businesses toward substantial growth. The businesses are mostly more typical "lifestyle' businesses that provide an income for an individual or a family. However, two of the entrepreneurs have opened multiple locations, in one case, all in the Manchester area, and in the other in a second state with a large population from the owner's national refugee community.

Some of the businesses in the study were begun to provide goods or services to either the refugee community of the founder or that community and others with similar cultural backgrounds. Markets specializing in African, Asian, or Middle Eastern foods and sundries are all examples of this type of business included in the study. These businesses typically stock food products, including, in some cases, fresh produce and meats, that cannot be found in other grocery stores in the Manchester area. Market owners often make regular trips to the New York City area and Boston to acquire products that they cannot get from local suppliers or which they cannot buy in sufficient quantity to have economically delivered to New Hampshire. These trips are both time-intensive and fairly costly but are typical of the type of commitment required of entrepreneurs to their businesses, the necessity for them of doing directly what they cannot afford to have others do, and, particularly in the case of these immigrant businesses, have limited sources of suppliers for the goods that they need. While targeted at specific immigrant and refugee communities within the Manchester area, these businesses do attract customers outside of those groups and provide products that are not otherwise available in the area.

Apart from food markets, other refugee entrepreneurs have opened restaurants serving a particular national cuisine. While these can bring in customers from outside of the Manchester area searching for a particular type of food, they also serve the broader Manchester population and are less directed at a particular ethnic group or groups. The restaurant owners in the study indicated that they opened their businesses due to expertise, either commercially or privately developed, in a particular cuisine and a desire to own their own businesses rather than a primary desire to provide a missing service to their particular ethnic community. In other cases in the study, the businesses are not directed at any particular group but were begun to utilize some past experience or capability of the owner and to take advantage of an opportunity that the entrepreneur identified in the local market.

VII.   CONCLUSION

Refugees, by definition, endure hardship and deprivation well beyond what most Americans and immigrants to this country will ever face. Today, for example, UNHCR estimates that the average refugee spends 17 years in a camp before either being resettled or finding a more permanent living arrangement. The refugees who have arrived in Manchester over the past 40 years are no exceptions. Some fled their countries in precarious sea crossings to then spend years in squalid camps, others escaped active conflict situations or endured torture and beatings before their flight while still others grew up in camps without electricity, running water, and permanent structures. Resettlement in the U.S. for those who were fortunate enough to be approved meant the chance to build new lives and to live with security and a future for them and their families. For some in Manchester, the chance to begin a business and become an entrepreneur was the fulfillment of a life-long dream, for others, entrepreneurship provided a path to meeting a community need. The experiences, however, of a small sample of refugee entrepreneurs in Manchester have not been significantly different from those of small business owners across the country. Most, however, began with more limited resources and with less access to capital, fewer partners and advisors and more limited public and private support than their domestic contemporaries. Efforts to address these limitations and to introduce refugees to the support resources that are generally available to entrepreneurs in Manchester and most other cities and states

would encourage more entrepreneurship among refugees and help those who have begun businesses to grow faster and achieve greater success.

Continued research and analysis of refugee entrepreneurship in the U.S. is a very useful part of the broader assessment and understanding of the economic contribution of refugees arriving in the country through the resettlement program. There is no current mechanism to reliably identify and separate refugee entrepreneurs and so identify their economic and societal impact as a group. Efforts such as this, identifying business owners in local communities as gathering information directly from them, does not provide a comprehensive assessment to an of refugee entrepreneurship in the U.S. but can contribute to an understanding of the unique challenges and needs of refugee entrepreneurs and steps that may be taken to encourage entrepreneurship in refugee communities. Further studies, coordinated through resettlement agencies across the country, could provide sufficient data to develop a more general understanding of the opportunities for entrepreneurship among refugees resettled in the U.S. and methods that can encourage and support those who have and will continue to start their own businesses.

PROCEEDINGS

CIK- 5th International Conference in collaboration with ISG/MIT
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Theme*: Entrepreneurship, Responsible Leadership, and Economic Development.*

SUSTAINABLE PUBLIC MANAGEMENT: APPLYING PROFESSIONAL AND ENTREPRENEURIAL MANAGEMENT IN PUBLIC ORGANIZATIONS

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ABSTRACT

The paper aims at waking up critical reflections on the impact of the Maintainable Public Administration in the Public Organizations and the reflexes in the organizational and social behavior, starting from the analysis of the literature and of specific cases of application of the Model of Sustainable public management, based in entrepreneurship. It was analyzed "how does the model of the Administration Maintainable Public impacts in the Enterprising Professional Administration in Public Organizations and in the society", before the hypothesis that "the Maintainable Public Administration, favors the perenity of the public organizations and the society". Based on the analysis of the literature and in the data of the field research in organizations of Maranhao, the results and conclusions suggest that the application of the Model of the Administration for Integrated Sustainability favors the administration, the success and the perenity of the companies of the sample and the Maintainable Public Administration, originating from of the Professional Enterprising Administration is effective for the perenity of the public organizations, bringing benefits for the society.

Keywords: Public Administration. Administration for Integrated Sustainability. Perenity. Entrepreneurship. Society.

I. INTRODUCTION

The article "Sustainable Public Management - GPS: Application of Entrepreneurial Professional Management-GPE in Public Organizations" aims at raising critical reflections on the impact of Sustainable Public Management in Public Organizations and the repercussions on organizational and social behavior.

A problem requires that the researcher is involved in the reality of the situation to be clarified. The research questions represent what the researcher wishes to clarify and can indicate among the variables, relations of associations (Triviños, 2009). The problem: "How the Sustainable Public Management - GPS impacts the Professional Entrepreneurial Management - GPE in public organizations and in society".

Research questions: To what extent does GPS in public organizations guarantee the excellence of tripod results on employees, external customer and organizational results?

In what way do the results of GPS - while Professional Management applied in Public Organizations reflect in society?

The Hypothesis predicts a relation between two terms (Quivy & Campenhoudt, 1995). The hypothesis: Sustainable Public Management - GPS, coming from the Entrepreneurial Professional Management - GPE, favors the perenniality of public organizations and society.

The article was developed in two aspects: in the first, the academic who sought in the literature the fundamental that supports the relevance of the Sustainable Public Administration; And in the second, the professional activity in Public Administration, the analysis of public managers and conclusions of field research.

The research method: the methodology covers the methods of approach, procedures and techniques (Marconi and Lakatos, 2007). Malhotra (2006) describes measurement scales; Ulrich et al. (2009), ranging from 1 to 10 points, which served as the basis for the questionnaire score. Follow the method.

In the literature: Delimitation: limit levels – the data were extracted from the secondary sources; In the limit of space, data from the universe of Micro, Small, Medium and Large Enterprises - Brazilian MPMGEs and the Integrated Sustainability Management Model - GSI. The research line was "Management Technology", of organizational studies of the Brazilian reality of the Doctoral Program in Administration - FGV / EBAPE and the Research Group "Administration, Management and State-AGE" CNPq - Applied Social Sciences: Management Professional and Sustainability, and Public Administration.

Method: hypothetical deductive - for the construction of systemic concepts and hypotheses deduced from this theoretical explanatory model (QUIVY & CAMPENHOULD, 1995). Approaches and Theories: Public Administration; And Entrepreneurship in two approaches to literature, economics, and management that underpinned the GSI Model.

In the field surveys: Delimitation, universe and sample: boundary levels-2012 data were collected in the universe of the 1769 industrial MPMGEs of the State of Maranhao in 170 municipalities (FIEMA, 2006). A proportional stratified random sample of 145 MPMGEs (tables 1 and 2) was extracted, considering the participation of each economic category in the PIB (frame 1); In 2015, data from the universe of 16 hospitals and 03 public universities in São Luís do Maranhao - MA, with samples by type (Vergara, 2007) of 05 hospitals and 02 universities (table 2 and table 3), and data from the universe of 02 Public universities and private 01 of São Luís-MA, with sample by type of 100% of the universe (table 4).

Data collection and statistical treatment: the technique was the questionnaire. The data from 2012 received statistical treatment, with exploratory data analysis, Correlation Test, Regression and Multiple Correlation; And in 2015, exploratory data analysis.

Limitations of the method: the delimitation of the criterion of study in the universe of public organizations, due to Brazil having a vast territorial dimension, and Maranhao is 217 municipalities (IBGE, 2009), was soon delimited to MPMGES industrial of Maranhao, public hospitals and To the public and private universities in São Luís do Maranhao; Little specific literature and empirical work on this subject in Brazil and Maranhao, in order to allow an in-depth study of the theory (POPPER, 1975).

Aware of the limitations, we consider that the method was adequate and acceptable to sustain the research and to evaluate consistently this theme.

II. LITERATURE REFERENCE AND THEORETICAL MODEL

Public administration is the occupation of all those who act on behalf of the people - in the name of society, delegating in general - and whose actions have consequences for individuals and social groups (Harmon & Mayer, 1999). For De Plácido e Silva (2000), it is one of the manifestations of the Government in the management or execution of acts or political business.

The Public Administration is the sum apparatus of the State - which is the State organizational structure, is its three powers: Executive, Legislative and Judiciary; and three levels: Union, States and Municipalities, constituted by the government, a top leadership in the three branches of government, a staff and military force. The Sustainable Public Management - GPS considered the aspects: academic - emphasis on studies and research in universities; and professional action - professional management models applicable in public and private administration.

In the academic view, one of the reasons for good training is to improve the way organizations are run, because well-managed organizations that apply GPS develop consistency, growth and prosperity, and when poorly managed, decline, and often die.

Paes de Paula (2005) points out two currents of thought in the model of the new public administration: neoliberal thought and the theory of public choice. Both sought an innovative public administration model. Hood (1995) proposes to bring the management model of public organizations closer to the management practices used in the private sector, such as performance evaluation, efficiency and responsibility.

As to the management movement in Brazil, committed to change the model of Brazilian public administration, the president of the Republic Fernando Henrique Cardoso - FHC created the Ministry of Administration and State Reform, to address this issue. For FHC, the Public Administration is "based on current concepts of administration and efficiency, control of results and decentralized to reach the citizen, who, in a democratic society, gives legitimacy to institutions" (BRASIL, 1995: 1).

That reform proposal was based on three dimensions: 1) institutional-legal - reform of the legal and regulatory system of public administration; 2) Cultural - aiming at the transition from a bureaucratic culture to a managerial culture; And 3) Public management - to put into practice the improvement of bureaucratic public administration in parallel with the public administration. For Bresser-Pereira (2005), the reform aimed at: a) the search for elimination of the fiscal crisis; B) the transformation of bureaucratic public administration into managerial; and c) the improvement of the attendance of social demands.

The professionalization of the Public Administration is of multiple focus, between meritocracy and politics, and it approaches: the entrance in the public service via universalizing contests; A career system; professional qualification; and a performance and remuneration evaluation system (COELHO, 2007).

In the process of professionalization in Public Management in Brazil, it is suggested to analyze the trajectory of administrative reforms, administrative modernization and State reforms (Frame 3). Its sustainable development and the aggregation of public value suggest passing through this process, in order to provide the agility, competence and accountability of agents and public management structures.

The Public Entrepreneur Manager is responsible for applying the principles of legality, bureaucracy, knowledge dealing with the power structure and social control, applying the basic legislation of Federal, State and Municipal control bodies, among them: TCU - arts. 71/73 of the Federal Constitution - CF, Law no. 8,443 / 1992; TCE - art. 31 of the CF, State Constitutions and Organic Law of the Federal District; CGU - art. 74 of the CF, Law nº 10.180 / 2001; And MP - arts. 127/130 of the CF, LC nº 75/1993, observed to the resulting changes.

In a proposal for a research agenda in "government instruments in Brazil," a line would be how they were chosen or what determines the choice of their governmental instruments; A second, to develop studies that systematize existing typologies and develop a Brazilian typology of governmental instruments; The third is to focus on how implementation is implemented and what are the key challenges for government management of instruments already chosen and in use in the country; Finally, it would be that of studies comparing instruments that allow formulating propositions about the application and impacts of different instruments.

In this sense, Vasconcelos (2012) describes the Brazilian School of Public Administration and Business - EBAPE, that its function, as well as that of the FGV schools, is to generate knowledge through excellence in academic research and to transmit them through Of undergraduate, master's and doctoral courses of the highest level of quality, considering the interdisciplinary complexity of the administration and the organizational challenges of knowledge production. In 2012, EBAPE / FGV celebrated its 60th anniversary as an institution of national excellence, among the most reputed and influential in Brazil.

It is observed that the contextualized knowledge on Public Administration in Brazil reflects a negative view on the State, bureaucracy, the servers and everything that refers to the public sector is exacerbated. The teaching of public administration is not strongly contemplated by *stricto sensu* programs, with a low distribution in Brazil of authors who discuss this theme.

The CNPq search on public administration offers a total of 133 research groups. With the expression public management, it rises to 272. However, an analysis allows to exclude a large number of them, because the object of research is not, in fact, the public administration, reaching 40 groups, translating a low number of these researchers. However, this area has received the largest amount of submissions for articles at the Meeting of the Association of Graduate Programs in Administration - ENANPAD.

Another relevant aspect is how to prepare for a professional career that will give the strong foundations of a Professional Manager, which should be considered: the predisposition for career (self-motivation), based on qualification, personal-professional awareness and self-discipline, In itself, may or may not be valid; Choosing a gymnasium prepared to offer an academic training with the quality parameters required by the MEC and the labor market; To know, to understand, to dominate, to criticize and to apply the administrative theory in the academy and the organizations, in a process of conciliation of the theory with the organizational practice.

Emphasis is given to the Public Entrepreneurial Management, in which management reform rescued the principles and instruments of business management. Public administrators should guide their

conduct not only by the principles of legality, impersonality, morality, publicity and efficiency of the management acts established in the 1988 CF, but mainly the objective responsibility towards society.

In the field of professional activity, applicable in the Public and Private Administration, before the analysis of the academic view, we have considered the examples and experiences that reflect the reality of Public Management. In this sense, Polary (2012) suggests the analysis of the phases of the MPEs of creation, maintenance, perennial maintenance, growth and durations (Frame 4) and the application of Integrated Sustainability Management - GSI, composed of 03 dimensions, 05 components and 12 variables (Table 5). This is an extension of the term management, compared to Management (Drucker, 2002), and is different from the term "Sustainable Management of the Geoenvironmental Dimension" (CASAROTTO FILHO & PIRES, 2001).

GSI is an alternative model of Professional Management for Management, which requires the manager personal professional awareness to manage with Entrepreneurial Guidance and Integrative Vision, in face of its variables, components and dimensions, to favor the company's management, success and permanence .

The GSI model is based on the Theory of Entrepreneurship in two approaches to literature: managerial, in McClelland's Theory (1970) and Theories of Organizations and Administration, and from the perspective of corporate strategies and modes of strategic management, Lumpkim And Dess (1996); And the economic one, in Schumpeter's (1934) studies, introduced in the Social Sciences by Economic Theory. This model of Professional Management was applied in the MPMGEs of the industrial sample (Polary, 2012), which also investigated its phases and processes. In 2014, the GSI model (Polary, 2014) was adapted for public organizations (Frame 6) and in 2015, applied to public hospitals and universities (Polary & Silva, 2015) and public and private universities (Polary & Fonseca, 2015). Results to follow.

III. EMPIRICAL SESSION

It was verified from the analysis of the 12 variables of the Integrated Sustainability Management Model (GSI), which among the predominant 06, "Competences and managerial skills of the managing partners and others that administer or advise the business - Professional Management (GSI), based on Entrepreneurship, "is the variable that most positively influence the Management, Success and Perenniality of the MPMGEs of the sample, with an average of 8.94 (table 5).

From the results of the Multiple Regression and Correlation of the six variables that most positively influence the Management, Success and Perennial (Independent - table 6) and the six most important ones for success in the perennial phase (Dependent - table 7) in the industrial MPMGEs of Maranhao, It was verified that the variable "Do feasibility studies: technical, economic and financial" (Table 7), showed a substantial positive correlation, according to the regression equation $Y = a + b_1x_1 + b_2x_2 + ... + b_6x_6$. F of Regression = 14.1496. P <0.0001. Coefficient of multiple determination (R^2xy) = 0.3807. Multiple correlation coefficient (Rxy) = 0.6170.

Conclusion: F is significant for p <0.0001, at least one of the Independent variables (Peditoras) influences the Dependent variable; The coefficient of determination means that 38.07% of the Y variation can be explained by the model, the remaining (61.93%) are inexplicable and are due to other factors or to chance; The variable that has the smallest value of p is to do feasibility studies: technical, economic and financial, so it is the one that most explains the variation of Y.

It was also verified from the results of the Multiple Regression and Correlation of the six variables that most positively influence the perennial phase (Dependent - table 6), and the six most important variables for Industrial Development, arising from the MPMGEs perpetuity of the sample that applied the

Management Professional - GSI (Dependent - table 7), that the variable "Reinvest in the company, to better serve the workforce, the clientele and fulfill its economic and social function to remain successful in the market" (Frame 8), Presented a substantial positive correlation, according to the regression equation $Y = a + b_1x_1 + b_2x_2 + ... + b_6x_6$. F of Regression = 8.7599. P <0.0001. Coefficient of multiple determination $(R^2xy) = 0.2758$. Multiple correlation coefficient $(Rxy) = 0.5252$.

Conclusion: F is significant for p <0.0001, at least one of the Independent variables (Peditoras) influences the Dependent variable; The coefficient of determination means that 27.58% of the Y variation can be explained by the model, the remaining (72.42%) are inexplicable and are due to other factors or to chance. The variable that has the lowest value of p is Reinvesting in the MPMGEs, to better serve the workforce, the clientele and fulfill its economic and social function to remain in the market, so it is the one that explains the variation of Y.

The results of this research express, through the tests, the correlation of the 12 variables of the GSI Model (table 5), with analysis by size: Micro, Small, Medium and Large Enterprise - MPMGE and in consolidated data of all sizes - MPMGEs (Polary, 2012), which allows an analysis of the effectiveness of the model, in the managers' view, on management, success and sustainability; Analysis of phases and processes; And the relationship between MPMGEs' perenniality and economic development in the State of Maranhao. It suggests the continuity of application of this model in organizations providing services and Public Administration. These results are consistent with the studies and research of ILDA (1984), DE GEUS (1998, 1999) and SOUZA (2009).

The GSI model adapted to the Public Administration was applied in public hospitals and public universities (Polary & Silva, 2015), which researched on Public Professional Management and Management with People as an alternative of viable organizational excellence for public organizations. Among the results, the following were highlighted:

From the variables of the GSI model that "favorably influence the organizational excellence of the public institutions of the sample", "relevance to society", "managerial competencies and skills of Managers, Professional Management" and "legality, control and transparency", were the ones with the highest averages (9,125, 9,00 and 8,625), respectively (table 8); And the "greater contributions of public institutions to the fulfillment of the mission", the variables "relevance to society", "satisfaction of external clients" and "employee satisfaction" were the highest averages (46% 23% and 16%), respectively (figure 1).

In another survey of the GSI model (Polary & Fonseca, 2015) on University Management and Public Policy, among the 12 variables of the model, which "favorably influence University Management", the best evaluated were: Partnerships : Political-Institutional, Public-Private and Civil Society; Fundraising: internal and external; And relevance to society, with averages attributed between 9.0 and 10.0 (graphs 2, 3 and 4).

IV. CONCLUSION

Based on the analysis of the researches, it is concluded that the performance of the Professional Public Manager and other actors, run through the systemic vision of understanding the variables of the macro environment, prevailing, besides the knowledge and skills required, aggregation and involvement of society, legitimacy, good governance , Social control and, mainly, ethical and professional personal-professional behavior, since the reflexes of this action, suggest the efficiency of organizations in the provision of public services, trust of their employees and the recognition of society.

The managerial model of public administration is also characterized by the incompleteness of administrative reform at the municipal level and did not reach most of the municipalities studied, thus suggesting that the Brazilian State has made great efforts to implement the managerial administration model, It is not yet effective in all three levels of government.

In the perspective of a new Brazilian public administration, the movements around the managerial liberalism found in Brazil, fertile ground considering the role of the State and the Public Administration. In spite of the modernization of management, it suggests problematizing the various aspects underlying the notion of leadership for the development of new power groups (MOTTA, 2007).

Thus, the "Operation Lava Jato" - a major investigation of corruption and money laundering in Brazil - stands out. Started in 2014 by the Federal Court in Curitiba, it is carried out in phases, and has already reached 37 countries. The Federal Public Prosecutor's Office collected evidence of an immense criminal scheme of corruption involving Petrobras, businessmen, politicians and public managers, with a total claim amount of R $ 78.1 billion. According to the Attorney General's Office, R $ 4.2 billion has already been recovered, of which R $ 840 million is repatriation of international collaboration agreements.

In the survey carried out at the MPMGEs in Maranhao (Polary, 2012), GSI is a viable alternative to favor this segment, since its dimensions, components and variables present an integration of the internal and external factors of the organizations so that the Manager can manage them, In order to provide them with a professional way, and thus obtain effective results. It suggests that the Industrial Development of Maranhao is generated by the perenniality of these companies.

In the field research conducted in the sample of public hospitals and universities (Polary & Silva, 2015) for public managers and other actors, they suggest a systemic view of the macro environment and transparency in actions, since it favors public organizations that seek excellence Organizational structure. In the universities of São Luís-MA (Polary & Fonseca, 2015), the variable "relevance to society" is the one that most favorably influences its management.

These results made it possible to provide a "development program" in four phases: 1. Determination of training needs; 2. Training schedule; 3. Execution of training; 4. Evaluation of training results, aiming to train managers and other actors for sustainable regional development and encourage scientific publications and development of sustainable projects.

These conclusions suggest that the Sustainable Public Management - GPS, coming from the Entrepreneurial Professional Management - GPE, favors the perenniality of the public organizations, with beneficial effects for the society and give answers to the investigated problem, the research questions raised and confirmation of the hypothesis, Having thus achieved its objectives.

It is expected that these results and conclusions will contribute to new research in public organizations in the area of Sustainable Public Management - GPS, with the application of the GSI model, proposition of new models of sustainable management, both in academia, as well as public and Other actors who make decisions that affect people's behavior, results in public management and impact on societies in the globalized world.

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VII. TABLES

Table 1 - Accessible population of the industries for stratification, according to municipalities by size

Nº	Countries	MICRO Quantity	SMALL Quantity	MEDIA Quantity	BIG Quantity	TOTAL
01	Alcântara	01	-	-	-	01
02	Bacabal	36	09	01	-	46
03	Balsas	59	21	02	-	82
04	Caxias	17	20	02	-	39
05	Cajapió	04	-	-	-	04
06	Imperatriz	192	97	04	-	293
07	Lago da Pedra	16	03	-	-	19
08	Paço do Lumiar	04	01	01	-	06
09	Raposa	02	-	-	-	02
10	Rosário	08	08	02	01	19
11	São João dos Patos	11	-	-	-	11
12	São José de Ribamar	21	09	-	-	30
13	São Luís	739	380	46	10	1175
14	Timon	32	10	-	-	42
	Total	1142	558	58	11	1769

Source: Adapted from FIEMA (2006) and Polary (2012).

Table 2 – Significant samples of stratified industries, according to municipalities by size

Nº	Countries	MICRO Quantity	SMALL Quantity	MEDIA Quantity	BIG Quantity	TOTAL
01	Alcântara	01	-	-	-	01
02	Bacabal	03	02	-	-	05

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03	Balsas	06	02	-	-	08
04	Caxias	02	02	-	-	04
05	Cajapió	01	-	-	-	01
06	Imperatriz	16	08	02	-	26
07	Lago da Pedra	03	02	-	-	05
08	Paço do Lumiar	02	01	01	-	04
09	Raposa	01	-	-	-	01
10	Rosário	02	01	-	-	03
11	São João dos Patos	01	-	-	-	01
12	São José de Ribamar	02	01	-	-	03
13	São Luís	51	22	05	03	81
14	Timon	02	-	-	-	02
	Total	93	41	08	03	145

Source: Adapted from FIEMA (2006) and Poçary (2012).

Table 3 – Sample selected by typicity

Publics Hospitals	Universities
1. Hospital Djalma Marques – Socorrão I	1 University Estadual do Maranhao - UEMA
2. Hospital de Urgência e Emergência Doutor Clementino Moura – Socorrão II	1 University Federal do Maranhao - UFMA
3. Hospital da Mulher	
4. Hospital da Criança	
5. Centro de Especialidades Médicas e Diagnóstico - Pam Diamante	

Source: hospitaispublicosdesaoluis, with author updates; universidadespublicasdesaoluis

www.ibge.gov.br; www.mec.gov.br; www.onu.org.br

Table 4 – Universe and sample of the Public and Private Universities of São Luis of Maranhao.

Public and Private Universities	
1. University Federal do Maranhao – UFMA	
2. University Estadual do Maranhao – UEMA	

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3. University CEUMA – UNICEUMA	

Fonte: universidadespublicasdesaoluis and author updates.

Table 5 – The 06 variables of the GSI model that most positively influence the Management, Success and Perennial of the industrial MPMGEs of Maranhao.

Variables	n	%	Media	Minimum	Maximum	DP
1. Management skills and abilities of the managing partners and others who administer or advise the business - Professional Management (GSI), based on Entrepreneurship..	143	98.62	8.94	1	10	1.4594
2. Technological support (machinery and equipment, systems and working methods)..............................	145	100.00	8.80	3	10	1.3505
3. Conduct feasibility studies: technical, economic and financial...	139	95.86	8.68	3	10	1.5419
4. Level of industrial efficiency..................................	142	97.93	8.63	4	10	1.3188
5. Qualified industrial labor force................................	144	99.31	8.60	1	10	1.9655
6. Location of the MPMGEs business........................	144	99.31	8.59	1	10	1.9447

Source: Polary (2012)

Table 6 – The 06 most important variables for the success of the industrial MPMGEs of Maranhao in the perennial phase.

Variables	n	%	Media	Minimum	Maximum	DP
1. Prioritize the qualification of industrial labor and maintain the level of efficiency and productivity of the sector...	145	100.00	9.83	1	99	7.5765
2. Reinvesting in the MPMGEs, to better serve the manpower, the clientele and fulfill their economic and social function in order to remain successful in the market...	141	97.24	9.28	4	10	1.0219
3. Prioritize the technical and professional development of the members who direct and of others administer or advise the business in the MPMGEs..	145	100.00	9.17	3	10	1.3071
4. Preservation of the local environment of industry…	144	99.31	8.76	3	10	1.6009

	n	%	Media	Minimum	Maximum	DP
5. Use the Industrial Development Plan - IDP 2020...	135	93.10	7.59	1	10	2.5492
6. Public Policies of the Federal, State and Municipal Governments, attractive investments and partnership with the company with the Government and private initiative..	143	98.62	7.10	1	10	2.7392

Source: Polary (2012).

Table 7 - The 06 most important variables for the Industrial Development, coming from the perenniality of the MPMGEs that applied the Professional Management - GSI.

Variables	n	%	Media	Minimum	Maximum	DP
1. Maintain the Economic-Social development generated by the Industrial Sector of Maranhao......	134	92.41	9.75	4	99	7.8716
2. Improvement of labor qualification and industrial efficiency in Maranhao...	142	97.93	9.13	4	10	1.3147
3. Maintain and strengthen this development in the Industrial Sector of Maranhao..................................	140	96.55	9.01	4	10	1.4039
4. Ensure the preservation of the environment of Maranhao...	142	97.93	8.99	4	10	1.4167
5. Employment and income guarantee for Maranhao..	140	96.55	8.90	2	10	1.6017
6. The awakening of the Professional Management (GSI) and entrepreneurship of the industrial entrepreneurs for the MPMGEs and awareness for investments in technology to remain competitive in the local, national and international market.........	140	96.55	8.89	3	10	1.4695

Source: Polary (2012).

Table 8 – Variables that most favorably influence the Organizational Excellence of the Institutions surveyed.

Variables	Media	Minimum	Maximum	DP
Skills and managerial skills of Managers, Professional Management (GSI).	9	7	10	1,195229
Viability studies: technical, political, social and financial.	7,625	7	8	0,517549
Technology and innovation.	7,375	6	10	1,407886
Level of efficiency and effectiveness of results.	8,625	8	10	0,744024
Public Policies of the Federal, State and Municipal Government.	7,375	5	10	1,505941

Legality, control and transparency.	8,625	6	10	1,59799
Partnerships: Political-Institutional; Public-Private and Civil Society.	8,625	6	10	1,407886
Public institutional and managerial development.	8,375	6	10	1,30247
Qualification, performance and results of the servers.	8	6	10	1,511858
Capacity Building: internal and external.	7,25	6	8	1,035098
Environmental Sustainability.	7,875	5	10	1,642081
Relevance to Society.	9,125	8	10	0,991031

Source: Polary e Silva (2015).

FRAMES

Nº	COUNTIES	PIB at current price	%
1	Alcântara	R$65.418.000,00	0,17%
2	Bacabal	R$505.600.000,00	1,27%
3	Balsas	R$1.120.221.000,00	2,82%
4	Cajapió	R$22.781.000,00	0,06%
5	Caxias	R$825.527.000,00	2,08%
6	Imperatriz	R$2.000.735.000,00	5,03%
7	Lago da Pedra	R$152.435.000,00	0,38%
8	Paço do Lumiar	R$291.564.000,00	0,73%
9	Raposa	R$100.920.000,00	0,25%
10	Rosário	R$134.819.000,00	0,34%
11	São João dos Patos	R$89.164.000,00	0,22%
12	São José de Ribamar	R$473.407.000,00	1,19%
13	São Luís	R$ 15.337.347.000,00	38,58%
14	Timon	R$715.427.000,00	1,81%
	TOTAL PIB (municipalities participating in the research)	R$ 21.835.365.000,00	54,93%

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TOTAL PIB (municipalities not participating in the research)	R$ 17.918.346.000,00	45,07%
PIB Maranhao	R$ 39.753.711.000,00	100%

Frame 1 - PIB of the 14 municipalities of the sample of the 145 MPMGEs surveyed in the Industrial Sector of Maranhao.

Source: IBGE (2012).

Public Hospitals and Public IESs in São Luis-MA	
Public Hospitals	Public IES
1. Hospital Djalma Marques Socorrão I	1. Universidade Federal do Maranhao – UFMA
2. Hospital Socorrão II	2. Universidade Estadual do Maranhao – UEMA
3. Hospital Universitário Presidente Dutra	3. Instituto Federal do Maranhao – IFMA
4. Hospital Aquiles Lisboa	
5. Hospital Aparelho Locomotor Sarah	
6. Hospital Geral Tarquínio Lopes Filho	
7. Hospital da Criança Enfermaria	
8. Hospital Nina Rodrigues	
9. Hospital Infantil Dr. Juvêncio Mattos	
10. Hospital Pam Filipinho	
11. Hospital Pam Diamante	
12. Hospital Dr. Adelson Sousa Lopes	
13. Hospital Getúlio Vargas	
14. Pró-Saúde Associação Beneficente e Ass. Social	
15. Hospital Aldenora Belo	
16. Hospital da Mulher	
Grand Total...19	

Frame 2 - Universe of Public Hospitals and Public IESs of São Luis of Maranhao

Fonte: www.google.com.br/hospitaispublicosdesaoluis, with author updates

www.google.com.br/universidadespublicasdesaoluis

ACTIONS	CASES	ORIENTING MEASURES	PROCEDURES ADOPTED
Administrative Reform	- DASP	- The problem is in the media. Reinforces the role of bureaucracy. - Principles - centralization and standardization.	- Solutions (orthodox bureaucracy); Search for problems (patrimonial bureaucracy). - Maurício Nabuco Project - implanted in an authoritarian way.
Administrative Modernization	- Parallel Administration (JK Government) - Administration for Development (military regime)	- The problem is in the adequacy between means and ends – need for a flexible bureaucracy for development purposes (Plan of Goals and National Development Plans, respectively).	- Problems (rigidity and inability) in search of solutions (executive groups and Decree-Law no. 200, respectively). - Diagnosis is elaborated (Commission of Bureaucratic Simplification - COSB and Commission Amaral Peixoto, respectively); Propositions and is implemented through strong top-down leadership (executive groups) or in an authoritarian way (Decree-Law No. 200).
Reform of the State	- Collor Government 1990/1991	- Principles - decentralization and flexibilization. - The State as a Problem.	- Solutions (disassembling and weakening of state paper).
Reform of the State	- FHC Government 1995/2002	- The state as a problem (the crisis of state and bureaucratic administration according to the neo-institutionalist economic view). - Construction of the regulatory state. - Displacement between planning and management - A state adequacy plan (Master Plan) not linked to development goals; And a development plan (PPA 2000-2003) without a state adequacy model for its implementation. -The dominant direction of the fiscal adjustment obstructed both the Master Plan and the PPA.	- Solutions (new public management, "managerial administration") in search of problems (the "bureaucratic administration"). - Plans are drawn up (PD, PPA) with low involvement and participation of the actors involved, which generates low degree of implementation. - The management policies are fragmented and the orientation of fiscal adjustment prevails.

ACTIONS	CASES	ORIENTING MEASURES	PROCEDURES ADOPTED
		- Principles - privatization, flexibility, customer focus, results orientation, social control.	
Revitalization of the State	- The Lula Government's Public Management Plan 2003/2006 2007/2010	- The State as a solution - an active role in reducing inequalities and promoting development. - Public administration can and should be optimized to increase government capacity. - Principles - reduction of the institutional deficit; Strengthening the capacity to formulate and implement policies; Resource optimization; Participation, transparency and ethics.	- Problems (APF's institutional diagnosis) in search of solutions (a public management plan). - The Management Plan as a positive agenda - implementation of the PPAs 2004-2007 and 2008-2011, managerial innovations and equalization of structural problems of the federal administration. - The results of the first mandate (2003-2006) are lower than expected in terms of efficiency, effectiveness and effectiveness as well as transparency and ethics. - The aim of the 2007-2011 period is to strengthen governance, by overcoming the difficulties encountered in implementing public policies, due to the rigidity and inefficiency of the administrative machinery.

Frame 3- Synthesis of the trajectory of administrative reforms, administrative modernization and State reforms in Brazil.
Source: Adapted from Presidency of the Republic (2004) and Matias-Pereira (2010).

Nº	PHASES OF MPEs	DEFINITIONS
01	CREATION	It is the legal formalization of MPE, via a social contract and / or constitution document, in which the company is created to operate and meet a market demand.
02	MAINTENANCE	It is to fulfill the mission of creating the business, and keep working until leaving the phase of "loss" (recovery of capital invested in the creation phase), and from

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		there, to remain in the market with the generation of own resources and operating at a profit.
03	PERENE MAINTENANCE	The company remains stable, successful in business, but without structural and physical growth. Staying alive successfully in business, and consciously avoiding expansion.
04	GROWTH	It is to grow the business in its structural and physical aspects, with the increase of the number of employees, greater market share and expansion of the clientele, increase of financial gains, among others.
05	PERENITY	It is to remain alive in the market, long-lived and succeeding generations, with constant feedbacks from the creation, maintenance and perennial maintenance phases, with the capacity to maintain structural growth, the market, the clientele, and acquire financial stability, prioritizing the development Of management technologies and of the workforce that guarantees professional maturity and can fulfill its political, economic and social function in the face of its mission.
Nº	**PROCESSES OF MPEs**	**DEFINITIONS**
01	SUCCESS	MPE presents good administrative, operational and financial results, generating capacity for its continuity, providing the necessary conditions for the company to reach the remaining phases and achieve longevity, thus fulfilling its political, economic and social mission in the environment in which it operates.
02	LOW PLANNED	Closing of the activities of the MPE in the market in which it operates, carried out in a manner planned by the owner, after complying with its legal, fiscal and labor obligations. It is a professional decision not to want to continue in the business, regardless of the reason.
03	FAILURE	It is the poor result of MPE, and its inability to continue operating in the market in a viable way to administrative, technical, operational and financial matters, being compromised the relation with the employees, clients and the results of financial profit.
04	MORTALITY	Insolvency of MPE, ceasing the normal operation of its administrative, technical and operational activities, for not achieving economic and financial success. It ceases to exist functionally with an active organization, reflecting negatively on the economic and social development of the environment in which it operates.

Frame 4: Phase Cycle and Processes of MPEs.

Source: Polary (2012).

MODEL	DIMENSIONS	COMPONENTS	VARIABLES

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GSI	Administrative Technological	Management	Skills and Management Skills - Professional Management-GSI, based on Entrepreneurship.
			Feasibility studies: technical, economic and financial.
		Technology	Technological support (machinery and equipment, systems and working methods).
			Industrial efficiency level.
	Political Institutional	Policies	Public Policies of the Federal, State and Municipal Government.
			Legal, tax and labor aspects.
		Strategies	Local Strategies and Political Institutional Partnerships, Industrial Segment and Civil Society.
			Industrial Development Plan - IDP-2020.
	Economic Social	Economic and Social Indicators	Qualified industrial labor force.
			Investment attractiveness: internal, external and local government.
			Preservation of the local environment of industry.
			Business Location.

Frame 5 - The GSI model.

Source: Polary (2012).

MODEL	DIMENSIONS	COMPONENTS	VARIABLES
GSI	Administrative Technological	Management	Skills and Management Skills - Professional Management (GSI).
			Feasibility studies: technical, economic and financial.
		Technology	Technological contribution: technology and innovation; Processes and working methods; equipments.
			Level of efficiency and effectiveness of results
	Political Institutional	Policies	Public Policies of the Federal, State and Municipal Government
			Legality, control and transparency.

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		Strategies	Partnerships: Political Institutional, Public-Private and Civil Society
			Institutional and Managerial Public Development
	Economic Social	Economic and Social Indicators	Server qualification, performance and results
			Fundraising: internal and external
			Environmental Sustainability
			Relevance to society

Frame 6 - The GSI Conceptual Model adapted for Public Organizations.

Source: Polary (2014).

Independent Variables (Peddler)	Partial regression coefficient	t	p
Constant (Intercept)	2.1810(a)	-	-
Skills and managerial skills of the managing partners and others who administer or advise the business - Professional Management (GSI), based on Entrepreneurship	0.1168(b1)	1.5716	0.1186
Technological support (machinery and equipment, systems and working methods)	0.1989(b2)	2.4149	0.0172
Conduct feasibility studies: technical, economic and financial	**0.2417(b3)**	**3.6392**	**0.0004**
Level of industrial efficiency	0.1138(b4)	1.4452	0.1509
Qualified industrial labor force	0.0137(b5)	0.2644	0.7919
Location of Micro, Small, Medium and Large Enterprises (MPMGEs)	0.1149(b6)	2.3440	0.0207

Frame 7 - Multiple linear regression between the variables that most positively influence the Management, Success and Perennial (Independent) and Prioritize the technical and professional development of the partners that direct and of others that administer or advise the business (Dependent) the industrial MPMGEs of Maranhao.

Source: Polary (2012)

Independent Variables (Peddler)	Partial regression coefficient	t	p

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Constant (Intercept)	2.1663(a)	-	-
Prioritize the qualification of industrial labor and maintain the level of efficiency and productivity of the sector.	0.0101(b1)	0.7304	0.4665
Reinvesting in Micro, Small, Medium and Large Enterprises (MPMGEs), to better serve the workforce, the clientele and fulfill its economic and social function to remain in the market.	**0.8001**(b2)	**5.5188**	**<0.0001**
Prioritize the technical and professional development of the managing partners and others who administer or advise the business the MPMGEs.	-0.1261(b3)	-1.2428	0.2163
Preservation of the local environment of industry.	-0.0086(b4)	-0.1002	0.9204
Using the Industrial Development Plan - IDP 2020.	0.0712(b5)	1.1222	0.2639
Public Policies of Federal, State and Municipal Governments, attractive investments and partnership with MPMGEs, Government and private initiative.	-0.0146(b6)	-0.2558	0.7985

Frame 8 - Multiple linear regression between the variables that most influence positively - Phase of perennialism (Independent) and the awakening of Professional Management - GSI and entrepreneurship of the entrepreneurs for the MPMGEs and awareness for investments in technology to remain competitive in the local, national and international market (Dependent) on the industrial MPMGEs of Maranhao.

Source: Polary (2012).

VIII.   GRAPHICS

Contribuições para o cumprimento da Missão

GRAPHIC 1 - MAJOR CONTRIBUTIONS FROM PUBLIC INSTITUTIONS TO MISSION FULFILLMENT IN MARANHAO.
Source: Polary e Silva (2015).
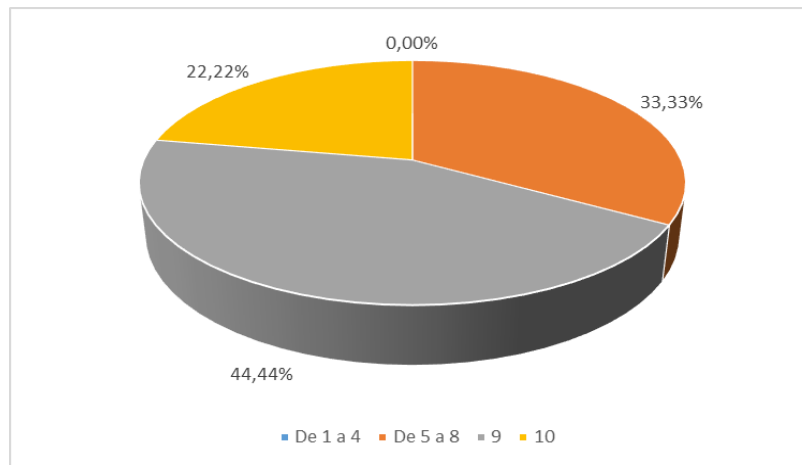
Graphic 2 - Partnerships: Political-Institutional, Public-Private and Civil Society

Source: Polary e Fonseca (2015).
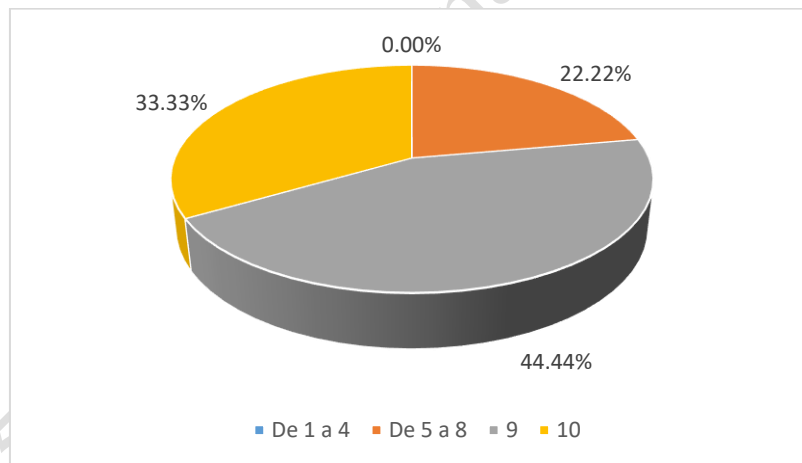
Graphic 3 - Fundraising: internal and external

Source: Polary e Fonseca (2015).

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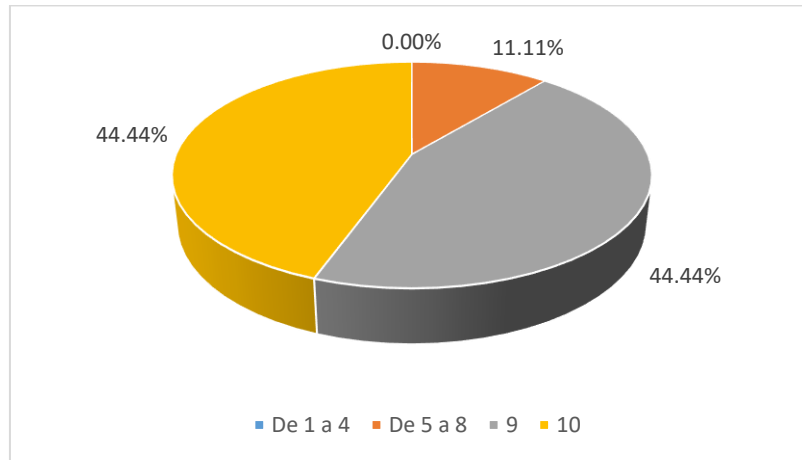
Graphic 4 - Relevance to society

Source: Polary e Fonseca (2015).

ENERGY GENERATION WITH MUNICIPAL SOLID WASTE REUSE - VALUATION AND IMPACT ANALYSIS OF A PILOT PROJECT IN BELO HORIZONTE – BRAZIL

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ABSTRACT

The rising volume of municipal solid waste makes the operating costs of the conventional sanitary landfills increasingly higher. Moreover, it is a difficult task to find environmentally suitable areas for the garbage disposal besides being worried about their impacts on public health and on the environment. This paper deals with the environmental and sustainable development and aims to analyze the financial viability of power generation with the reuse of organic waste collected in Belo Horizonte, State of Minas Gerais - Brazil. The study concerns with the implementation of a biofuel industrial plant in order to use the dry anaerobic thermophilic fermentation process to generate electrical/thermal energy - waste to energy (WTE) - and producing organic compost suitable for the use in gardening and in organic agriculture. The methodology embodies the bottom up method to calculate the project financial risk, and instruments to identify the capital cost (WACC) as well as the project free cash flow. However, the approach differs from traditional analysis of valuation since other important impacts of the project are made explicit. The project was not able to generate value for investors at current levels of energy prices. Notwithstanding, the slight negative net present value (NPV) should not constitute an obstacle to the implementation of the project as long as it generates direct tax revenues that exceed the allowance required for its operation. In addition to the environmental benefits, the projected use of all organic waste fraction of the municipality indicates significant impacts on gross fixed capital formation, and on the income generation of labor and capital, as well as on government revenues.

Keywords: Municipal solid waste management, Sustainability and energy generation, Valuation.

I. INTRODUCTION

The volumes of municipal solid wastes in the country, deposited in landfills, are increasing. That is due to the increase in the economically active population and higher personal consumption of goods and services (Abrelpe, 2014). In the specific case of the city of Belo Horizonte, capital of the state of Minas Gerais, the situation is not different, and this framework has to be reversed so that the city can be a city with inclusive and environmentally responsible characteristics. In addition, there are difficulties in releasing areas around the capital that can be used environmentally safe for the installation of a conventional landfill, imposing increasing costs for transportation to the final disposal of waste.

Zveibil (1991) presents a comprehensive analysis to identify the various problems caused by the poor management of MSW (Municipal Solid Waste), especially the biological agents of proliferation of vectors that transmit diseases, air pollution caused by odor or burning of open pit litter, contamination of sewage by chemical substances present in the waste mass, silting due to the accumulation of materials along the edges of watercourses and slopes, and aesthetic aspects (visual pollution) with undue exposure of the waste.

In addition to the sanitary aspects presented, it should be considered that the gases generated in landfills have among their components the methane gas, one of the largest generators of greenhouse effect (GHG), and a cause of worldwide concern. The effects of methane gas on the Earth's atmosphere and on the ozone layer, in addition to environmental problems, impact public health due to diseases associated with its exposure to sunlight, especially in tropical countries such as Brazil. Finally, it is worth highlighting the social phenomenon of the so called "garbage pickers" in Brazilian cities. Although the public collection system has improved, this class of workers has not disappeared and acts in a precarious way, without safety equipment and with daily risk of contamination, transmission of diseases and accidents that can be caused by cutting residues contained in the waste.

Thus, it is necessary to change the paradigm in relation to the MSW, being perfectly possible its use with the consequent creation of new business opportunities, promotion and generation of income and the creation of new jobs. Following the typology of Schumpeter, as reported in McCraw (2012), the use of solid waste can be treated as an innovation, which is the driving force behind growth, since it would allow the production of new goods to be traded in the market – electric energy and composting; the introduction of a new production method - biomethanization; and the use of new sources of raw materials. In other words, the elimination of landfills would open up a space for "creative destruction", suppressing a subhuman activity represented by "garbage collectors", in a manner more in line with human dignity, represented by recycling of materials and the transformation of organic material into energy and compost.

The purpose of this article is to investigate whether the introduction of new products can be justified from an economic-financial point of view. The research is influenced by the experiences in developed countries that adopted sustainable practices in solid waste management, and is based on modern corporate finance tools. Besides the desirable financial results to investors, the implantation of plants exert social and economic impacts and contribute to the generation of clean energy, propitiated by the reuse of the residues that today are discarded in landfills without any beneficiation.

II.   LITERATURE REVIEW

Valuation and selection of investment projects

According to Damodaran (2010) there are three main approaches to business valuation: the valuation through discounted cash flow, which portrays the value of the asset as the present value of an expected future cash flow; the relative valuation in which the value of an asset is estimated by reference to the price of similar assets in relation to the common variables, such as yields, carrying value, sales, among others; and the contingent rights valuation, which uses models that incorporate probability of occurrence of events to measure the value of the asset with option characteristics. In this paper, the discounted cash flow model will be used, which is best to describe the effective wealth generation capacity of an enterprise, since it brings the present value of expected future benefits at an appropriate discount rate (the opportunity cost of capital), and portrays the reality of the economic environment in which the company is inserted.

The basic criterion in the decision-making process is the ability to generate value that this business can provide, i.e. the condition for such operations to be carried forward is the generation of wealth to shareholders. To do so, it is a prerequisite that potential investors should know how to price what is being acquired (bought). It is known, however, that the process of valuing an asset, even if it is done using mathematical models, involves subjective judgments, mainly with respect to the information used in the process, since the return of an asset is calculated based on the expectation of future results for this same asset. According to Damodaran (2010), the subjectivity in the evaluation process is one of the greatest difficulties in measuring the value of an asset and any preconceptions that the analyst brings to the valuation process will eventually be incorporated into value. Thus, the decision of this type of investment is made under uncertainty, as defined by Keynes (1936).

Cash flow to the firm

The cash flows used in the valuation of companies are the free cash flow and are calculated net of income tax, after deducting all the fixed and working capital investment needs, being essentially of two types: Free Cash Flow to the Firm (FCF) and Free Cash Flow to the Equity (FCFE).

The FCF is the net result of cash destined to all investors: creditors and shareholders, and is calculated from the operating cash flow net of income tax (Serra & Wickert, 2014). The cash flow available to shareholders is calculated by subtracting the cash flow of the creditors from the company's cash flow (investors). The FCFE is relative only to equity, with reference to net profit. As a result, CAPM (Capital Asset Pricing Model) can be applied to bring future values to the present. If the expected future cash flows incorporate the results of all capital owners (FCF), these should be discounted by the weighted average cost of capital (WACC), which is estimated considering the participation of the investors (firm value), resulting from the use of debt and the use of equity capital.

Socio-economic impacts of the project

Although valuation only considers the financial capacity of the project to generate value for investors, analysis involving public policies should address other dimensions. In the development theory, as emphasized by Locatelli (1985), there is a vast literature on alternative investment strategies, and analysts emphasize that, among other aspects, the impacts of these should be considered in public revenues, in the labor market, and in the business environment.

Motivated by the work of Locatelli (1985) and Piketty (2014), this research will make explicit the generation of taxes, the creation of wage income and of capital, and gross fixed capital formation. It should be noted that all information will be obtained in the valuation process itself, and thus, only the direct impacts of the project will be considered. Tax revenue derives from Corporate Income Tax (IRPJ)

and Social Contribution on Net Income (CSLL), since the activity is exempt from the collection of indirect Brazilian taxes (ICMS, IPI, PIS, Cofins, etc.). The wage income comprises the payment of salaries and labor charges, which is part of the administrative and operational expenses of the project.

It is known that companies aim to maximize their value, which reflects in the increase of shareholder wealth and in the more efficient use of a company's economic resources and, therefore, in the improvement of the economy as a whole. According to Copeland et al. (2002), if administrators focus on creation of value for the shareholders they will create healthier businesses which, in turn, will lead to stronger economies, higher living standards, and greater career and business opportunities for individuals. Thus, the improvement of the business environment in the present analysis is due to gross fixed capital formation (CAPEX), which increases the productive capacity of the economy, and by the generation of income of the capital measured by NOPLAT, which constitutes in the reward to investors by the resource mobilization and product and process innovations.

The opportunity cost of capital

The relationship between risk/return in decision-making in relation to a given investment was derived from the works of Markowitz (1952), which resulted in the development of a mathematical model of portfolio optimization based on the combination of individual assets, capable of reducing investor risk (volatility of returns). Posteriorly, the concept of risk was refined, with the assumption that the total risk can be classified as specific (diversifiable) and non-diversifiable or systematic risk (beta).

According to Fama and French (2004), The Capital Asset Pricing Model formulated by Sharpe (1964) and Lintner (1965) marks the birth of the CAPM theory, widely used to express the cost of equity, being described in equation (1):

$$E[R_i] = Rf + \beta_L(E[Rm] - Rf) \qquad (1)$$

$E[R_i]$ = expectation of return of the asset;

Rf = rate of return of a risk-free asset;

β_L = Leverage beta, which portrays the sensitivity of the returns of the asset to the returns of a market portfolio;

$E[Rm]$ = expectation of return of the market portfolio.

Despite CAPM being widely used in the evaluation and selection of investment projects, the model has been strongly criticized in the face of the difficulties of choosing a security to reflect the risk-free rate, of the period and the time interval for measuring the beta, or the definition of an appropriate market portfolio, besides not considering other important variables that influence the return of any asset (Fernandes, 2014). Although analysts recognize the weaknesses of CAPM, the model continues to be used because the cost/benefit ratio is unfavorable to alternative models (Da, Guo & Jagannathan, 2012).

Leveraging and the use debt constitute one of the most important issues in the implementation of corporate strategies, since it increases the company's growth possibilities through short and long-term corporate financing. In their initial work, Modigliani and Miller argue that there would be no optimal capital structure, that is, all possible combinations of debt and equity would generate the same firm value, provided that the risks involved are properly considered. Subsequently, the authors relax the hypothesis of perfect markets to introduce the possibility of deductibility of interest expenses of the basis of calculation of income tax. Under these circumstances, leverage becomes an important variable in the entrepreneur's decision, and company value is a growing function of indebtedness (Miller, 1988).

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The contributions of Modigliani and Miller led to the emergence of a widely accepted theory in the academic world, known as the "trade off" theory that takes into account two factors that work in opposite directions: tax economies induce companies to borrow, while default risks and the perceived costs of bankruptcy (increased systematic risk, measured by leveraged beta, and rising debt cost) inhibit the appetite for the use of third-party capital.

As debt increases the risk of the company, it can be postulated that the more debt a company takes, the greater the beta. This is because debt creates an additional fixed cost from interest expenses, increasing exposure to market risk. Thus, the question is: how do you estimate the systematic risk (beta leveraged) of a project (company) if its assets are not traded on a stock exchange?

As reported by Marquetotti & Locatelli (2014), in situations such as this it is recommended to use the bottom up method, using information from companies with similar risks to the estimates of the leveraged beta. The bottom-up beta method has as its principle the logic that companies within the same industry tend to have beta differentiated basically by financial leverage. The formula (2) allows us to identify the influence of debt on the firm's systematic risk:

$$B_L \;=\; \frac{B_L}{1 + \left(\frac{D}{E}\right) x \;\; (1-t)} \qquad\qquad (2)$$

β_U = unleveraged beta, if the company had no debt;

β_L = leveraged beta of the company;

D/E = Debt/Equity in market values;

t = aliquot of income tax that will provide the tax benefit of debt service.

According to the previous discussions, to estimate the opportunity cost of capital, which constitutes the discount rate to be used in the economic-financial feasibility analysis, the types of capital available and the financing structure should be evaluated. Thus, the weighted average cost of capital (WACC) is the average cost of equity and of third-party capital, weighted by the fractions of the value of the company that correspond to the shares and debt, respectively, according to the following equation:

$$WACC = K_e \left[\frac{E}{(D+E)} \right] + K_d \left[\frac{D}{(D+E)} \right] \times (1 - T) \qquad (3)$$

E and D = the market values of equity and third-party capital, respectively;

K_e e K_d = the costs of each source of funding;

T = the rate of the company's income tax.

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III. THE DESCRIPTION OF THE PILOT PLANT FOR ELECTRIC ENERGY GENERATION WITH REUSE OF MSW

According to World Bank surveys, 1.3 billion tons of solid waste were generated in cities around the world, an average of 1.2 kg per day for each inhabitant, and this volume is expected to increase to 2.2 billion tons by 2025 (Hoornweg & Bhada-Tata, 2012).

Many countries have abandoned the use of landfills for some time and use different technologies for their reuse, the development of which is facilitated by legislation and public policies, technological innovations in recycling, and environmental requirements due to a greater awareness of their populations. But the landfill continues to be the main disposal site for MSW in Belo Horizonte. Belo Horizonte has sent the garbage to the Macaúbas / Sabará's landfill, and the total amount of municipal solid waste destined for the landfill site in 2014 was 828,157 tons. Of this total, approximately 41% are organic food waste, that is, 339,000 t / year, which demonstrates the enormous untapped biogas generation potential (SLU, 2014).

There are several technologies that can be used for the recovery and transformation of waste (Figure 1). Physical and biological technologies still cost more than the revenues from the sale of the material benefited in the country, and the treatment also requires a highly complex management model involving different segments in the process, such as workers, intermediaries and recycling industries (FADE / UFPE, 2014, FEAM, 2012).

FIGURE 1
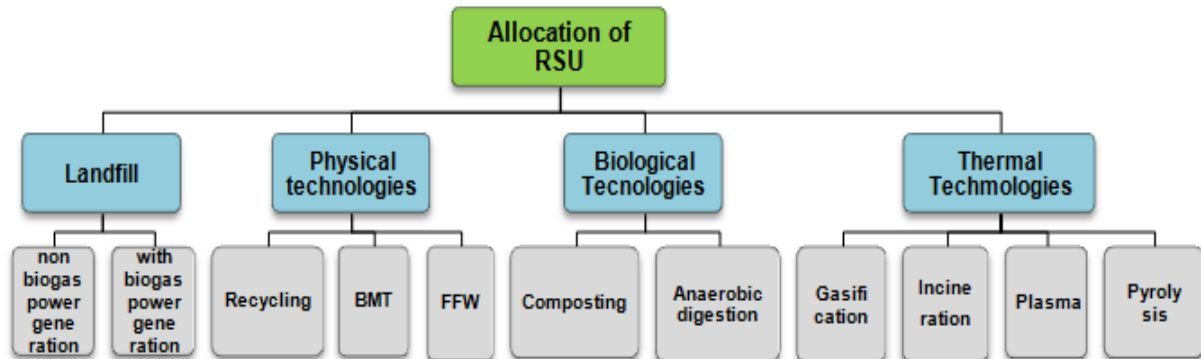
Thermal technologies use heat as a way of recovering, separating or neutralizing certain substances present in the waste, or reducing mass and volume, or producing thermal energy and electric energy. The MSW collected in Belo Horizonte have a high fraction of organic matter (61.59%) with high humidity. This can result in mixed residues with lower thermal load, implying an increase in the auxiliary fuel consumption, when using the thermal technologies for its reuse. However, the use of these same residues with the dry anaerobic thermophilic process technology in the fermentor allows the production of biogas with high energy cogeneration potential.

WTE is a well-established process and has been applied to obtain energy, with companies such as Kompogas, Dranco and Valorca standing out as technology and equipment suppliers. Only the company Kompogas has units installed in 28 countries, having implemented 10 units for the generation of energy between the years of 2013 and 2014.

The installation of this plant has the following advantages:

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- It increases the life of the landfill because only the wastes of the process will be grounded
- It generates biogas that can be used as clean electric energy or vehicular natural gas, and can be sold to the local concessionaire;
- It generates usable heat that can be transformed into cold and used according to the wishes of the plant operator;
- It produces in a reduced time a high quality compound and liquid fertilizer already suitable for its use;
- To obtain certificates for the reduction of greenhouse gas emissions, which will allow the negotiation of Carbon Credits.
- It improves the social and environmental concept of the MSW manager.

IV.   METHODOLOGY

Analysis unit and free cash flows

The objective of this study is the implementation of a 15,000 tons WTE industrial pilot plant for the reuse of organic solid waste from large commercial establishments such as restaurants, bars, industrial restaurants, shopping malls, supermarkets, and large residential condominiums of the city of Belo Horizonte, with a term of operation of 30 years. The project requires an approximate area of 5,000 m² and can be built within 20 months after its approval and obtaining the environmental licenses regulated in specific laws for this type of enterprise.

The pilot plant was developed by Kompogas Switzerland and its represented Kutner of Brasil Ltd., according to the company's internal document (Kutner, 2016). The cash flow was built based on the technical specifications of the plant and the current conditions of the Brazilian

market, and was elaborated in constant terms, that is, they were not considered price or cost adjustments, either due to inflation or due to changes in competitiveness.

The project's operating income is generated by the commercialization of electric and thermal energy and the organic compounds, solid and liquid produced in the pilot plant. The revenue was projected from the following assumptions:

a) Forecast of own generation of electric and thermal energy

Electric Power 4,420,000 Kwh /per year

Thermal energy 4,460,000 Kwh /per year

b) Forecast for the production of solid organic compound and liquid = 7,500 tons/per

year.

c) Prices for calculating the values of energies and the organic compound.

Two alternatives were considered based on energies that are closer to those generated by the plant being analyzed, i.e.: biomass/coal energy (Alternative 1), and natural gas energy (Alternative 2). The prices

were extracted from information from the 23rd A-5 new energy auction, which will begin in 5 years on energy market in the regulated market, held on April 30, 2016 by the National Electric Energy Agency (ANEEL)/Chamber of Commercialization of Electric Energy (CCEE):

. Alternative 1 - sale price R $ 251.00 / MWh,

. Alternative 2 - sale price R $ 290.00 / MWh.

The organic compound produced in the process is traded at prices ranging from R$100.00 to R$150.00/ton, according to information from the CEMPRE - Entrepreneurial Compromise for Recycling site (accessed June 19, 2016). Thus, an intermediate value of R $ 125.00 / ton was considered.

Operating and administrative expenses, including depreciation of machinery, equipment and civil works, and the necessary investments comprised by CAPEX and working capital, were also recorded, and the information is presented in Table 3. The data were processed with employment of Eviews 9.0 and Excel software.

Pricing of the risks and of the cost of capital

To evaluate the risk of the investment (expressed by the beta) of the pilot plant, whose main product is the generation of electric energy, the bottom up method was adopted, being selected a sample composed of three public companies of the electric power sector representative of the sector and whose shares are included in the Ibovespa (Cemig, Cesp and Copel). The leveged beta was estimated by means of a regression, in which the dependent variable is the weekly return of the company's shares and the explanatory variable is the Ibovespa weekly return. Following the procedures presented in section 2, the sectoral beta without leverage was calculated, which was leveraged by adopting a possible capital structure to finance the industrial plant.

To obtain the cost of equity capital, the CAPM (equation 1) was utilized, using the levered "beta sector", a risk free rate and the risk premium of the Brazilian market. In relation to the first one, the rate referring to a sovereign bond issued by the Brazilian government - National Treasury Note, Series B (NTN-B) was used, excluding the correction for inflation measured by IPCA / IBGE, maturing in 15/05/2035. This bond offered a real return on 09/09/16 of 6%% per year. Póvoa (2012) recommends risk premiums between 5% and 6.5%. Other authors such as Silva, Locatelli & Lamounier (2016) have adopted the same international rate (5% per year), arguing that the Brazilian risk free rate is very high in view of the high country risk, which impose substantial costs of equity. In this research, we also chose to use the 5% risk premium.

In order to reflect the cost of third-party capital, the real rate of a long-term financing line with international funding, passed by the Minas Gerais Development Bank (BDMG), with a swap in Reais of 11% per year was adopted. The WACC was estimated using the equation (3) and used as the discount rate to bring the future cash flows into the present.

V. PRESENTATION AND DISCUSSION OF RESULTS

The systematic risk of electric sector companies and the cost of capital of the project

There are differences in the magnitudes of the leveraged betas of companies in the Brazilian electric sector, and Cesp was the company with the lowest systematic risk of the sample, with beta lower than

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1.0, which reveals a lower volatility of the company's returns in relation to the portfolio of the market. In terms of model adjustment, indicated by the adjusted R², the value is low, varying from 28% to 47% (Table 1). Whereas the risk that is being measured is systematic risk, it should be borne in mind that other important factors are not being considered to explain the returns provided by the assets. This result is not surprising and is generally observed for several companies and markets (Damodaran , 2010; Moreira, Locatelli & Afonso, 2016). However, the regression is valid, which is confirmed by the highly significant F statistic.

TABLE 1

SYSTEMATIC RISK OF COMPANIES OF THE BRAZILIAN

ELECTRICITY SECTOR

Company	Coefficients	Standard error	Statistic t	Prob. Signif.	R² Ajusted	Statistic F
Cemig	1.1257	0.1195	9.4212	0.0000	0.3615	88.7586
Cesp	0.8134	0.1024	7.9395	0.0000	0.2858	63.0356
Copel	1.0221	0.0865	11.8169	0.0000	0. 4721	139.6401

Note: [1] Weekly data from August 2013 to July 2016. Number of observations 156.

[2] There were no problems of heteroscedasticity and serial correlation of errors.

Source: Authors' estimates.

Since the levered beta (βL) has a direct relation to the use of third-party capital, we must proceed with the analysis to eliminate the effect produced by leverage on the risk of each company. The unlevered beta is built on the hypothesis of a capital structure based solely on the use of equity, allowing the beta to reflect only the typically operational risks of the business.

It was initially found that companies have different capital structures, and Cemig is the one that uses more intensely the debt to finance its activities. Applying the formula (2) presented in section 2, we obtained the unlevered beta of the sector of 0.7114, calculated by a simple mean of the unlevered betas of the companies (Table 2).

TABLE 2

UNLEVERED BETAS OF COMPANIES OF THE BRAZILIAN

ELECTRICITY SECTOR

Company	Beta Levered	Debt /Equity (%)	Tribute Rate (%)	Beta Unlevered
Cemig	1.1257	117.89	0.34	0.6331
Cesp	0.8134	14.05	0.34	0.7444
Copel	1.0221	53.16	0.34	0.7566
Sector Beta	**1.1809**			**0.7114**

Source: Yahoo Finance and authors' estimates.

From the unlevered beta of the sector, we estimated the beta bottom up of the project. For the calculation of the debt/equity ratio, the financial leverage for the project was considered, taking into account a possible source of financing. It was adopted the premise that 50% would come from debt and 50% from equity, thus presenting a balanced structure. Applying the data in equation 2, and considering that the value of t = 34%, the levered beta to be considered in the project is 1.18.

In order to quantify the opportunity cost of equity, the CAPM was used, as discussed in section 2, and the expected real return per year was estimated $[E(R_i) = 6\% + 1.18\ (5\%)] = 11.9°\%$. The actual cost of third-party capital raised is 11% per year before taxes. Considering the 34% rate, which is the maximum tax rate on income, the net real cost of debt to the company after tax deductibility is 7.26% per year. Assuming 50% of third-party capital and 50% of equity in project financing, the cost of debt (Kd) of 7.26% per year, and the cost of equity (Ke) of 11.9%, the WACC was estimated at around 9.58% per year.

The free cash flow and the present value of the project

The projections were made in real terms according to two alternatives, described in section 4. Alternative 2 differs from the first only in relation to the sale price of energy, which impacts the project revenues and, to a lesser extent, expenses, since part of the generated energy is used in the productive process In this article, for the sake of space, we present the data disaggregated only for Alternative 1. As the size of the plant in terms of power generation is insignificant in terms of the Brazilian energy production, it was admitted that it will operate without idleness, in such a way that the Gross Revenue is the same throughout the period. It was assumed that expenditure would remain fixed in real terms, in the same way as the price of energy and organic compost (Table A.1).

Investments in machinery, equipment and civil works will be realized in the two years of implementation, R$ 12.9 million and R$ 13.4 million, respectively. These investments will be depreciated by the straight-line method, according to the legislation, being 10% per year for machinery and equipment and 4% per year for civil works. In the years 10 and 20 there will be made replacement investments of the order of 2.5% of the value of CAPEX, demanded by the natural wear of motor-generator and wheel loader. The working capital requirement was estimated at about 10% of revenues, and it will return to investors at the end of the project.

As one would expect, the project accounts for impairment loss in the years of its implementation, but from then on it presents positive cash generation (EBITDA) in amounts slightly above R$ 3 million/year. The EBITDA/Net Revenue margin is of the order of 76%, while administrative and operating expenses represent 14% of Gross Profit. From the third to the ninth year, free cash flow to investors is around R $ 2.8 million /per year. In the 10th and 20th years, small spare parts/equipment investments are needed. From the 11th year onwards, the generation of free cash is reduced by the end of the income tax deductions resulting from the depreciation of machinery and equipment, and in the 25th the depreciation of civil works is closed. Finally, in the 30th and last year of the concession, there is a return on available working capital (Table A.1).

The summary of the main results is detailed in Table 3. Despite the positive results of the cash flows during the operation of the plant, the project with the energy prices adopted in Alternative 1 (R$ 251.00 MW/H) results in generation of slightly negative value. This result is reverted in Alternative 2, which admits energy sales prices of R$ 290.00 MW/H.

Considering the results, the feasibility of the project in the most conservative forecast (energy price R$ 251.00 KW/H) would require a small subsidy from the grantor, which should be of the negative NPV of the project. It is important to note that notwithstanding this subsidy, the project does not cause damage to public finances. On the contrary, since its operation will provide direct tax revenues that

exceed that amount. In addition to their notorious environmental gains, other contributions of this investment, in present value, can be briefly listed (Alternative 1): impacts on the labour market with employment income generation of R$ 4.9 million, impacts on capital income resulting from the generation of adjusted net income after direct taxation (NOPLAT) of approximately R$ 9.5 million, and contribution to gross Fixed Capital (GFCF) of R $ 26.3 million (Table 3).

TABLE 3

VALUATION AND IMPACTOS OF THE PROJECT (IN REAIS – R$)

Variables	Alternative 1	Alternative 2
Net present value	-1.716.185	647.711
Impacts of the project on present value		
Generation of tax revenues	4.211.228	5.073.132
Generation of salaried income	4.902.726	4.902.725
Generation of capital income – NOPLAT	9.488626	12.055.418
Gross Fixed Capital Formation (FBCF)	26.351.239	26.351.239

Note: * The amounts in reais were brought to present value by applying the WACC.

Source: Elaborated by the authors.

In sum, the negative NPV was observed only in the more conservative alternative, but still has a very small amount more than offset by the generation of tax revenues, and should not be impeditive to the implementation of projects of this nature. Moreover, it is likely that this result will be reversed in the light of a new reality of the Brazilian economy, which must be characterized by economic growth, reduction of inflation rate and country risk. A more favorable political and economic environment will lead to a drop in the basic interest rate of the economy, with a consequent reduction in the discount rate to be used to evaluate the project. Also, the present study did not consider the discharge of solid waste management services in sanitary landfills, which should be considered in the cost vs. actual benefits of the project.

VI.   CONCLUSION

The present research aimed to present the valuation of a pilot project for the implementation of a pilot plant with a capacity of 15,000 t / per year for the reuse of organic solid waste in the city of Belo Horizonte. Despite the positive results of cash flows in the plant's operation, the project proved unable to generate value to investors in a more conservative alternative of selling energy prices. However, the

negative net present value found is not very expressive and should not be an impediment to the implementation of projects of this nature. As discussed, this result can be reversed in the light of a new reality of the Brazilian economy, in a more favorable political and economic environment. Such a change in the conjuncture will lead to a fall in the basic interest rate of the economy, with the consequent reduction in the discount rate and generation of value by the project.

Given the results found, the viability of the project in a more conservative projection would require a small subsidy from the grantor of the order found in the project's negative NPV. It is important to note that despite this subsidy, the project does not cause damages to public finances. On the contrary, its operation will provide tax revenues that exceed the initial disbursement of the granting body. It is a fact, however, that the subsidy must be borne by the municipal public power, while the collection represented by direct taxes (IR) will be absorbed by the Union.

In addition to its notorious environmental gains, other contributions of this investment, especially those represented by impacts on the labor market and the business environment, can be highlighted. It should be borne in mind that the results presented in this study present very small numbers, since they are related to the implantation of a pilot plant with processing capacity of only 15000 tons / year of organic fraction of solid residues. Considering that Belo Horizonte generates approximately 339 thousand tons /per year of this material, the potential of use is about 22 times that of the pilot plant considered in this study. Projections of the total utilization of the organic waste fraction in 30 years can reach significant figures, and the present value of labor, capital and tax revenue could reach the amount of R $ 419 million.

It is expected, therefore, that the study foment the debate and provide basic parameters for analyzes of plants of this nature in Brazilian municipalities. As a recommendation for future research, it is necessary to consider the high costs of implementation, operation and monitoring of conventional landfills, whose reductions should be addressed in the comparison of costs and effective benefits of alternative projects. It should also be analyzed the sensitivity of the project to the increase in productive capacity, as there can be economies of scale with reduction of fixed costs, with the consequent increase in project value. In addition, other methods could be used in valuation, especially the Real Options Theory, since commodity price volatility introduces important flexibility and can add value to the project.

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VIII.   APPENDIX

TABLE A.1

FREE CASH FLOW IN REAIS (R$): ALTERNATIVE 1

(to be continued...)

Description	Deployment		Operation		
	Year 1	**Year 2**	**Year 1**	**Year 2**	**Years 3 A 9**
Net Revenue			**4.103.880**	**4.103.880**	**4.103.880**
Sale of electricity			1.109.420	1.109.420	1.109.420
Sale of thermal energy			1.119.460	1.119.460	1.119.460
Composting			1.875.000	1.875.000	1.875.000
(-) Cost of services / products		(14.025)	(485.052)	(485.052)	(495.052)
Electricity			(112.950)	(112.950)	(112.950)
Thermal energy			(301.200)	(301.200)	(301.200)
Other Inputs		(14.025)	(70.902)	(70.902)	(70.902)
Lubricating oil		(2.000)	(6.000)	(6.000)	(6.000)
Diesel		(2.041)	(34.950)	(34.950)	(34.950)
Industrial water pilot plant		(9.984)	(29.952)	(29.952)	(29.952)
Technical assistance					(10.000)
(=) Gross Profit		**(14.025)**	**3.618.828**	**3.618.828**	**3.608.828**
(-) Admin. / Operational costs	(146.385)	(258.592)	(492.409)	(492.409)	(492.409)
Administrative expenses	(1.603)	(8.241)	(30.918)	(30.918)	(30.918)

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Rent of the land / pilot plant	(1.500)	(1.500)	(1.500)	(1.500)	(1.500)
Office (Broadband / telephony)		(1.200)	(2.400)	(2.400)	(2.400)
Tech. Support /Office Supplies		(5.280)	(15.840)	(15.840)	(15.840)
Accounting Advice			(10.560)	(10.560)	(10.560)
Office Use Water	(103)	(261)	(618)	(618)	(618)
Personnel Expenses	(144.782)	(250.351)	(461.491)	(461.491)	(461.491)
Operational Engineer	(84.480)	(84.480)	(84.480)	(84.480)	(84.480)
Loader operator		(10.560)	(31.680)	(31.680)	(31.680)
Operational Technician		(47.520)	(142.560)	(142.560)	(142.560)
General cleaning worker		(3.520)	(10.560)	(10.560)	(10.560)
Labor charges	(55.900)	(96.661)	(178.182)	(178.182)	(178.182)
Food and Transport Tickets	(4.401)	(7.610)	(14.029)	(14.029)	(14.029)
(=) EBITDA	**(146.385)**	**(272.617)**	**3.126.419**	**3.126.419**	**3.116.419**
(-) Depreciation			**(2.424.457)**	**(2.424.457)**	**(2.424.457)**
Machinery and equipment			(2.284.012)	(2.284.012)	(2.284.012)
Civil works			(140.445)	(140.445)	(140.445)
(=) EBIT	**(146.385)**	**(272.617)**	**701.963**	**701.963**	**691.963**
(-) Taxes on income (IRPJ e CSLL)			**(28.078)**	**(30.254)**	**(235.267)**
(=) NOPLAT	**(146.385)**	**(272.617)**	**673.885**	**671.709**	**456.695**
(+) Depreciation and Amortization			**2.424.457**	**2.424.457**	**2.424.457**
(-) CAPEX	**12.927.962)**	**(13.423.277)**			
Machinery / Equip / Furniture	10.821.289)	(12.018.828)			
Industrial pilot plant	(9.610.638)	(10.112.851)			
Motogenerator	(425.195)	(637.792)			
Wheel loader (Bobcat)		(90.000)			
Electromechanical Assembly	(785.456)	(1.178.185)			
Civil works	(2.106.673)	(1.404.449)			
(-) Working capital	**(200.000)**	**(300.000)**			
(-) Cash Flow To Investors	**13.274.347)**	**(13.995.894)**	**3.098.341**	**3.096.165**	**2.881.152**

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TABLE A.1

FREE CASH FLOW IN REAIS (R$): ALTERNATIVE 1

(Conclusion)

Description	Operation					
	Year 10	Year 11 a 19	Year 20	Year 21 a 25	Year 26 a 29	Year 30
Net Revenue	**4.103.880**	**4.103.880**	**4.103.880**	**4.103.880**	**4.103.880**	**4.103.880**
Sale of electricity	1.109.420	1.109.420	1.109.420	1.109.420	1.109.420	1.109.420
Sale of thermal energy	1.119.460	1.119.460	1.119.460	1.119.460	1.119.460	1.119.460
Composting	1.875.000	1.875.000	1.875.000	1.875.000	1.875.000	1.875.000
(-) Cost of services / products	(495.052)	(495.052)	(495.052)	(495.052)	(495.052)	(495.052)
Electricity	(112.950)	(112.950)	(112.950)	(112.950)	(112.950)	(112.950)
Thermal energy	(301.200)	(301.200)	(301.200)	(301.200)	(301.200)	(301.200)
Other Inputs	(70.902)	(70.902)	(70.902)	(70.902)	(70.902)	(70.902)
Lubricating oil	(6.000)	(6.000)	(6.000)	(6.000)	(6.000)	(6.000)
Diesel	(34.950)	(34.950)	(34.950)	(34.950)	(34.950)	(34.950)
Industrial water pilot plant	(29.952)	(29.952)	(29.952)	(29.952)	(29.952)	(29.952)
Technical assistance	(10.000)	(10.000)	(10.000)	(10.000)	(10.000)	(10.000)
(=) Gross Profit	**3.608.828**	**3.608.828**	**3.608.828**	**3.608.828**	**3.608.828**	**3.608.828**
(-) Admin. / Operational costs	(492.409)	(492.409)	(492.409)	(492.409)	(492.409)	(492.409)
Administrative expenses	(30.918)	(30.918)	(30.918)	(30.918)	(30.918)	(30.918)
Rent of the land / pilot plant	(1.500)	(1.500)	(1.500)	(1.500)	(1.500)	(1.500)
Office (Broadband / telephony)	(2.400)	(2.400)	(2.400)	(2.400)	(2.400)	(2.400)
Tech. Support /Office Supplies	(15.840)	(15.840)	(15.840)	(15.840)	(15.840)	(15.840)
Accounting Advice	(10.560)	(10.560)	(10.560)	(10.560)	(10.560)	(10.560)
Office Use Water	(618)	(618)	(618)	(618)	(618)	(618)
Personnel Expenses	(461.491)	(461.491)	(461.491)	(461.491)	(461.491)	(461.491)
Operational Engineer	(84.480)	(84.480)	(84.480)	(84.480)	(84.480)	(84.480)

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Loader operator	(31.680)	(31.680)	(31.680)	(31.680)	(31.680)	(31.680)
Operational Technician	(142.560)	(142.560)	(142.560)	(142.560)	(142.560)	(142.560)
General cleaning worker	(10.560)	(10.560)	(10.560)	(10.560)	(10.560)	(10.560)
Labor charges	(178.182)	(178.182)	(178.182)	(178.182)	(178.182)	(178.182)
Food and Transport Tickets	(14.029)	(14.029)	(14.029)	(14.029)	(14.029)	(14.029)
(=) EBITDA	**3.116.419**	**3.116.419**	**3.116.419**	**3.116.419**	**3.116.419**	**3.116.419**
(-) Depreciation	2.424.457)	(197.545)	197.545)	(197.545)	(57.100)	(57.100)
Machinery and equipment	2.284.012)	(57.100)	(57.100)	(57.100)	(57.100)	(57.100)
Civil works	(140.445)	(140.445)	(140.445)	(140.445)		
(=) EBIT	**691.963**	**2.918.874**	**2.918.874**	**2.918.874**	**3.059.319**	**3.059.319**
(-) Taxes on income (IRPJ e CSLL)	**(235.267)**	**(992.417)**	**(992.417)**	**(992.417)**	**(1.040.169)**	**.040.169)**
(=) NOPLAT	**456.695**	**1.926.457**	**1.926.457**	**1.926.457**	**2.019.150**	**2.019.150**
(+) Depreciation and Amortization	**2.424.457**	**197.545**	**197.545**	**197.545**	**57.100**	**57.100**
(-) CAPEX	**(571.003)**		**(571.003)**			
Machinery / Equip / Furniture	(571.003)		(571.003)			
Industrial pilot plant						
Motogenerator						
Wheel loader (Bobcat)						
Electromechanical Assembly						
Civil works						
(-) Working capital						500.000
(-) Cash Flow To Investors	**2.310.149**	**2.124.002**	**1.552.999**	**2.124.002**	**2.076.250**	**2.576.250**

Source: Elaborated by the authors.

ANALYSIS OF THE MARKET DYNAMIC OF PENSION FUNDS STRUCTURES IN BRAZIL - 2003 TO 2014

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ABSTRACT

Private pension fund has become a theme of constant concern in the most modern economies. In Brazil, access to information on social security and open and closed supplementary pensions has dramatically increased as the sector has developed. The objective of this study is to analyse the market dynamic of open complementary pension fund in independent insurance companies. As far as methodology is concerned, a conjugation of a quantitative analysis of existing secondary data and a qualitative approach applying a questionnaire whose objective was to gather the perceptions of independent brokers acting in the sector, was employed. In the first case, data-gathering, treatment and statistical analysis of information sent by the independent supervised insurance companies to the Superintendency of Private Insurance (SUSEP) was carried out. Such quantitative analysis revealed the dynamic according to which the sector had been developing. Additionally, through an analysis of the information collected by a questionnaire distributed among the insurance brokers in Belo Horizonte operating in the open complementary pension fund sector in independent insurance companies, the perceptions of these agents relative to the market dynamic of pension funds in these insurance companies were made explicit. A final methodological procedure consisted in the examination of the existence of possible correspondence between the dynamic identified by the quantitative approach and the perceptions presented by the brokers. The conclusion that one arrived at was that, of the six characteristics that portray the evolutionary dynamic of complementary pension fund identified through the quantitative analysis, only one was ratified by the qualitative analysis.

Keywords: Social security, Open Complementary Pension fund, Market Dynamic, Brokers, Insurance Company

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I.   INTRODUCTION

Pension fund is a constant theme in the most modern economies. In Brazil, there has never been such access to information involving social security, and open and closed pension funds as there is today, a tendency that intensifies as the sector develops.

Social security in Brazil is supported on three pillars: the general system of social security provided by the state, the special pension fund regime exclusively for civil servants, and the complementary pension fund regime (ABRAPP, 2010).

The non-mandatory Complementary Pension Fund Regime, offered to all workers in the public and private sectors, is operated by the most diverse private entities and operates under a capitalization system. (Brasil, 2014b).

Several authors have cited complementary pension fund as a good option to combat the various problems and uncertainties faced by the general social security regime

The insurance market in Brazil is characterised by the concentration of insurance companies who compete vigorously for volume and participation in a market with high growth potential, and an increase of the penetration of insurance products in the Brazilian economy.

Insurance brokers exercise a fundamental role in the distribution and sale of insurance, constituting the principal distribution channel of products for insurance companies not connected to a bank, known as independent insurers. They are the legal intermediary authorized to sell insurance contracts between the insurance companies and those insured, receiving commissions for this service (Lima & Andrezzo, 2002, p. 70).

In the pension fund segment, they maintain relationships with their clients, providing consultancy on the market, and advising them on new contributions, transferability movements, redemptions, etc.

The complementary pension fund market in Brazil is recent and, because of this, it is in constant evolution and development. The products available today are much better suited to the needs of clients than they were some time ago.

At the present moment, the consumer keeps a strict eye on his pension fund or insurance plan. Whenever there is volatility in interest rates, many people cease paying their contributions, and others redeem their plans, out of concern with the volatility and falling returns.

For this reason it is important to gather information that makes it possible to measure the values of operations of redemption, volume of receipts, results and transferability that occur in the pension plan segment of insurers not connected to banks, for the analysis of the dynamic of this sector, because the data divulged always consider the market as a whole and lack analyses and data information on insurers not connected to banks who are increasingly prominent in 'debanking' and specialized consultancies processes. Together with these measurements, it is necessary to check the perception of the insurance brokers who operate with pension plans in this market of this dynamic, to check the consistency of the data.

The present study has the objective of replying to the question: what are the main characteristics of the market dynamic of open complementary pension plans in independent insurance companies?

The general objective is to analyse the market dynamic of open complementary pension plans in independent insurance companies using the surveys carried out in the Statistics System of the Superintendency of Private Insurance (SUSEP).

Specific objectives are:

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a) To identify the market dynamic of open complementary pension plans of the independent insurance companies, from the point of view of insurance brokers in Belo Horizonte, estate of Minas Gerais in Brazil who operate in the complementary pension plan segment selling the products VGBL and PGBL.

b) To check correspondence between the characteristics of the dynamic identified from the analysis of the consolidated data sent to SUSEP by the independent insurance companies and the perception of the Belo Horizonte brokers in relation to the characteristics of the market dynamic of open complementary pension plans in the independent insurers.

II.   LITERATURE REVIEW

In this item it is presented the major conceptual aspects that serve as base upon which the methodological choice was made. Particularly, it is analysed the main characteristics of consumer behaviour and the evolution of the pension complementary funds in Brazil.

Consumer behaviour

Blackwell, Minard and Engel (2005) define consumer behaviour as the activities with which people occupy themselves when they obtain, consume and dispose of products and services. For Mowen and Minor (2005, p.3) it is defined as the "study of the purchasing units and of the exchange processes involved in the acquisition of the consumption and in the disposition of merchandise, services, experiences and ideas".

Samara and Morsh (2007) state that the profile, characteristics, motivations and interests of the consumer suffer all manner of influences. Social, demographic, cultural, psychological and situational aspects, and important marketing stimuli (product, price, location and promotion), affect and impel the attitudes and actions of people in consumer decisions.

The more current explanations of motivation in understanding what drives behaviour are concentrated on cognitive, instead of biological factors. The theory of expectation suggests that consumer behaviour is largely driven by the expectation of obtaining desirable results, instead of having an internal origin. Hence the choice of one product and not of another occurs because we expect that this choice will bring more positive consequences for us. (Solomon, 2011).

According to Mowen and Minor (2005), consumers take decisions to reach objectives, which include making the best choice between two options, reducing the effort expended in the decision-making, minimizing negative emotions and maximising the capacity to justify the decision.

Brief history of pension fund in Brazil

Riter (2007) states that private pension fund in Brazil started in the 16th century, in 1543, when Brás Cubas founded the *Santa Casa de Misericórdia*^{TN 1} in Santos, at the same time creating a pension plan for his employees.

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^{TN 1} A Public Charity Hospital

In 1793, the Prince Regent D. João VI, approved the plan for naval officers that remained in force for more than a century, and which ensured the dead officer's pay for his widow and daughters. This was a plan that was funded through the discount of one day's pay. (Savaris, 2006).

The Superintendency of Private Insurance (Brasil, 2015d) considers that it can be said that private pension fund was inaugurated on 10 January 1835, with the creation of the MONGERAL - *Montepio Geral de Economia dos Servidores do Estado* [TN 2] proposed by the then Minister of Justice, the Baron of Sepetiba, which, for the first time, offered plans with characteristics of options and mutualism. Social security was only to be instituted by Law n° 4.682, the Elói Chaves Law, of 24/01/1923. (Brasil, 2015d).

The year 1923 is considered a milestone in Brazilian Social security, with the production of Decree n° 4.682, of 24 January 1923, known as the "Eloy Chaves Law", instituting the *Caixas de aposentadorias e pensões (CAPs)* - pension banks for railway workers. According to Goes (2013, p. 01) "it ensured these workers pension cover for situations of infirmity, normal pensions (equivalent to the current pension funded by contributions), death and medical assistance".

In 1977 Law 6435 instituted Private Complementary Pension Funds and institutionalized open private pension funds. (Brasil, 2008).

With the promulgation of the 1988 Federal Constitution, the system of social security was instituted, formed by pension fund, health and social assistance, whose general regulations were published on 24 July 1991, with the approval of Law nº. 8.212, which dealt with the organization of social security and instituted its funding plan, and with the promulgation of Law n° 8.213, which covers the Social security benefit plans.

Social security

Social security, as a policy for the protection of the citizen in Brazil, evolved mainly throughout the 20th century, the context that provided its motivation being the great social, political, economic and institutional upheavals through which the country was passing during this period (Brasil, 2009).

Law n° 8.213, contains provisions regarding the social security benefit plans:

Art. 1 Social security, by means of contributions, has the purpose of ensuring its beneficiaries indispensable means for maintaining themselves, in the event of incapacity, involuntary unemployment, advanced age, time of service, family expenses and the prison sentence or death of someone on whom they depended economically.(Brasil, 1991, art. 1°)

The crisis in the Brazilian Social security system

According to the Ministry of Pension fund (Brasil, 2014b), the social security registered, in 2013, a financing need of R$ 51.3 billion (in nominal terms, the deficit was R$ 49.9 billion) in the General Social security Régime – an increase of 14.8% in relation to 2012, considering the revenues and benefit payments in the urban and rural areas. Accumulated revenue in the year was R$ 313.7 billion – a growth of 4.8% in relation to 2012. Expenses closed off in 2013 at R$ 365 billion. Among the main factors that contributed to the increase in expenses were the readjustments of the benefits, the natural growth

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[TN 2] A pension fund for civil servants

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of stock, but mainly the payment of judicial pending and administrative reviews, which, only the latter, accounted for R$ 2.3 billion.

Santos (2005, p. 109) understands that the crisis in the official pension fund system is connected to its costing. According to this author, the pension fund system merely provides assistance, benefiting all citizens without taking into account the contributions. And this causes financial imbalance for the pension fund system, which accounts for a good slice of the whole system of social security.

El-Moor *et. al*., (2008) argue that the increase in life expectancy and fall in the birth rate have produced the phenomenon of an ageing population. Projections for 2014 have resulted in a life expectancy of 75.2 years for the whole population, an increase of 3 months and 18 days in relation to the figure that had been estimated for the year 2013, 74.9 years. In 1960, life expectancy at birth was 52.5 years, an increase of 7 years in relation to the figure for 1940. (Brasil, 2015e).

Although this advance is desirable and very positive from the social point of view, for the Social Security System, with its current model, its effects are very worrying, the reduction of the proportion of young people in relation to the elderly, in the composition of the population, implies a reduction of the relation between active and inactive workers. We are moving towards a relative reduction in the volume of contributions which will become increasingly inadequate for funding the benefits paid to the inactive, and which will also have be paid for a much longer time. (Brasil, 2009).

The employed part of the population went from 92.3 million to 92,1 million from the third quarter of 2014 to the third quarter of 2015. In addition to that, a change in the composition of this part of the population can be detected, in the sense of an increase in the participation of workers occupied in the informal market. The rate of informal activity has grown in this same period, from 44.1% in the third quarter of 2014 to 45.1% in the third quarter of 2015. This upward trend, although less intense, becomes important because it was not registered in recent years, including 2014, when unemployment was already showing the first signs of growth (IPEA, 2015).

Reform of the pension fund system needs to be inserted in the current context and the national political agenda as it is an absolutely essential measure if Brazil is to continue advancing along the road to socio-economic and environmental development. Making it effective depends on the political will of the rulers to define the general principles and strategies to make reform feasible (Matias, 2010).

Complementary pension funds

According to Debiasi (2004), private pension funds arose from the need for people to complement the income from social security, which is frequently insufficient to cater for all their requirements after retirement, the benefit being almost always lower than the salary received when they were active.

The organizations providing complementary pension fund are divided into closed (EFPC) and open (EAPC) types. In the latter group are included the insurance companies authorized to offer benefit plans (Lima *et al*., 2007).

- **Open complementary pension plan organizations**

The EAPCs are defined by the Brazilian Central Bank (BACEN, 2015a) as entities constituted only in the form of corporations, with the object of instituting and operating pension plans of a pension fund nature accessible to any individual persons.

The benefit plans instituted by open organisations may be individual, those accessible to any individual, or collective, when their objective is to guarantee pension fund benefits to several individuals directly

or indirectly connected to a corporation (Lima *et al*., 2007). Debiasi (2004) states that there exists currently in the Brazilian market, a high number of EAPCs, be they banks, insurance companies or other types of institution. When making a survey of the market, it can be seen that there are many types of pension fund pension plan and they all differ from one another in some aspects, such as: benefits, initial period when the insured is not covered, administration charge, extra charges and redemption.

- **Types of Plan / benefits**

Lima and Andrezzo (2007) state that up to the 90s traditional plans prevailed in the market, called plans with guarantee or Benefit Guarantee Funds (FGB), which were defined benefit plans. From 1997 on, new funds were created in addition to the Individual Programmed Pension Fund (FAPI). The most popular are: free benefit plan (PGBL), created in 1997, and the life generating free benefit (VGBL), created in 2001. In addition to the PGBL and VGBL, other plans were subsequently created, but they are still little known.

III.   METHODOLOGY

In this section we describe the methodology used to reach the objectives proposed: the characterization of the study is presented, its classification and the methods for gathering and analysing data,

Characterization of the research and methods for gathering and analysing data.

This work is an empirical piece of research, and has the peculiarity of being a qualitative market study using quantitative instruments.

In relation to its purpose, this study is characterised as being descriptive exploratory research, because the data divulged in relation to complementary open pension plans always consider the market as a whole, and analyses and divulging of data on insurance companies not connected to banks, which are increasingly gaining more prominence in debanking processes and specialized consultancies, are lacking. As regards the means, it is a study with a quantitative and qualitative technical approach, divided into two stages.

In the first, we gathered information that made possible a better understanding of the characteristics of the market dynamic of open complementary pension plans in the independent insurance companies, based on the statistics obtained from the consolidated data sent to SUSEP by the supervised independent insurance companies, using the SUSEP (FIPSUSEP) Periodical Information Forms system. Alternatively, the remittance of files in conformity with Circular nº 360/2008, with the data being available for consultation in the SUSEP (SES) Statistics system, was also used.

Data from the supervised insurance companies operating in the open complementary pension plan segment with the products VGBL and PGBL, from 2003 to 2014 were consolidated and analysed, altogether 21 companies. For the analysis of the market dynamic in the segment, these 21 companies were considered, together with insurance companies connected to banks and independent insurers. For the analysis of the market dynamic of the independent insurers and the analysis of the perceptions of the brokers, 11 independent insurance companies were taken.

To allow comparison between homogeneous quantities, the nominal values were transformed into values as at December 2014 utilizing the Extended Consumer Price Index of the Brazilian Institute of Geography and Statistics – IBGE.

In the second stage insurance brokers from Belo Horizonte, operating in the open complementary pension plan segment with the PGBL and VGBL products with independent insurance companies were presented with a questionnaire, containing questions for qualitative analysis, to extract their perceptions of the open complementary pension plan market dynamic in the independent insurance companies.

This involved the analysis of 36 questionnaires applied and replied to in the presence of the researcher.

For this second stage, the initial sample consisted of 36 brokers operating with pension plans in BH, identified by the production presented at Seguradora S/A. recommended by the commercial managers of the Belo Horizonte regional office of this insurance company. Utilizing this criterion it can be seen that the sample was also one of choice and represents 1.46% of the number of brokers registered in 2008. This procedure was necessary, because it was found that not all the brokers operate in the pension plan segment.

IV. PRESENTATION AND ANALYSIS OF RESULTS

The average rates of growth in the period 2003-2014 were obtained by means of regression using a constant growth model applied to monetary values at constant prices.

From the consolidation and analysis of the data, shown in Table 1, it was found that the sum of the contributions of the open complementary pension plan market from 2003 to 2014 linked to the VGBL mode reached R\$391,710,581,042.00 in nominal values, R\$ 479,864,537,328.07 in real values or in constant prices at December 2014. The contributions related to the PGBL mode amounting to R\$ 69,267,330,306.00 in the same period, R\$ 91,432,445,481.99 at constant values as at December 2014, 16% of the total of the contributions of the two modes in the period. The largest volume of contributions in this period was made in the VGBL mode: 84%.

From here on we dealt only with the real values or constant prices based on December 2014. The contributions to VGBL in the market grew from R\$ 12,825,300,655.61 in 2003 to R\$ 71,334,292,237.00 in 2014, average annual percentage variation in relation to the previous year in the period 2003 to 2014 of 17.03%. For PGBL these values are R\$ 7,718,672,072.02 in 2003 and R\$ 8,376,223,501.00 in 2014, a much lower average annual percentage variation in relation to the previous year, average growth of 1.61%.

Contributions to VGBL plus PGBL grew from R\$ 20,543,972,727.63 in 2003 to R\$ 79,710,515,738.00 in 2014, an average growth in the period from 2003 to 2014 of 13.75%. The greatest percentage variation for one year in relation to the previous year occurred in 2012 in relation to 2011, an increase of 25.6% in the contributions. The least variation was the reduction of 1.1% in the contributions of 2013 in relation to the volume of contributions for 2012.

Analyses of the Consolidated Data from the independent insurance companies and analysis of the perception of the brokers: the applied questionnaire

In order to permit a better understanding of the structure beneath the consolidated data, the analysis was split into the contributions in the independent insurers, on the redemptions and on the volume of net funding.

- **On the contributions in the independent insurers**

From the data consolidation and analysis, it was found that the sum of the contributions in the independent insurers, from 2003 to 2014, in the VGBL mode reached R\$ 38,727,165,960.95, 8.07% of

the total of market contributions. Contributions in the PGBL mode amounted to R$ 13,379,075,304.40, 25.7% of the total of contributions of the two modalities in the period. The largest volume of contributions in this period was in the VGBL mode, 74.3%.

The VGBL contributions rose from R$ 654,571,159.15 in 2003 to R$ 4,619,953,773.00 in 2014, an average growth of 18.65% in the period. For the PGBL these figures were R$ 1,200,360,468.37 in 2003 and R$ 1,273,809,882.00 in 2014, an average growth of 2.81% per year in the period.

Analysing the total value of contributions (VGBL + PGBL) in the period from 2003 to 2014 (Table 5), it was found that this presented sporadic reductions. Negative percentage variations were observed in the volume of contributions from one year in relation to the previous year in the years 2005, 2011, 2012 and 2013. In these years the reductions were of 12, 26.2, 0.6 and 7.3%, respectively.

The greatest positive percentage variation occurred in 2009 in relation to 2008, 83%.

The volume of contributions in the independent insurance companies presented, in the period 2003 to 2014, greater average growth than the average market growth when analysing the modalities individually or the sum of the two, VGBL and PGBL. For the sum of the two modalities, the independent insurance companies grew 12.62% a year, on average, while the market grew 13.4%. In the period, average growth year on year in the VGBL mode in the independent insurance companies was 9.51% greater than the market growth, 18.65% as against 17.03%, respectively. The total volume of contributions in the two modes in the independent insurance companies represented only 9.12% of the total market contributions.

- **On the redemptions**

The greatest volume of redemptions in the period 2003 to 2014 occurred with the VGBL, R$ 18,805,839,179.36, as against R$ 8,314,128,301.11 for the PGBL. The total volume of redemptions of both modes VGBL and PGBL was R$ 27,119,967,480.47.

- **On the transferability**

In generating the databases that gave origin to the spreadsheets with the information relative to

transferability of entry, it was found that from 2003 to 2007 there were no registrations of information sent by the market on these operations. The mandatory remittance of information on the operations on the part of the supervised institutions occurred from 2008 in compliance with SUSEP circular 360/2008. In consolidating the data relative to transferability of entry in the independent insurance companies, from 2008 to 2014, it was found that the greatest volume of transferability of entry occurred in the VGBL mode, R$ 5,870,218,933.44 compared to R$ 4,865,560,985.97 for the PGBL.

A recurring increase in the volume of transferability of entry was found in the PGBL mode and the sum of the PGBL and VGBL modes from 2008 to 2014. For the VGBL individually the same cannot be said, because of the reduction in one individual year, that of 2012 in relation to 2011, of R$ 963,548,272.75 in 2012 to R$ 910,394,053.62.

Comparing the volume of transferability of entry and the volume of contributions in the period 2003 to 2014, it was found that the ratio of the volume of transferability of entry to the volume of contributions was less than one. The total volume of transferability of entry calculated in the period, R$ 10,735,779,919.42, was less than the volume of contributions, R$ 52,106,241,265.35. Even if one considers the period 2008 to 2014, because of the lack of information relative to transferability operations prior to 2007, the situation remains the same, R$ 10,735,779,919.42 in volume of transferability of entry as against R$ 40,217,134,868.47 in volume of contributions.

Comparing the volume of transferability of entry with the volume of transferability of exit, in the period 2003 to 2014, the ratio of the volume of transferability of entry and the volume of transferability of exit was also less than one. The total volume of transferability of exit identified, R$ 11,229,513,867.60, was greater than the volume of entries, R$ 10,735,779,919.42, considering the period 2008 to 2014, as there was no data registration of transferability in the SES before this period.

- **On the net capitation of private funds**

The volume of net funding (transferability of entry + contributions less transferability of exit + redemptions) was positive in all years, that is, in no year was the volume of exits of resources greater than volume of values gained.

- *Analysis of the perception of the brokers: the applied questionnaire*

When asked about their perception of the volume of funds raised relative to the modalities in the period 2003 to 2014, 67% of the brokers replied that in their opinion there was a recurring increase year on year in the contributions. In the data examined, it was found that, in spite of the average growth in the volume of funds raised of 12.62% in the period, the replies indicated there were sporadic reductions year on year. There was no correspondence between the perception of the brokers and the characteristic of the dynamic identified. The data demonstrated reduction in the volume of funds raised from one year in relation to the previous year of 12, 26.2, 0.6 and 7.3% in the years 2005, 2011, 2012 and 2013. The forecasts for the entry of funds for the coming years is of recurring increases year on year, in the opinion of 66% of the brokers.

The greatest volume of entries in the period, in the opinion of 36% of the brokers, occurred in the PGBL mode, 33%, which was approximately equal to the two modes; and 31%, which was the greatest of the VGBL mode. From the tabling of the data, the greatest volume of entry of funds in the period considered, which occurred in the VGBL, was 38,727,165,960.95. Contributions related to the PGBL mode amounted to R$ 13,379,075,304.40, being 74.3% of the VGBL contributions. There was no consistency between the values identified from the data examined and the perceptions of the brokers.

When questioned about their perceptions of the forecasts of entry of funds per mode for the coming years 42% replied that they believed that the greater volume of entry for the coming years would occur in the VGBL mode. This opinion differs from the perception in relation to the period 2003 to 2014, where the majority of the brokers believed that the greater volume of entry of funds was in the PGBL.

When questioned about their perceptions in relation to the volume of net funding, 76% of the brokers replied that in no year was the volume of net funding negative, that is, it was positive in all the years. There was consistency in this perception in relation to the data examined, which demonstrated positive values in all the years.

The brokers were requested to list in order of importance from one (the most important) to seven (the least important), without repeating a number, the possible motivations for contributions to the VGBL and PGBL mode pension plans. To analyse the data obtained in the replies to this question, the average of the degree of importance given by all the participants in each question was generated. The average of each question was classified in ascending order of importance to obtain the ordering in degree of importance, shown in Table 2.

In section 2 of the questionnaire, the brokers were requested to reply about the transferability in the period 2003 to 2014 involving the products VGBL and PGBL in the independent insurance companies, basing themselves on their own experiences, intuition and opinions. 47% of the participants replied that the greatest volume of transferability of entry was in the PGBL mode, 31% in the VGBL mode and

22% replied that volumes were equal in the two modes. There was no consistency in relation to the perception of the majority of the brokers and the characteristic of the dynamic found that the largest volume of transferability of entry in the independent insurance companies from 2003 to 2014 occurred in the VGBL mode, R\$ 5,870,218,933.44 as against R\$ 4,865,560,985.97 in the PGBL.

The brokers were questioned about the ratio of the volume of transferability of entry (VGBL + PGBL) and the volume of contributions (VGBL+PGBL) in the period 2003 to 2014. The replies of 58% were that the ratio was greater than one, that is, that the volume of transferability of entry was greater than the volume of contributions. For 36% the ratio was less than one and 6% thought that the ratio was equal to one.

There was no consistency regarding the characteristic of the dynamic found, that the ratio between the volume of transferability of entry and the volume of contributions was less than one. The total volume of transferability of entry calculated in the period, R\$ 10,735,779,919.42, was less than the volume of contributions, R\$ 52,106,241,265.35. Even if one considers the period only from 2008 to 2014, due to the lack of information relative to operations involving transferability up to 2007, the situation is the same, R\$ 10,735,779,919.42 in the volume of transferability of entry as against R\$ 40,217,134,868.47 in the volume of contributions. The perception of the majority of the brokers (64%) is that this ratio for the coming years will be greater than one.

53% of the brokers replied that the ratio between the volume of transferability of entry and the volume of transferability of exit is greater than one, that is, that the volume of transferability of entry in the period 2003 to 2014 was greater than the volume of transferability of exit. The total volume of transferability of exit identified, R\$ 11,229,513,867.60, was greater than the volume of entry, R\$ 10,735,779,919.42, considering the period 2008 to 2014, as there was no registration of transferability data in the SES before this period; a ratio of less than one. There was, therefore no consistency between this characteristic of the dynamic identified and the perception of the majority of the brokers.

Based on the generation of the average of the importance in the replies of each one of the possible motivations for the transferability in the VGBL and PGBL pension plan modes, we arrived at the perception of an order in importance shown in Table 03.

Analysing the replies relative to possible motivations for redemptions in the two modes in the period 2003 to 2014, the order of importance is shown in Table 04.

V. CONCLUSION

In relation to the market dynamic of open complementary pension funds in the independent insurance companies, it was found that the volume of contributions had, in the period 2003 to 2014, an average growth below that of the average market growth when the sum of the two modes was analysed, VGBL plus PGBL. With the sum of the two modes, the independent insurance companies grew 12.62% per year, on average, while the market grew 13.75%. In this period, the average growth year on year in the VGBL mode of the independent insurance companies was 9.51% greater than the market growth, 18.65% as against 17.03%, respectively. The total volume of contributions in the two modes represented only 9.12% of the total market contributions.

Applying the regression model, a coefficient of determination (R^2) of 0,57 was found = 57%, that is, 57% of the variation in the contributions VGBL+PGBL in the independent insurance companies in the period is explained by the variation of the SELIC rate. For each annual percentage point increase in the SELIC rate one observes an average fall of $4.4 \times 10^8 x_1$ reals, equal to R\$ 440,294,878.70. The correlation coefficient found was 0.75: strong correlation between the two variables.

Sporadic reductions were found year on year in the PGBL and VGBL contributions in the period 2003 to 2014 in the independent insurance companies. There was no consistency between the characteristic of the dynamic identified and the perception of the majority of the brokers who replied that there was a recurring increase year on year in the contributions and that they believed that in the coming years this would continue.

The greatest volume of entry of funds in the independent insurance companies in the period considered occurred in the VGBL. There was no consistency between the values identified with the data examined and the perception of the majority of the brokers who believed that the greatest volume of entry in the period was in the PGBL mode, but who forecast for the future a greater volume of funds entry in the VGBL.

There was consistency between the characteristic of the dynamic and the perception of the majority of the brokers that the values for net funding in the period were proved to be positive in all the years.

The perception of the brokers in relation to the main motivation of clients contracting and contributing to pension plans is the concern with complementing one's income and of maintaining a standard of living in retirement, followed by worry and uncertainty in relation to the social security system.

There was no consistency in relation to the perception of the majority of the brokers that the greatest volume of transferability of entry in the period in the independent insurance companies was in the PGBL, the characteristic of the dynamic identifying that the greater volume of transferability of entry was in the VGBL mode. There was also no consistency between a perception of the majority of the brokers that the ratio of the volume of transferability of entry and volume of contributions was greater than one, and will remain so for the coming years. In fact, the characteristic of the dynamic identified was less than one, that is, the total volume of transferability of entry was less than the volume of contributions, even only considering the period 2008 to 2014, due to the lack of information in relation to transferability operations prior to 2007.

No consistency was found between the characteristic of the dynamic identified, a ratio of less than one, and the perception of the majority of the brokers that the ratio of the volume of transferability of entry and the volume of transferability of exit was greater than one in the period considered, and their belief that this would remain the case for the coming years.

According to the majority of the brokers, the main motivation of the participants for the transferability is the intention to obtain greater gains/ better profitability, followed by the quest for pension plans at lower rates.

The main motivation for the redemptions, according to the majority of brokers, is the need for funds; and the least important was disbelief in the product.

Among the characteristics of the dynamic where it was sought to check the correspondence of the perception of the brokers, there existed in fact correspondence of the brokers' perception only in one, and that was in relation to the volume of net funding in the period, positive in all the years.

As there was no correspondence between the majority of the perceptions and the characteristics of the dynamic, it is important to carry out a check with the brokers to see if they are exploring all the client's needs, and the potentialities of the products. This would cover not only the PGBL's tax incentives, but also aspects related to the diversification of investments, succession planning and retirement planning in the two modes. It is important that the institutions involved evaluate the degree of knowledge of the participants on the question, to be able to define the direction to be taken by pension fund education in Brazil.

As the total volume of contributions in the two modes in the independent insurance companies represented only 9.12% of the total market contributions, there is a lot of space for the brokers to work

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with a view to gaining clients at present working with banks, using consultative selling, and a re-evaluation of products and transferability. This is a robust market, but in a certain sense still new in Brazil and one that still needs better publicity of the aspects of financial education in general and pension fund and pension fund education for the population, including in schools.

It is suggested that new studies should be carried out with the representative bodies of insurance brokers, with the idea of researching in greater range and quantity the brokers that operate with pension fund, as well as with a wider territorial coverage, to obtain a greater volume of professionals representing the public. It is also suggested, complementing this work, that a study be carried out with the pension fund and pension fund clients, to identify, in order of importance, the motivations for contributions, transferability and redemptions, examined in this work only from the perspective of the brokers.

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VII.   TABLES
Table 1: Open Complementary Pension fund Contributions (connected to banks and independent)

	VGBL Constributions- nominal values R$	Base index Nº Dec. 2003 = 100	IPCA Base index nº Dec. 2014 = 100	VGBL Contributions –real values or at constant price R$	PGBL Contributions – nominal values R$	PGBL Contributions – real values or at constant price R$
		4059,86				
2003	7,043,070,342.00	2229.49	0.55	12,825,300,655.61	4,238,742,764.00	7,718,672,072.02
2004	10,588,047,167.00	2398.92	0.59	17,918,892,322.97	4,397,818,260.00	7,442,735,247.96
2005	11,733,720,201.00	2535.40	0.62	18,788,854,340.63	4,476,975,224.00	7,168,846,191.10
2006	15,251,247,909.00	2615.05	0.64	23,677,532,489.18	4,431,393,998.00	6,879,730,497.21
2007	20,173,643,631.00	2731.62	0.67	29,983,002,332.59	4,521,653,484.00	6,720,290,565.14

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2008	23,526,258,725.00	2892.86	0.71	33,016,916,389.76	5,059,209,779.00	7,100,130,463.75
2009	30,181,423,965.00	3017.59	0.74	40,606,031,932.29	5,201,848,375.00	6,998,557,174.34
2010	36,696,660,338.00	3195.89	0.79	46,617,156,234.99	6,094,741,471.00	7,742,380,716.62
2011	43,422,815,917.00	3403.73	0.84	51,793,342,429.86	7,014,238,245.00	8,366,358,460.09
2012	59,498,715,704.00	3602.46	0.89	67,053,195,854.51	7,533,200,573.00	8,489,681,961.30
2013	62,260,684,906.00	3815.39	0.94	66,250,020,108.68	7,921,284,632.00	8,428,838,631.46
2014	71,334,292,237.00	4059.86	1.00	71,334,292,237.00	8,376,223,501.00	8,376,223,501.00
TOTAL	391,710,581,042.00			479,864,537,328.07	69,267,330,306.00	91,432,445,481.99

* Contributions in insurance companies (linked to banks and independent)

Source: research data – prepared by the author.

Table 2: Perception of the order of importance of possible motivations for the contributions to the VGBL + PGBL plans

Possible motivation for contributions to the VGBL + PGBL plans	Average	Perception of the Order of Importance
Concern with complementing income and maintaining Standard of Living in Retirement.	2.5	1
Worry and uncertainty in relation to the state Social security scheme.	2.6	2
Tax incentive in the PGBL mode.	3.5	3
Increase in preference of high-income investors for pension plans in their succession planning in the VGBL mode.	4.5	4
Economic stability of Brazil, which in the last two decades has been able to proportion greater planning capacity for consumers.	4.7	5
Diversification of investments.	4.8	6

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Foregoing of immediate consumption to save and/or consume in the future .	5.4	7

Source: research data – prepared by the author.

Table 3: Perception of the order of importance of the possible Motivations for the transferability in the Pension Plans in the PGBL + VGBL modes

Possible motivations for transferability in the PGBL + VGBL pension fund modes	Average	Perception of Order of Importance
Intention to obtain greater gains /better profitability.	2.6	**1**
Search for pension plans with lower rates.	3.3	**2**
Insurance broker initiative.	4.0	**3**
The investor is more aware about comparing products.	4.1	**4**
Search for products with a profile more suitable for pension.	4.3	**5**
Comparative evaluation of the conditions between insurance companies.	5.4	**6**
Change in composition of portfolio	6.1	**7**
Change in relationship of client with institution.	6.4	**8**

Source: research data – prepared by the author.

Table 4: Perception of the order of importance of possible motivations for redemptions in the two modes in the period 2003 to 2014

Possible motivations for redemptions in the modes during the period 2003 to 2014	Average	Perception of Order of Importance
Need for funds.	1.7	1
Decision to apply in other investment options.	3.0	2
Idea that the results are below expectations.	3.0	3
Arrival of the horizon date for investment.	3.4	4
Disbelief in the product.	3.9	5

Source: research data – prepared by the author.

THE VALUE RELEVANCE VARIATION OF CAPITAL STOCKS AND EARNINGS QUALITY: POTENTIAL OF BANKING ANALOGY

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ABSTRACT

Banks regulations manage to enhance understanding of key supervisory issues, and improve the quality of banking supervision worldwide. Financial crisis over the past decades had built challenges to the banks and regulators, where they need to optimally manage the risks of credit, market and operations. The earnings quality of the banks are considered a significant variable to follow and analyze to present how far this earnings quality is changing as to be improved, and to protect banks against any risk management failure and loss. This paper examines the association between the banks' earnings quality and the value relevance variation of banks capital stocks at a time period for a purposive sample of number of international banks, in order to show what is expected in the future for the banks regulations and earnings quality, based on what is currently analyzed in the banking industry. Measuring earnings quality for the purpose of analysis in this paper requires the measure of the changes in earnings quality variables, as an indication for the association between banks' earnings quality and the value relevance variation of capital stocks in the banking sector. This paper answers a main question of: Is the international banking sector currently efficient enough to warrant high earnings quality, and consequently affects the value relevance variation of capital stocks in banks? This is significantly helpful to measure the proper improvements in the economies and the anticipations for the future protection for the banks financial position and operations and their markets. For the current stage of this paper, regression analysis is optimal to apply for the analysis and interpretations by building a model that is proper to examining the value relevance variation of capital stocks in relation to earnings quality. I find that the change in non-interest income, and the change in the weight assigned to operational risk are positively associated with the value relevance variation of capital stocks in banks, and the estimation of fair value for liabilities is negatively associated with the value relevance variation of capital stock at a significance level of 0.10, this represent the significance of the three variables to be considered in banks for future sustainability and profitability, whereas the statistical inference shows for this regression model a high explanatory power to predict this significant association. This paper has a major limitation in respect to the size of the sample of banks used in the regression model, but has an optimistic vision about what the analysis will represent for the current and the future stages of banking analogy in this regard for the purpose of sustaining future protection in the banking sectors and the future economies for future generations. Thus, future research can find a useful trend to generalize the findings by expanding more empirical methodologies.

KEYWORDS: Value relevance, earnings quality, banking regulations, quality of financial reports, financial crisis.

I.   INTRODUCTION

This paper follows the recent state on international causes of probable financial crisis in the banking sector, by analyzing a purposive number of international banks, and their financial reports, for the reason of measuring a potential analogy in banks' financial performance. As banks are commonly affected by regulations and accounting issues, they are constantly critical sector for the economy's growth and investors decisions in financial markets.

Thus, banks require a caution analysis for any potential misleading, as to detect the effect of types of risks on banks' performance and management, specifically, after the history of all financial crisis caused by misleading information and earnings issues since 1984 until 2008.
This paper aims to measure a recent analogy among banks after the financial crisis, in order to establish a future confidence in the banking sector and the future economies for future generations. BIS (2011,1) addresses the lessons of financial crisis that began 2007, through its reform package, and aims to improve risk management and governance as well as strengthening banks' transparency and disclosures, in addition to the reforms to strengthen global capital and liquidity regulations. The objectives of the reform are to improve the banking sectors' ability to absorb shocks arising from financial and economic stress.

As Basel III requires maintaining adequate regularity capital, as a key instrument of international banking regulation, the international financial reporting standards (IFRS) also aims to prevent opportunistic earnings management and excessive risk-taking (Abdelsalam and Weetman, 2003; Larson and Street, 2004; Leventis et al., 2011; Manganaris et al. 2015). To the extent of banking crisis, the issues of expected loan loss, and the method to account for it, subsequently, the effect on banks managers to negatively affect the earnings quality by manipulations (as to meet regulatory capital requirements) are all apparent, in addition to the issues of fair value accounting in banks (Gebhardt and Farkas, 2011; Mollaha et al. 2015; Elnahass et al.,2016)

As a result of analyzing the recent banking crisis, the major cause for this crisis is related to culture and excessive risk taking (Lim et al., 2014, 1). To my knowledge, on one hand, culture is a major cause behind banks managers to smooth earnings (as unethical behavior in the financial reports) and thus signal lower risk to the market (Barth et al., 2012,1), on the other hand, is a major cause for excessive banks risk-taking (Lim et al., 2014,33).

Moreover, banks strategies towards risks is to use financial hedging to manage risks and reduce cash flows volatilities, and then to enhance banks' value. Chang et al., (2016, 35) find financial hedging activities have an impact on reducing unintentional and intentional misstatements in the financial statements. But the presence of accounting quality in banks requires banks to practice accounting conservatism for all of the major causes of risks in banks, likewise loan loss and its provision (Gebhardt et al., 2011; Leventis et.al 2013; Chang et al., 2016).

Therefore, rises the function of supervision over banks' financial reporting and activities, Fang et al. (2014, 15) find this is implemental (in order to avoid any managing for accounting numbers as to hide risk-taking behavior) and resulting in a stronger association between earnings management and risk-taking. Over the past decade and before, appeared the significance of implementing the Sox 2002 to improve the quality of financial reports for the purpose of (amongst other purposes) decreasing earnings management practices and behaviors. Cohen et al. (2004, 30), and (Zhou, 2008, 191) in their studies, document a sharp decline in earnings management behavior in firms, which in my view, including banks because of the implementation of Sox 2002 is related to all types of firms.

Studies positing that effective governance structures favor implementation of conservative accounting choices, and indicate the importance of both corporate governance and accounting conservatism (Garcia et al., 2009; Kanagaretnam et al., 2011a,2014b). Leventis& Dimitropoulos (2012, 172) find a prove that banks with efficient corporate governance mechanisms and well-governed banks engage less in aggressive earnings management behavior, through the use of discretionary loan loss provisions and realized security gains and losses. Their findings could prove to be valuable to investors, since they must take into consideration the efficiency of each bank's corporate governance, in order to reach a better investment decision. Thus, the ability of financial statements to predict equity market values will increase, which is known as the value relevance (Wahlen, 1994; Liu and Ryan, 1995; Beaver, Ryan and Wahlen, 1997; Liu, Ryan and Wahlen, 1997).

Apparently, Banks monitoring can contribute to reducing earnings management, but for limits, as banks need to reduce risk-taking in the first place, and strengthen corporate governance in the second place (Leventis et al., 2013; Fang et al., 2014; Jha & Shankar, 2015).

This paper to a purposive extent, develops a cognitive process created based on past evidences in the area of studying the value relevance in banks, with regard to the impact of accounting information quality and earnings quality in the financial reports of banks, likewise fair value accounting in banks and risk management and its impact on managers behavior to manipulate earnings (Barth et al., 1996; Lafond and Roychowdhury, 2008; Wang et al., 2010; Ariff and Cheng, 2011; Levenits et al. 2011).

This paper contributes to the accounting and banking literature in two ways. First: it initially finds an answer for the question of: whether banks after the financial crisis have achieved analogy in their potential earnings quality and banking requirements or not. Second: it provides a perception about the most influencing variables that can significantly associate to the value relevance variation of capital stocks in the banking sector, which all (in an attributable way) sustain the earnings quality in banks' financial reports.

My results provide a purposive direction for how more studies in this area of banks earnings quality can be important to demonstrate that my findings can be restudied in more empirical methodologies, using a larger sample of banks. Also, my results purposively show the importance of finding an association between 14 significant independent variables, and the value relevance's variation of banks capital stocks in a regression model, which measures a potential analogy in the banking sector in regard to earnings quality, and its positive effect on the variation of the prices of banks capital stocks after the financial crisis of 2008.

The results of the main and final regression models indicate that the change in non-interest income, change in fair value estimations for liabilities, and effectiveness of internal control as a sign for low operational risk, are all associated to the value relevance variation in the capital stocks prices of banks (which in turn demonstrate the potential of banks analogy, after the financial crisis) in their earnings quality and in their accounting information quality presented in the financial reports.

The reminder of this paper proceeds as follows: section II discusses the literature review and hypothesis, section III explains the theoretical model, and section IV shows the results and section V summarizes and provides concluding remarks.

II.   LITERATURE REVIEW

To my knowledge and readings, over the prior decade and after the financial crisis of 2007-2008, most of the banking studies directed their focus to be on banks protection to the profits and sustainability, by empirically finding the effect of several variables on the banks profitability and sustainability. Beginning by (Prasad and Ravinder, 2012, 30) I find their focus is on, how the quality of earnings is very important criterion that determines the ability of a bank to earn consistently, as to determine the profitability of bank and explains its sustainability and growth in earning in future.

This direction, and to my view warrants the protection of banks' investors and customers as well, in addition to international finances and investments, which all positively are indications for banks' capital stocks and performance. Hereinafter, for the purpose of my study, prior studies are categorized into three significant directions that undertake the effect of examining variables of: corporate governance, bank capital, and earnings quality, in the banking sector.

Numerous studies examined the direction of corporate governance in the banking sector, after the 2008 financial crisis. I purpose for example, Mollaha et al., (2011, 22) show the effect of standard governance measures on earnings predictability in banks, whereas the improvement of the quality of financial reporting and providing high quality earnings is a better predictor of future operating cash flows, moreover, this study shows the importance of monitoring the effectiveness of risk governance, as to prepare banks to face the future financial crisis.

As banks' earning with respect to corporate governance is significant to governance structure, Leventis et al. (2013, 282) find suggestion that strengthening board and audit governance structures in the banking sector is associated with a significant increase in the quality of accounting information, and document convincing evidence that well governed banks engage in significantly higher levels of conditional conservatism in their financial reporting practices. Whereas, to my knowledge, conservatism in respect to earnings is a principle set by GAAP and IFRS that should be followed.

Also, Bouvatiery et al. (2014, 32) find evidence that banks with more concentrated ownership use discretionary loan loss provision to smooth their income, this behavior is less pronounced in countries with stronger supervisory regimes or higher external audit quality, and banks with low levels ownership concentration do not display such discretionary income smoothing behavior. Therefore, they find the suggestion for the need to improve new corporate governance mechanisms. As a result, several studies in recent years find evidence related to the subsequent effects of the governance in respect to loan loss expected in banks, banks capital, risk areas in banks, risk-taking in banks, and the accounting quality in banks.

Gebhardt and Farkas (2011, 329) find that the restriction to recognize only incurred losses under IAS 39 significantly reduces income smoothing, and the application of the incurred loss approach results in less timely loan loss recognition, implying delayed recognition of future expected losses. As a consequence, depending on specific nature of the forward-looking orientation in banks, embedded in provisioning practices. Bushman and Williams (2012, 2) find that discretionary forward-looking provisioning can be associated with either enhanced or diminished discipline of bank risk-taking, therefore, the importance of risk areas directs regulators to assess the strength of banks and to evaluate their risk levels in the areas of: the level of capital risk, the quality of assets, managerial skills, the level of earnings and profitability, the level of liquidity risk, and sensitivity to market risk (office of the comptroller of currency, 2013; Gambetta et al., 2015; Gambetta et al., 2016).

On the other hand, Bhat and Desai (2016, 1) document a positive and significant association between the bank capital and the quality of its loan portfolio, also Elnahass et al. (2016, 1) find that the use by conventional banks of the incurred loan loss model leads to significant opportunistic earnings management behavior, and under the expected loan loss model of IFRS 9, subjective estimates of future

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cash flows, which can be discretionary used by bankers are more less in respect to managing regulatory capital ratio, and earnings management.

Moreover, several studies directed analysis for the earnings in relation to earnings management and financial crisis in banks, which represent the most significant indication for analyzing banks' regulations and governance in regard to banks financial reports and capital requirements simultaneously, for example, Chang et al. (2016, 6) recently, predict the impact of risk management decision on firm value changes in relation to the quality of information environment of a firm as a bank for instance, they find that better quality of information environment are able to enhance firms value when they smooth earnings through risk management by financial hedging, and on the other hand, they find that firms with poor quality of information environment are able to enhance their value when they smooth earnings by earnings management.

To my view, Chang's study in 2016 predicts that strategies for managing risks are more constructive for banks than any strategy for managing earnings, which may violate the IFRS but not Basel III requirements for banks' capital.

As earnings quality for banks usually had differed from earnings management in the implications due to the high quality of financial reporting, and high quality of standards and information, Ugbede et al. (2013, 1) provide evidence of the importance of financial reporting standards on earnings quality in the banking sector in Nigeria, compared to Malaysia, and because the Malaysian banks are applying financial reporting standards that are the IFRS compliant, they exhibit better earnings quality than Nigerian banks that do not fully adopting IFRS, and don't fully comply to banks capital requirements.

Earnings in the banking sectors can be a significant predictor of future cash flows, and for earnings if this earning is of high quality. Bratten, et al.   (2016,31) find that earnings that are more fair value estimates are better predictors only when the reported fair value estimates are likely to be more reliable and relevant. Nevertheless, Barth et al. (2012, 23) show results that fair value accounting in banks doesn't present earnings management by analyzing the accounting regime of available for sale securities, which allows for some degree of earnings and capital management.

Cohen et al. (2014, 192) show that a pattern of earnings management in banks financial statements has little bearing on downside risk during quiet periods, but seems to have a big impact during financial crisis. Fang et al. (2014, 4) find supportive evidence for the notion that excessive risk taking of banks impairs earnings quality, in the same regard, Lim et al. (2014, 5) find that banks in low individualism and high uncertainty avoidance cultures report earnings more conservatively than banks in high individualism and low uncertainty avoidance societies. Therefore, they (the first type of banks) are less likely to fail during financial crisis periods.

Also, in regard to the effect of cultural factors on earnings quality,   Lim et al. (2014, 2) study the links between national culture and accounting conservatism and risk taking, they find that cultures that encourage higher risk taking experienced more bank failures and bank troubles during the last financial crisis.

On the other hand, and in addition to considering studies that show the effect of risk management, earnings management, fair value accounting and national culture, and accounting information on earnings quality, on the other hand, there are other studies to consider that provide additional considerations and their effect, such as, corporate social responsibility, countries legal structures, and existence director board on earnings quality. Grougiou et al. (2014, 24) indicate that corporate social responsibility-earnings management relation is not bi-directional. They demonstrate that, while a high engagement in earnings increases engagement in corporate social responsibility, involvement in corporate social responsibility does not determine earnings management practices,

Kanagaretnam et al. (2015, 28) find that banks in countries with stronger institutions and are less likely to report losses, have lower loan loss provisions, and higher balance sheet strength during 2007-2008 crisis period, which in consequence affect earnings quality in positive indications. Also, as a common view for firms including banks, Javanshirinejad and Aghabeigi (2016, 282) find a negative relationship between the existence director board and the level of disclosure, and also find indication for the effect of existence director board on earnings quality and performance of firms, as a consequence, there will be an active monitoring of the director – based operations, which lead to the increase of earnings quality.

Prior studies for the purpose of measuring the effect of earnings quality in banking sector on the value relevance of banks' capital stock are limited, as most of the studies handle the causes of either improving or disimproving earnings quality, and they differ in their methodologies after the financial crisis of 2007-2008. Prior studies, however, do not directly examine the relationship between earnings quality and the value relevance variation of capital stocks in the banking sector internationally.

This paper investigates this significant relationship (as to measure the effect of earnings quality through its major variables) on the value relevance variation of bank capital stocks. For this purposive investigation, I propose the following hypothesis:

H_1: there will be a significant association between earnings quality and the value relevance variation of capital stocks in the banking sector.

This hypothesis, when proved it pursues indication of an analogy in the international banking sector in the periods after the financial crisis of 2008, as banks are exhibiting the earnings quality in their financial reports, as well as their compliance to the capital requirements, for the purpose of protecting both banking sector and the future economies for future generations.

III. THEORITICAL MODEL

Sample:

The data used in this paper are derived from the financial reports of a purposive number of 7 international banks, the data are the accounting information needed for this study, which are included in the financial statements of years 2013-2014 and 2014-2015, during the periods after the financial crisis of year 2008, and after the actions taken by the bank of international settlement, and the financial accounting standards boards to protect banks and the market.

Variables Significance

My test in this paper concerns how earnings quality shows a positive or a negative relation to the value relevance variation of capital stocks in the banking sector, for the purpose of measuring a potential banking analogy, which is expected to reflect the similarity in applying the banking regulations for capital, and for the international financial reporting standards for banks accounting in the periods after the financial crisis. I predict this relation in light of one dependent variable, which is the value relevance variation of capital stocks, and 14 dependent variables presenting the earnings quality literature and banks professional practices.

Dependent Variable

I measure the value relevance variation in the banking sector as the change in capital stocks prices, this view shows the dependent variable of the study as $CAPSTOCKPR_{j,t}$, for the purposive number of banks at time t. To my perception, this study expects a positive relation of value relevance variation to earnings quality in banks, therefore, literature of earnings quality measures shown by a number of

empirical studies indicate for example: earning persistence, predictability of cash flows, loan loss provision-based earnings smoothing, earning-inflating discretionary loan loss provision, and small positive profit (Fang et al. 2014, 40). Despite, value relevance variation in regard to earnings quality is not considerably fulfilled in the literature.

Independent Variables

The purposive 7 banks used in the study are strong international banks , showing their financial statements in their annual reports, which I found on their websites to download for the purpose of using the significant information that represents the dependent variable Δ CAPSTOCKPR$_{j,t}$, and the independent variables analyzed to conduct the purposive study in this paper. I measure the earnings quality in 14 significant variables, showing the changes in accounting information and in capital requirements that are significant to the banking sector, and can be indicating a potential analogy for the high quality of financial reporting and compliance to Basel III requirements in the banking sector.

The independent variables are measured for this purposive number of banks at time t as two groups, First: the group for accounting information as: variable number one is the changes in the earning assets Δ EARNASS $_{j,t}$, reflecting an income-producing investments, and the ability to produce additional fund as a source of earnings to the banks, variable number two is the changes in the cash and cash equivalent Δ CASH&EQ$_{j,t}$, reflecting the strength of liquidity in banks, variable number three is the changes in the operating cash flows Δ OPCAFLOW $_{j,t}$, reflecting the cash generated by the banks operations and activities, variable number four is the changes in the net interest income Δ NINTINC $_{j,t}$, reflecting interest earned on assets over the Interest paid out on deposits, variable number five is the changes in the non-interest income Δ NONININC$_{j,t}$, reflecting when low interest rates makes it difficult for banks to make a profit, how they must rely on non-interest income to make a profit, variable number six is the changes in the net income Δ NINCOME$_{j,t}$, reflecting how profitable the banks are over a period of time. Some of these variables are discussed in other studies investigating issues related to earnings quality in respect to mangers behaviors and quality of accounting information (Mollaha et al., 2015; Bratten et al., 2016; Leventis et al., 2013; Prior et al., 2014; Chang et al., 2016)

Second: the group for estimations, capital and risks as: variable number seven is the changes in the gross deffered tax assets Δ GDEFTAXASS$_{j,t}$, reflecting how banks are reducing their future tax liability, variable number eight is the changes in the provision of credit losses Δ PROVFCRLOSS$_{j,t}$, reflecting how are the estimations of potential losses that banks might experience due to credit risk, variable number nine is the changes in the regulatory capital of basel III Δ REGCAPBIII$_{j,t}$, reflecting the amount of capital the banks have to hold as required by Basel III, variable number ten is the changes in the global excess liquidity sources Δ GLOBEXLIQ$_{j,t}$, reflecting the gap between inside monetary aggregates and nominal spending at a global level, variable number elven is the changes in market risk for trading activities Δ MARKRISKA$_{j,t}$, reflecting the ability of the banks to monitor, and control exposure to market risk resulting from movements in market prices, and the exposure to risk from trading and foreign operations, variable number twelve is the changes the estimations of fair value of assets Δ FVAESTASS$_{j,t}$, reflecting banks stability during recession and its "profitability" during the years after the recession, and variable thirteen is the changes in the estmiation of fair value of liabilities Δ FVAESTLIB$_{j,t}$, reflecting banks' ability to transfer risks of liabilities and managing the risks based on estimations. Also, some of these variables are discussed in other studies investigating issues related to earnings quality in respect to estimations in banks, banks capital, and risks management (Fonseca and Gonza'lez, 2008; Song et al., 2010; Baik and Choi, 2010; Chong et al., 2012; Bushman and Williams,

2012; Barth et al., 2012; Bratten et al., 2016; Klompa and Haanb, 2013; Fang et al., 2014; Cohen et al., 2014; Chang et al. 2016; Gupta and Jayadev, 2016; Elnahass et al. 2016)

Dummy Variables

I use only one dummy variable (as the variable number fourteen) that may affect the relationship between the independent variables representing the earnings quality, and the dependent variable of the value relevance variation of banks' capital stocks prices. This variable to my analysis is common to banking and financial reporting literature, whereas, after SOX 2002 and corporate governance guidance, appeared the importance of internal control disclosure in the auditor report in the financial reports, as to present the weaknesses or the strengths in the internal control and moreover giving a sign for the operational risk in banks.

Therefore, by analyzing the financial reports of the purposive number of the banks in this study, I use the internal control weaknesses or strengths understood from the auditor report (which indicate the operational risk by the analysis), as a dummy variable in the model $OPRISK_{j,t}$, reflecting banks' internal control effectiveness.

I assign a weight of 1 for strengths (Low operational risk) and 0 for weaknesses or not available (high operational risk). Internal control studies in respect to its impact on earnings quality, operations, accounting risk, and poor or strong financial performance are shown in several prior studies (Dechow and Ge, 2005; Ashbaugh et al., 2008; Ball and Shivakumar, 2008; Haidar, 2009; Valahzagharda and Salehib, 2012).

Model of the Value Relevance Variation of Capital Stocks

I model the change in banks' capital stocks prices as function of banks variable of earnings quality which are: changes in earning assets, changes in cash and cash equivalent, changes in operating cash flows, changes in net interest income, changes in non-interest income, changes in net income, changes in gross deferred tax assets, changes in provision of credit losses , changes in regulatory capital of Basel III, changes in global excess liquidity sources, changes in market risk for trading activities, changes in estimations of fair value of assets, changes in estimations for fair value of liabilities, and weight of operational risk, the model is shown as follow:

$$\Delta\ CAPSTOCKPR_{j,t} = \ \beta_0 + \ \beta_1\ \Delta\ EARNASS_{j,t} + \ \beta_2\Delta\ CASH\&EQ_{j,t}$$

$$+ \beta_3\Delta\ OPCAFLOW_{j,t} + \ \beta_4\Delta\ NINTINC_{j,t}$$

$$+ \beta_5\Delta\ NONININC_{j,t} + \ \beta_6\ \Delta\ NINCOME_{j,t}$$

$$+ \ \beta_7\ \Delta\ GDEFTAXASS_{j,t} + \beta_8\Delta\ PROVFCRLOSS_{j,t}$$

$$+ \ \beta_9\Delta\ REGCAPBIII_{j,t} + \ \beta_{10}\Delta\ GLOBEXLIQ_{j,t}$$

$$+ \ \beta_{11}\Delta\ MARKRISKA_{j,t} + \ \beta_{12}\Delta\ FVAESTASS_{j,t}$$

$$+ \ \beta_{13}\Delta\ FVAESTLIB_{j,t} + \ \beta_{14}\omega\ OPRISK_{j,t} + e_t$$

(1)

Where:

Table A(1) in the appendix shows the details of the variables of this Regression model (1).

Following the steps for regression analysis, which are applied by most of similar empirical and purposive studies, I use my model to find the answer for this study's major question in regard to the positive relation expected between the value relevance variation of banks capital stocks and the independent explanatory variables representing the earnings quality. In addition to the descriptive statistics for the model's variables, steps required for running this model are shown in the next section for the results.

IV.   RESULTS

I use the Minitab software to run all the required measures for descriptive statistics and regression analysis as well. Where each prior study has its methodology that differs from the results I show when running the model and the data of this study.

Descriptive Statistics

Table A(2) in the appendix presents descriptive statistics to show the properties of the observed data of the variables included in the regression   model (1) before any required transformation to the data and their analysis.   I analyze in the appendix the first group of variables of accounting information shown in the table,   followed by the second group of variables of estimations, capital and risk management. Which indicate a significant properties and measures for the variables included in the study, but I rely more on the statistical model of regression for the investigations and inferential statistical analysis.

Test for Normality

Table A(3) in the appendix provides the results of the Shapiro-Walk   (W test) for normality for the independent variables in the regression model, the table shows the results of W $_{calculated}$ for all the variables in the regression model.

In the meantime, before running the regression model, and for the number of banks n = 7 at significance level 0.50, W $_{tabulated}$ is 0.928, which is necessary to compare to all W $_{calculated}$ for the variables in the regression model as to indicate which variables should be subjected to transformation if not normally distributed (when   W $_{calculated}$ < W $_{tabulated}$). Results show the necessity of applying transformation for variables of the non-normality shown in table A(2).

Pearson Correlations

Table (1) shows the results of the correlations among all the variables in the regression model (1), all the variables in the correlation matrix are transformed by calculating the antilogarithms, except for the variables of: Δ CASH&EQ$_{j,t}$, Δ GDEFTAXASS$_{j,t}$, Δ PROVFCRLOSS$_{j,t}$, and Δ GLOBEXLIQ$_{j,t}$, because they are normally distributed, I denote them in the analysis by the underlines of their expressions.

After the antilogarithmic transformation, Δ NINTINC $_{j,t}$ Δ GDEFTAXASS$_{j,t}$, and Δ FVAESTASS$_{j,t}$ are positively correlated with Δ EARNASS $_{j,t}$ (p_p = 0.830, p = 0.021), (p_p = 0.920, p = 0.003), (p_p = 0.872, p = 0.011) respectively. Also, Δ REGCAPBIII$_{j,t}$ is negatively correlated with Δ EARNASS $_{j,t}$ (p_p = -0.891, p = 0.007). Δ GLOBEXLIQ$_{j,t}$ shows a negative correlation with Δ OPCAFLOW $_{j,t}$ (p_p = -0.694, p = 0.084), which all significantly indicate a multicollinearity if included in the regression model. Then, correlations also found positively between Δ GDEFTAXASS$_{j,t}$ and Δ NINTINC $_{j,t}$ (p_p = 0.764, p = 0.046). And again Δ REGCAPBIII$_{j,t}$ is negatively correlated with Δ GDEFTAXASS$_{j,t}$ (p_p = -

0.906, $p = 0.005$), and Δ FVAESTASS$_{j,t}$ is positively correlated also with Δ GDEFTAXASS$_{j,t}$ (p_p = 0.913, $p = 0.004$). However, correlation is also shown negatively between Δ MARKRISKA$_{j,t}$ and Δ PROVFCRLOSS$_{j,t}$ (p_p = -0.689, $p = 0.087$) and positively between Δ FVAESTLIB$_{j,t}$ and Δ PROVFCRLOSS$_{j,t}$ (p_p = 0.923, $p = 0.003$). Finally, Δ FVAESTASS$_{j,t}$ is negatively correlated with Δ REGCAPBIII$_{j,t}$ (p_p = -0.847, $p = 0.016$).

Results of running and reducing the regression Model of the Value Relevance's Variation of Capital Stocks

I couldn't run **r**egression model (1) using the Minitab software, due to the problem of non-normality for most of the data used for the variables in the model. Thus, after the antilogarithmic transformation is applied to the required variables, and based on the correlations, I could run the following regression model (2), but with insignificant results. I denote $^{(Antilog)}$ to all the variables subjected to the antilogarithmic transformation and are included in the regression model (2).

$$\Delta \ CAPSTOCKPR_{\text{j,t}}{}^{(Antilog)} = \ \beta_0 + \ \beta_1 \underline{\Delta \ CASH\&EQ_j} \ + \beta_2 \Delta \ NONININC_{j,t}{}^{(Antilog)}$$
$$+ \beta_3 \ \Delta \ NINCOME_{j,t}{}^{(Antilog)} \ + \beta_4 \Delta \ GLOBEXLIQ_{j,t}{}^{(Antilog)}$$
$$+ \ \beta_5 \Delta \ FVAESTLIB_{j,t}{}^{(Antilog)} + \ \beta_6 \ \omega \ OPRISK_{j,t}{}^{(Antilog)} \ + e_t$$
$$(2)$$

In regression model (2), I omit the independent variables of Δ EARNASS$_{j,t}$ $^{(Antilog)}$, Δ OPCAFLOW$_{j,t}$ $^{(Antilog)}$, Δ NINTINC$_{j,t}$ $^{(Antilog)}$, $\underline{\Delta \ GDEFTAXASS_{j,t}}$, $\underline{\Delta \ PROVFCRLOSS_{j,t}}$, Δ REGCAPBIII$_{j,t}$ $^{(Antilog)}$, Δ MARKRISKA$_{j,t}$ $^{(Antilog)}$, and Δ FVAESTASS$_{j,t}$$^{(Antilog)}$, as they show in table (1) a low coefficient of correlation with the dependent variable Δ CAPSTOCKPR$_{\text{j,t}}$$^{(Antilog)}$ in comparisoin with the other variables included in the regression model (2).

In spite of the significant results of the correlation analysis to the variables included in regression model (2), running this regression model provides an insignificant results for the model explanatory power, for R^2, t-statistic, and the significance level Pr. Whereas results show no numbers to rely on for the statistical inference.

As a result, reanalyzing the correlations of the variables included in the regression model (2), I find the variable Δ NINCOME$_{j,t}$ $^{(Antilog)}$ in the regression is negatively correlated with the dependent variable Δ CAPSTOCKPR$_{\text{j,t}}$ $^{(Antilog)}$ (p_p = -0.059, p = 0.900), indicating insignificant effect on this dependent variable. Therefore, I omit this variable from the regression model (2). As a result, I model regression model (3) as follow:

$$\Delta \ CAPSTOCKPR_{\text{j,t}}{}^{(Antilog)} = \ \beta_0 + \ \beta_1 \underline{\Delta \ CASH\&EQ_j} \ + \beta_2 \Delta \ NONININC_{j,t}{}^{(Antilog)}$$
$$+ \beta_3 \Delta \ GLOBEXLIQ_{j,t}{}^{(Antilog)} \ + \ \beta_4 \Delta \ FVAESTLIB_{j,t}{}^{(Antilog)}$$
$$+ \ \beta_5 \ \omega \ OPRISK_{j,t}{}^{(Antilog)} \ + e_t \qquad (3)$$

Table A (4) in the appendix shows the results of running regression   model (3) followed by the analysis, which show insignificant statistical relations.   As a result, I omit the two independent variables of $\Delta\ \underline{CASH\&EQ}_{\,i}$ and $\Delta\ GLOBEXLIQ_{j,t}^{\,(Antilog\,)}$ and exclude from the regression model (3) and generate the regression model (4), which I expect to significantly predict the hypothesis of the paper H_1. The model is formed as follow:

$$\Delta\ CAPSTOCKPR_{\,j,t}^{\,(Antilog\,)} =\ \beta_0 + \beta_2\,\Delta\ NONININC_{\,j,t}^{\,(Antilog\,)}$$

$$+\ \beta_4\Delta\ FVAESTLIB_{j,t}^{\,(Antilog\,)}\ +\ \beta_5\,\omega\ OPRISK_{j,t}^{(Antilog\,)}\ +\ e_{\,t}$$

$$(4)$$

Table (1)

Correlation Matrix

After Antilogarithms Transformations for the variable of non-normality *

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1.	Δ CAPSTOCKPR $_{j,t}$	1.000														
2.	Δ EARNASS $_{j,t}$	-0.053 (0.910)	1.000													
3.	Δ CASH&EQ $_{j,t}$	0.716	0.578	1.000												

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		(0.0 71)	(0.1 74)			
4.	Δ OPCAFLOW$_{j,t}$	- 0.352	- 0.007	- 0.065	1.000	
		(0.4 39)	(0.9 88)	(0.8 90)		
5.	Δ NINTINC$_{j,t}$	0.079	0.830	0.628	0.321	1.000
		(0.8 66)	(0.0 21)	0.131	(0.4 83)	
6.	Δ NONININC$_{j,t}$	0.582	- 0.152	0.494	0.362	0.355	1.000
		(0.1 70)	(0.7 45)	(0.2 59)	(0.4 24)	(0.4 63)	

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		1	2	3	4	5	6	7	8	9	10
7.	Δ NINCOME$_{j,t}$	-0.059	-0.009	-0.113	0.402	0.251	0.367	1.000			
		0.900	(0.984)	(0.809)	(0.371)	(0.587)	(0.418)				
8.	Δ GDEFTAXASS$_{j,t}$	0.129	0.920	0.609	-0.019	0.764	-0.114	0.184	1.000		
		(0.783)	(0.003)	(0.146)	(0.968)	(0.046)	(0.808)	(0.693)			
9.	Δ PROVFCRLOSS$_{j,t}$	0.210	-0.008	0.185	0.340	0.347	0.329	-0.144	0.015	1.000	
		(0.651)	(0.987)	(0.692)	(0.455)	(0.446)	(0.471)	(0.758)	(0.975)		
10.	Δ REGCAPBIII$_{j,t}$	-0.140	-0.891	-0.544	0.178	-0.822	0.056	-0.152	-0.906	-0.155	1.000

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		(0.764)	(0.007)	(0.207)	(0.702)	(0.023)	(0.906)	0.745	(0.005)	(0.740)			
11.	Δ GLOBEXLI	0.724	0.325	0.649	-0.694	0.280	0.181	-0.367	0.327	0.207	-0.528	1.000	
		(0.066)	(0.478)	(0.115)	(0.084)	(0.544)	(0.697)	0.418	(0.474)	(0.656)	(0.223)		
12.	Δ MARKRISK	-0.495	0.182	-0.163	0.418	0.080	-.0.069	0.512	0.148	-0.689	0.082	-0.661	1.000
		(0.259)	(0.696)	(0.728)	(0.351)	(0.865)	(0.883)	(0.240)	(0.752)	(0.087)	(0.861)	(0.106)	
13.	Δ FVAESTAS	-0.145	0.872	0.305	-0.184	0.575	-0.418	0.188	0.913	-0.258	-0.849	0.202	0.291	1.000
		(0.756)	(0.011)	(0.506)	(0.693)	(0.177)	(0.351)	(0.686)	(0.004)	(0.577)	(0.016)	(0.665)	(0.527)

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		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15
14.	Δ FVAESTLIB$_j$	0.349	0.181	0.360	0.185	0.558	0.452	0.003	0.202	0.923	-0.423	0.441	-0.677	-0.068	1.000	
		(0.443)	(0.698)	(0.428)	(0.692)	(0.193)	(0.309)	(0.996)	(0.664)	(0.003)	0.344	(0.322)	(0.095)	(0.885)		
15.	ω OPRISK $_{j,t}$	0.266	0.409	0.255	-0.601	0.138	-0.477	-0.427	0.499	0.276	-0.580	0.651	-0.632	0.497	0.336	1.000
		(0.565)	(0.363)	(0.582)	(0.153)	(0.768)	(0.279)	0.340	(0.254)	(0.549)	(0.172)	(0.113)	(0.128)	(0.257)	(0.461)	

* Δ CASH&EQ $_{j,t}$, Δ GDEFTAXASS$_{j,t}$, Δ PROVFCRLOSS$_{j,t}$, and Δ GLOBEXLIQ$_{j,t}$, are not transformed because they are normally distributed.

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Table (2) shows the results from estimating the regression model (4), which are the main and final indications for the test of the hypothesis H_1.

Table (2)

Results from Running the Main& Final Regression Model (4)

$$\Delta \ CAPSTOCKPR_{j,t}{}^{(Antilog)} = \ \beta_0 + \beta_2 \Delta \ NONININC_{j,t}{}^{(Antilog)}$$

$$+ \ \beta_4 \Delta \ FVAESTLIB_{j,t}{}^{(Antilog)} \ + \ \beta_5 \omega \ OPRISK_{j,t}{}^{(Antilog)} \ + e_{t}$$

Variable Name	*Coefficient*	*SE.Coef*	*t-stat*	*Pr*
β_0	-36895	5523	-6.68	0.007
$\Delta \ NONININC_{j,t}{}^{(Antilog)}$	36147	5411	6.68	0.007
$\Delta \ FVAESTLIB_{j,t}{}^{(Antilog)}$	-3481.3	981.0	-3.55	0.038
$\Delta \ OPRISK_{j,t}{}^{(Antilog)}$	1074.7	186.0	5.78	0.010

Notes: R2 = 0.95

S = 1.39

$\Delta \ NONININC_{j,t}{}^{(Antilog)}$ = *Antilogarthimic of the changes in the non-interest income*

$\Delta \ FVAESTLIB_{j,t}{}^{(Antilog)}$ = *Antilogarthimic of the changes estimations of fair value of liabilities.*

$\Delta \ OPRISK_{j,t}{}^{(Antilog)}$ = *Antilogarthimic of the weight assigned to quantify the operational risk.*

Results indicate that the changes in non-interest income, and the change in the weight assigned to operational risk are positively associated with the value relevance variation of capital stocks in banks (t = 6.68, Pr = 0.007) and (t = 5.78, Pr = 0.010) respectively, and the changes in the estimation of fair value for liabilities is negatively associated with the value relevance variation of capital stock (t = -3.55, Pr = 0.038), this represent the significance of the three variables to be considered in banks for future sustainability and profitability, as the statistical inference shows for this regression model a high explanatory power of $R^2 = 0.95$ and standard error = 1.39.

Reviewing the literature for a proof for my findings, I find several sources that can motivate including the three independent variables of the changes in the non-interest income, changes in estimations of fair value of liabilities, and changes in the weight assigned to quantify the operational risk (based on the effectiveness of internal control) in the regression model (1), which ends by regression model (4) as the

main and final model and including only the three variables after statistically excluding the other independent variables.

To that extent , Brunnermeier et al. (2012, 18) find banks with higher non-interest income to interest income ratio have a higher contribution to systemic risk, which can be a demonstration for the significant association of the variable of the change in non-interest income with the value relevance variation of banks capital stocks in my study. Also, The Federal Deposit Insurance Corporation (FDIC) (2014, 1) identifies, monitors and addresses risks to the deposit insurance funds; and limits the effect on the economy. Subsequently, and to my view, (deposit taking and lending), as proved by Brunnermeier in 2012, is associated with a larger systemic risk. Therefore, appears the importance of operational risk, which in my finding shows   how the change in this operational risk is positively associated with the value relevance variation of banks capital stocks (where the effectiveness of internal control is a sign for low operational risk).

Finally, as a consequence to the doubts with regard to the application of fair value accounting in the liability side of banks, and the conservatism accounting required for monitoring debts and enable efficient debt agreements, likewise debt instruments and contracts issued by banks (European central bank, 2002; Ball and Shivakumar, 2005; Ahmed and Duellman 2007; Garcia et.al, 2009), my finding shows a negative association of the change in estimations of fair value for liabilities with the value relevance variation of banks capital stocks.

V.   CONCLUSIONS

The purpose of this paper is to internationally examine the association between banks earnings quality and the value relevance variation of banks capital stocks, for the reason of measuring a recent and a potential analogy in banks' financial performance after the financial crisis. As a consequence, to indicate the future expectations for the banks regulations and earnings quality, and establishes a future confidence in the banking sector and the future economies for future generations.

My initial finding is shown by the results of using a regression model for the investigation of the association between earnings quality in banks and the value relevance variation of capital stocks, results indicate that the change in non-interest income, change in fair value estimations for liabilities, and effectiveness of internal control as a sign for low operational risk, are all significantly associated to the value relevance variation of the capital stocks prices of the purposive analyzed banks.

This paper contributes to the accounting and banking literature in two ways. First: it initially finds an answer that the analyzed banks in this study after the financial crisis have achieved analogy in their potential earnings quality, and banking requirements. Second: it provides a perception about the most influencing variables that can significantly associate to the value relevance variation of capital stocks in the banking sector. This paper has a major limitation in respect to the sample of the banks used in the regression model, as number of banks are very limited and are purposive for future indications about banks protections against any risk management failure and loss , and the sustainability of future economies for future generations.

As this paper has an optimistic vision about banking analogy in this regard of the study, future research can find a useful trend as to explore whether my findings generalize to more number of international banks in the sample of the regression model, as well as finding new variables in addition to the used variables in this paper.

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VII.   APPENDIX

Table A(1)

The details of the variables of Regression (1)

Δ CAPSTOCKPR $_{j,t}$ = the changes in the stock prices for the purposive number

of banks at time t, reflecting the value relevance

variation of   banks capital stocks.

Δ EARNASS $_{j,t}$ = the changes in the earning assets for the purposive

number of banks at time t, reflecting an income-

producing   investments , and the ability to produce

additional fund as a source of earnings.

Δ CASH&EQ $_{j,t}$ = the changes in the cash and cash equivalent for the

purposive number of banks at time t, reflecting the

liquidity in banks.

Δ OPCAFLOW $_{j,t}$ = the changes in the operating cash flows for the purposive number of banks at time t, reflecting the cash generated by the banks operations and activities.

Δ NINTINC $_{j,t}$ = the changes in the net interest income for the purposive number of banks at time t, reflecting interest earned on assets over the Interest paid out on deposits.

Δ NONININC $_{j,t}$ = the changes in the non-interest income for the purposive number of banks at time t, reflecting when low interest rates makes it difficult for banks to make a profit, how they must rely on non-interest income to make a profit.

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Δ NINCOME $_{j,t}$ = the changes in the net income for the purposive number of banks at time t, reflecting how profitable the banks are over a period of time.

Δ GDEFTAXASS$_{j,t}$ = the changes in the gross deferred tax assets for the purposive number of banks at time t, reflecting how banks are reducing their future tax liability.

Δ PROVFCRLOSS$_{j,t}$ = the changes in the provision of credit losses for the purposive number of banks at time t, reflecting how are the estimation of potential losses that banks might experience due to credit risk.

Δ REGCAPBIII$_{j,t}$ = the changes in the regulatory capital of basel III for the purposive number of banks at time t, reflecting the amount of capital the banks have to hold as required by Basel III.

Δ GLOBEXLIQ$_{j,t}$ = the changes in the global excess liquidity sources for the purposive number of banks at time t, reflecting the gap between inside monetary aggregates and nominal spending at a global level.

Δ MARKRISKA$_{j,t}$ = the changes in market risk for trading activities for the purposive number of banks at time t, reflecting the ability of the banks to monitor, and control exposure to market risk resulting from movements in market prices, and the exposure to risk from trading and foreign operations.

Δ FVAESTASS$_{j,t}$ = the changes in estimation of fair value of assets for the purposive number of banks at time t, reflecting banks stability during recession and its "profitability" during the years after the recession

Δ FVAESTLIB$_{j,t}$ = the changes in estimation of fair value of the liabilities for the purposive number of banks at time t, reflecting banks' ability to transfer risks of liabilities and managing the risks based on estimations.

ω OPRISK $_{j,t}$ = the weight assigned to quantify operational risk for the purposive number of banks at time t, reflecting banks' internal control effectiveness.

Table A (2): Sample Statistics

Descriptive Statistics (7 purposive banks - observations changes)   (2013 – 2014)

(2014 –2015)

Variable	Mean	Std.Dev.	Median	Minimum	Maximum
Δ CAPSTOCKPR $_{j,t}$	172.000	424.000	10.000	1.000	1132.000
Δ EARNASS $_{j,t}$	13.190	16.310	10.150	-3.470	45.230
Δ CASH&EQ $_{j,t}$	14.750	19.590	13.490	-9.230	46.100
Δ OPCAFLOW $_{j,t}$	-12.000	62.700	-27.800	-71.200	107.000

Δ NINTINC$_{j,t}$	7.410	11.170	9.270	-5.470	21.330
Δ NONININC$_{j,t}$	3.950	7.620	6.070	-5.100	14.090
Δ NINCOME$_{j,t}$	22.700	40.100	30.100	-62.400	55.200
Δ GDEFTAXASS$_{j,t}$	13.000	30.800	11.600	-26.300	69.200
Δ PROVFCRLOSS$_{j,t}$	-31.300	40.900	-36.000	-76.500	44.400
Δ REGCAPBIII$_{j,t}$	-0.046	0.119	-0.010	-0.243	0.058
Δ GLOBEXLIQ$_{j,t}$	0.115	0.212	0.168	-0.204	0.460
Δ MARKRISKA$_{j,t}$	0.132	0.690	0.188	-0.663	0.934
Δ FVAESTASS$_{j,t}$	0.198	0.218	0.114	0.010	0.646
Δ FVAESTLIB$_{j,t}$	0.053	0.091	0.000	-0.008	0.229
ω OPRISK$_{j,t}$	0.714	0.488	1.000	0.000	1.000

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Δ CAPSTOCKPR$_{j,t}$	=	the changes in the stock prices
Δ EARNASS$_{j,t}$	=	the changes in the earning assets
Δ CASH&EQ$_{j,t}$	=	the changes in the cash and cash equivalent
Δ OPCAFLOW$_{j,t}$	=	the changes in the operating cash flows
Δ NINTINC$_{j,t}$	=	the changes in the net interest income
Δ NONININC$_{j,t}$	=	the changes in the non-interest income
Δ NINCOME$_{j,t}$	=	the changes in the net income
Δ GDEFTAXASS$_{j,t}$	=	the changes in the gross deferred tax assets
Δ PROVFCRLOSS$_{j,t}$	=	the changes in the provision of credit losses
Δ REGCAPBIII$_{j,t}$	=	the changes in the regulatory capital of basel III
Δ GLOBEXLIQ$_{j,t}$	=	the changes in the global excess liquidity sources
Δ MARKRISKA$_{j,t}$	=	the changes in market risk for trading activities
Δ FVAESTASS$_{j,t}$	=	the changes in estimation of fair value of assets
Δ FVAESTLIB$_{j,t}$	=	the changes in estimation of fair value of the liabilities
ω OPRISK$_{j,t}$	=	the weight assigned to quantify operational risk

Analysis of Descriptive Statistics:

First: the group of accounting information variables, as the table shows that the mean (median) number for the changes in the value relevance of banks capital stocks prices is $172 ($10), with standard deviation of $424, where the minimum number of the change is $1and the maximum is $1132, which primarily indicate a positive significant variation to consider for more analysis and assurance in light of the question of the this paper. The mean (median) of the change in earnings assets is $13.19 ($10.15), with standard deviation of $16.3 and minimum number of the change is - $3.470 and the maximum number is $45.23, where slight changes are indicated as this type of assets comprise a significant part of the banks activities for earnings. The mean (median) of the change in cash and equivalent is $14.70 ($13.49), with standard deviation of $16.3 and minimum number of the change is - $9.23 and the maximum number is $46.10, showing a slight negative decrease in cash and equivalent, which is possible for the banks management of activities and operations. The mean (median) of the change in operating cash flows is -$12 (-$27.80), with standard deviation of $62.70 and minimum number of the change is -$71.20 and the maximum number is $107, showing negative level of cash collected from operations and banks activities and positive insignificant standard deviation as an indication for improvement in cash collection. The mean (median) of the change in net interest income is $7.41($9.27), with standard deviation of $11.17 and minimum number of the change is -$5.47 and the maximum number is $21.33, as a significant indication for banks profitability growth from earning assets generating cash flows and interest revenues. The mean (median) of the change in non-interest income is $3.95($6.070), with standard deviation of $7.62 and minimum number of the change is - $5.10 and the maximum number is $14.09, stating the importance of banks' strategies against the fluctuations of interest rates, to gain income from activities other than the deposit-loans relation in banks, where the standard deviation indicates the significance in the non interest income of the banks. The mean (median) of the change in net income is $22.70($30.10), with standard deviation of $40.10 and minimum number of the change is - $62.40 and the maximum number is $55.20, also confirming the income growth in the banks from both interest activities and non-interest activities with a moderate standard deviation in the change. The mean (median) of the change in gross deferred tax assets is $13.00($11.60), with standard deviation of $30.80 and minimum number of the change is - $26.30 and the maximum number is $69.20, indicting how significantly the banks are planning for future taxable income from a period to another by operating the assets, with a positive significant change.

Second: the group of estimations, capital and risk management, the table shows the mean (median) of the change in provision for credit losses is   -$31.30(-$36.00), with standard deviation of $40.90 and minimum number of the change is - $76.50 and the maximum number is $44.40, proving how significantly is the effect of IFRS and the BIS regulations in regard to provisions estimation for banks expected credit losses, where the change shows a significant negative change from a period to another. The mean (median) of the change in regulatory capital ratio is -$0.046 (-$0.010), with standard deviation of $0.119 and minimum number of the change is - $0.243 and the maximum number is $0.05, showing a slight negative change with a slight standard deviation, which indicates maintaining the requirements of capital ratio in the banks from a period to another, whereas the purposive sample indicates the proper capital ratio in all banks. The mean (median) of the change in global excess of liquidity sources is $0.115 ($0.168), with standard deviation of $0.212 and minimum number of the change is - $0.204 and the maximum number is $0.460, indicating a slight standard deviation as banks are maintaining the same level of sources of liquidity from its cash and trading financial instruments from period to another. The mean (median) of the change in market risk of trading activities is $0.132($0.188), with standard deviation of $0.690 and minimum number of the change is - $-0.663 and the maximum number is $0.93, showing a mean of slight change and slight standard deviation, indicating a consistency in the risk management of the banks in respect to net income sensitivity to the risk factors in the market. The mean (median) of the change in estimation of fair value of assets is $0.198($0.114), with standard deviation of $0.218 and minimum number of the change is $0.010 and the maximum number is $0.646, as the change in the estimation is of slight standard deviation and indicates the banks stability and profitability. The mean (median) of the change in estimation of fair value of liabilities is $0.053($0.000), with standard deviation of $0.091 and minimum number of the change is - $0.008 and the maximum number is $0.229, showing how the slight change in standard

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deviation indicating that significant estimation by the banks to transfer risks of liabilities is persisting from period to another. The mean (median) of the change in weight assigned to quantify operational risk is \$0.714(\$1.00) with standard deviation of \$0.488 and minimum number of the change is \$0.00 and the maximum number is \$1.00, all indication significantly showing a non-difference among the banks in their low operational risk and strong internal control.

Table A(3)

results of the Shapiro-Walk (W test) for Normality

Variables	W calculated
Δ $\overline{CAPSTOCKPR}_{j,t}$	0.476
Δ $EARNASS_{j,t}$	0.875
Δ $CASH\&EQ_{j,t}$	0.966
Δ $OPCAFLOW_{j,t}$	0.870
Δ $NINTINC_{j,t}$	0.890
Δ $NONININC_{j,t}$	0.902
Δ $NINCOME_{j,t}$	0.774
Δ $GDEFTAXASS_{j,t}$	0.940
Δ $PROVFCRLOSS_{j,t}$	0.930
Δ $REGCAPBIII_{j,t}$	0.867
Δ $GLOBEXLIQ_{j,t}$	0.975
Δ $MARKRISKA_{j,t}$	0.873
Δ $FVAESTASS_{j,t}$	0.817
Δ $FVAESTLIB_{j,t}$	0.729
ω $OPRISK_{j,t}$	0.601

W $_{tabulated}$ = 0.928 ,,, Significance Level 0.50

& Transformation is required for variables with : ($W_{calcluated}$ < $W_{tabulated}$)

Table A (4) : Results from Running the Regression Model (3)

$$\Delta\ CAPSTOCKPR_{j,t}^{(Antilog)} = \beta_0 + \beta_1 \underline{\Delta\ CASH\&EQ_j}$$
$$+ \beta_2 \Delta\ NONININC_{j,t}^{(Antilog)}$$

$$+ \beta_3 \Delta\ GLOBEXLIQ_{j,t}^{(Antilog)} +$$
$$\beta_4 \Delta\ FVAESTLIB_{j,t}^{(Antilog)}$$

$$+ \beta_5\ \omega\ OPRISK_{j,t}^{(Antilog)} + e_t$$

Variable Name	*Coefficient*	*SE.Coef*	*t-stat*	*Pr*
β_0	59314	348192	0.17	0.893
$\underline{\Delta\ CASH\&EQ_{j,t}}$	-4.989	6.832	-0.73	0.598
$\Delta\ NONININC_{j,t}^{(Antilog)}$	45685	15066	3.03	0.203
$\Delta\ GLOBEXLIQ_{j,t}^{(Antilog)}$	-105931	357652	-0.30	0.817
$\Delta\ FVAESTLIB_{j,t}^{(Antilog)}$	-4285	1731	-2.48	0.244
$\Delta\ OPRISK_{j,t}^{(Antilog)}$	1410.1	581.4	2.43	0.246

Notes: R2 = 0.97

  S = 1.87

$\underline{\Delta\ CASH\&EQ_{j,t}}$ = the changes in the cash and cash equivalent

$\Delta\ NONININC_{j,t}^{(Antilog)}$ = Antilogarthimic of the changes in the non-interest income

$\Delta\ GLOBEXLIQ_{j,t}^{(Antilog)}$ = Antilogarthimic of the changes in the global excess liquidity sources

$\Delta\ FVAESTLIB_{j,t}^{(Antilog)}$ = Antilogarthimic of the changes estimations of fair value of liabilities.

$\Delta\ OPRISK_{j,t}^{(Antilog)}$ = Antilogarthimic of the weight assigned to quantify the operational risk.

Table A (4) shows results from running the regression model (3), the estimations show explanatory power of the regression model as R^2 = 0.97 and standard error = 1.87, but it also show insignificant statistical relation at the significance level of the model 0.10 (the Mintab software) between the two independent variables of $\underline{\Delta\ CASH\&EQ_{j,t}}$, and $\Delta\ GLOBEXLIQ_{j,t}^{(Antilog)}$,and the dependent variable Δ $CAPSTOCKPR_{j,t}^{(Antilog)}$, due to the insignificant t-statictic of both independent variables (-0.73 and -0.30) respectively, compared to ($> \pm 2$).

TECHNOLOGIES OF THE ADMINISTRATION AND PERENITY OF MICRO AND SMALL ENTERPRISES

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ABSTRACT

The article, which aimed at analyzing the contributions of the Technologies of the Administration, among them the Administration for Integrated Sustainability, in the perenity of the micro and small enterprises, investigated, based on the literature and on field research, investigated "how can the Technologies of Administration contribute with the perenity of the micro and small industrial companies and of services rendered in the sample"? The data were extracted from secondary sources. In the field, the universe was of 1.700 industrial companies and 15.112 of services rendered, in 170 municipal districts, with proportional stratified random sample, considering each economical category of the Gross Domestic Product. In the investigation, the used technique was the questionnaire and the data received statistical treatment, with analysis of the variables, components and dimensions of the Technologies of the Administration, variance analysis and correlation test. The results and conclusions suggest that the Technologies of the Administration favor the perenity of the industrial companies and of services rendered of the sample.

Keywords: Technology. Innovation. Micro and small enterprise. Administration for integrated sustainability. Perenity

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I.   INTRODUCTION

To analyze variables of contemporary Administration Technologies, with investigations that seek alternatives to manage problems related to the dimensions of Technological Capacity, Administrative Technological, Institutional and Economic Social Policy. It, suggests the discovery of aspects that favor clarifying aspects not investigated and / or little researched and Its relation with the perenniality of Micro and Small Enterprises (MPEs), being relevant for the Administration while Social sciences, in their academic and practical aspects.

The government, entrepreneurs, managers and managers of MPE's seek in the contemporary Administration technologies, information and partnerships that improve the management of their business, such as Brazil with the MPE Basic Federal Law and its adaptations (Complementary Law 123/06, Articles 146 : 170 and 179/07, Federal Law No. 9.317 / 96) and the State of Maranhao with Law No. 9,529 / 11 - Chapter IX "From the Stimulus to Innovation and Professional Management of Microenterprises MIs and Small Businesses (EPPs)", for the implementation of Professional Management. The term Small Business - PEs also applies to Small Business - EPPs.

This article, on the theme of "Management Technologies and perenniality of MPEs," aims to analyze, through literature and field research, the contributions of Management Technologies, including Integrated Sustainability Management (GSI) in the perenniality of the industrial and services rendering companies.

A problem requires considering that the researcher is involved in the reality of the situation to be clarified. The research questions represent what the researcher wishes to clarify and can indicate among the variables, associations associations (Triviños, 2009). The problem is: in what ways can the Technologies of Contemporary Administration contribute to the perenniality of the Industrial and Services Provisioning Companies of São Luís do Maranhão?

Research questions: What relationship could be established between the physical system, data base, software, machinery and equipment with the perpetuity of Industrial and Service Provision MPEs?

What is the relation between the formal qualification of the managers, their experiences and talents with perpetuity of the MPEs?

What is the relation of the variables of the GSI Model, as a Professional Management technology in the MPEs of the sample in the creation, maintenance, perennial maintenance and growth phases, with perpetuity of these MPEs?

In what way do products and services, the organizational system, management strategies, procedures and organizational routines impact on the sustainability of MSEs?

The hypothesis predicts a relation between two terms (Quivy & Campenhoudt, 1995). The hypothesis is: the technologies of the Administration contribute favorably in the perennial of the Industrial MPEs and of Provision of Services of São Luís of Maranhao.

The research method: the methodology covers the methods of approach, procedures and techniques (Marconi & Lakatos, 2007). Malhotra (2006) describes measurement scales; Ulrich et al. (2009), ranging from 1 to 10 points, which served as the basis for the questionnaire score of this research. Follow the method.

In the literature: Delimitation: data extracted from the secondary sources, analyzed in the universe of MSEs and the GSI Model. The research line was "Management Technology", of organizational studies of the Brazilian reality of the Doctoral Program in Administration of FGV / EBAPE and the Research Group "Administration, Management and State-AGE" CNPq - Applied Social Sciences - Administration area And Management of MPEs.

Method: hypothetical deductive - for the construction of systemic concepts and hypotheses deduced from this theoretical explanatory model (QUIVY & CAMPENHOULD, 1995).

Approaches and Theories: Management Technologies; And Entrepreneurship in two approaches to literature, economics, and management that underpinned the GSI Model.

In the field research: delimitation, universe and sample: the data of 2012 were collected in the universe of 1,700 industrial MPEs of Maranhao (FIEMA, 2006). A proportional stratified random sample of 134 MPEs (tables 1 and 2) was extracted, considering the participation of each economic category in the PIB (Table 1); and data from 2016 in the universe of the MIs and EPPs Industrial and Service Provision of São Luís/MA (JUCEMA, 2016). A sample of 38 MPEs was extracted for accessibility (Vergara, 2007), according to tables 3 and 4.

Data collection and analysis: the technique was the questionnaire. Data from 2012 received statistical treatment, with exploratory data analysis, Correlation Test, Regression and Multiple Correlation and in 2016, exploratory analysis of data with averages and percentages.

Categories of analysis: guarantee rigor (Vieira, 2004), which were: size of MSEs Importance of the variables in each phase of the MPEs: creation, maintenance, perennial maintenance, growth and perenniality variables, relevant to the permanence of MSEs in the dimensions of Technological Capacity and Administrative, Technological, Institutional and Economic Social Political of the GSI Model.

Limitations of the method: the universe of MPEs, due to Brazil having a large territorial dimension, and Maranhao 217 municipalities (IBGE, 2009), was soon delimited to the MPEs of the Industrial Sector and Service Provision of Maranhao; Little literature and empirical work on this subject that would allow an in-depth study of the theory (POPPER, 1975). Conscious of the limitations, we consider that the method was adequate and acceptable to support the research and the analysis of the data with consistency.

II.   LITERATURE REVIEW AND THEORETICAL MODEL

Technology means the set of pieces of knowledge - both "practical" and "theoretical" - of know-how, methods, procedures, successful and unsuccessful experiences, and of course physical devices and equipment (DOSI, 2006). Technological competence refers to the company's abilities to perform innovative activities in products, processes and organization of production, organizational systems, equipment and engineering of stored projects, not only in people's minds (skills, experience, formal qualifications) but, As well as in their organizational system, routines and procedures (BELL & PAVITT, 1995; FIGUEIREDO, 2003).

Technological capacity at the organizational level is the set of resources that can be tangible, coded or intangible, tacit, coded and uncoded incorporated in several dimensions of the organization: management and production techniques, organizational routines, organizational structures, values and norms. (PENROSE, 1959 NELSON & WINTER, 1982 TEECE & PISANO, 1994 LALL, 1992 FIGUEIREDO, 2004).

Technological accumulation and industrial innovation (Figueiredo, 2005) suggests a contribution to the management of the industrial development process in the context of developing economies, particularly in Brazil. The technological capacity of a company is stored in at least four components (Lall, 1992 Bell & Pavitt, 1995 Figueiredo, 2003), shown in figure 1.

Innovation, is a pioneering activity, based mainly on the internal competencies of a company to develop and induce a new product in the market. In the Schumpeterian view it is not restricted to products and processes, it involves new forms of management, new markets and production inputs. It is cumulative - there is no leap (KIM, 2005)

From the 1990s, the knowledge society stood out. It is the management of innovation and contribution of technology, generating results in companies with the support of Higher Education Institutions in research. The Administration as Social Science advanced in three aspects: Intellectual Capital; Knowledge management; And Management Digital Focus, in which the Management Information System (GIS) emerged to meet the needs of managing complex relationships between the organization and the environment, and at the levels of the functional hierarchy.

Studies on "TI investments" (Oliveira et al., 2014), aiming at identifying decision factors in MPEs in the service and commerce sectors, point out that investments are still scarce. In its analysis, three factors for investment decision: "Utility of the Information System" "Intensity of Competition" and "Partnerships in TI Deployment". In the managerial field, these results allow us to propose factors to be used when the interest and demand for IT investments in MPEs, comparing the benefits of TI through the correlation between the weight of each factor and the perceived returns.

The Technological Capability is incorporated in several dimensions of the organization, among them, the management techniques, highlighting (Duarte, 2009) as one of the technological capabilities, since well-managed organizations develop consistency, growth and prosperity, and poorly managed, declining and often dying.

In the work of Professional Management, Polary (2012) emphasizes the importance of the analysis of the phases of the MPEs of creation, maintenance, perennial maintenance, growth and durations (Frame 2)) and the application of the GSI Integrated Sustainability Management, composed of 03 dimensions, 05 components and 12 variables (Frame 3), being an extension of the management term (Drucker, 2002), and different from the term "Sustainable Management of the Geoenvironmental Dimension" (Casarotto Filho & Pires, 2001). GSI is an alternative model of Professional Management for Management, which requires the manager personal professional awareness to manage with Entrepreneurial Guidance and Integrative Vision, in face of its variables, components and dimensions, to favor the company's management, success and permanence .

The GSI model is based on the Theory of Entrepreneurship in two approaches to literature: managerial, in McClelland's Theory (1970) and Organization and Administration Theories, and in the perspective of corporate strategies and modes of strategic management, Lumpkim And Dess (1996); and the economic one, in Schumpeter's (1934) studies, introduced in the Social Sciences by Economic Theory. The model was analyzed as one of the Technological Capacity Dimensions at organizational level "management techniques", and applied in the MPEs of the industrial sample (Polary, 2012), which also investigated its phases and processes, and the MIs and EPPs (POLARY et al. 2016).

It highlights the importance of entrepreneurship for the countries' economies, where their teaching began in the United States in 1947 at the Harward School of Business (Katz, 2003). Entrepreneurs are "differentiated people, who have unique motivation, and want to be recognized and admired, referenced and imitated, want to leave a legacy." Dornelas (2001).

In an analysis of the global and Brazilian panorama of entrepreneurship, data from the Global Entrepreneurship Monitor GEM Brazil (Greco et al. 2008, 2010) show that the Entrepreneurship Rate in Initial Stage of TEA of Brazil in 2008 (12.02) 13th place in the world ranking.

The analysis of the entrepreneurship rate of the adult population in Brazil (18 to 64 years of age in each country) makes it possible to compare the intensity of the entrepreneurial activity of the GEM countries (GEM, 2015). Chart 1 shows the countries' TEA rates, grouped according to the development phase, driven by factors, efficiency, or innovation. From 2014 to 2015, Brazil moved from 13th to 8th place in the ranking of the 31 countries of efficiency-driven economies, with TEA of 17.2% in 2014 and 21.0% in 2015, the highest in the group, surpassing the Countries of the BRICs, the United States and Germany.

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Regarding the levels of development, it can be seen from the distribution curves that the highest rates of ASD are concentrated in the group of factor driven countries and the lowest in countries driven by innovation. A GEM study, in partnership with the World Economic Forum (2015), identified a negative correlation between the level of development of countries (factors, efficiency and innovation) and initial entrepreneurship rates (TEA). It suggests a better analysis of the variables of this context by the managers, when of their decisions of investments in the countries.

These references are coherent with the research on "the impact of the technologies of contemporary management on the peremptory MPEs", among them the GSI based on entrepreneurship.

III. EMPIRICAL SESSION

In the analysis of the results of the survey in the Microenterprises - MIs, and also in the Small Companies - Industrial PEs of the sample (Polary, 2012), statistical procedures were: analysis of means and percentages of variables, components and dimensions of GSI, The Variables, Regression and Multiple Correlation

It was constituted by the analysis of the 12 variables of the GSI Model, which among the predominant 06, "Competences and managerial skills of the members that direct and of thers that administer or advise the business - Professional Management GSI, based on Entrepreneurship ", in the view of managers, is the one that most positively influences the Management, Success and Perennial in the MIs of the sample, with an average of 8.99 (table 5) and in the PEs with a mean of 8.95 (table 6).

By the results of the Multiple Regression and Correlation of the 06 variables that most positively influence the Management, Success and Perenniality of the MIs (Independent - table 5) and the 06 most important for the success of the MIs in the perpetuity phase (Dependents - table 7) of the Model GSI, it was verified that the variable "Do feasibility studies: technical, economic and financial" (frame 4), presented a substantial positive correlation, according to the regression equation $Y = a + b1x1 + b2x2 + ... + b6x6$. F of Regression = 12.2673. $p < 0.0001$. Coefficient of multiple determination $(R2xy) = 0.4612$ and multiple correlation coefficient $(Rxy) = 0.6791$.

Conclusion: F is significant for $p < 0.0001$, at least one of the Independent variables (Peditoras) influence the variable Dependent The coefficient of determination means that 46.12% of the Y variation can be explained by the model, the remaining (53.88%) are inexplicable and are due to other factors or to chance The variable that has the smallest value of p is the variable **Make feasibility studies: technical, economic and financial**, so it is the one that most explains the variation of Y.

In the PEs, it was verified by the results of the Regression and Multiple Correlation of the six (6) variables that most positively influence the Management, Success and Perennial (Independent - table 6) and the 06 most important for success in the perennial phase (Dependent - Table 8) ", that the variable" Qualified industrial labor "(Frame 5) presented substantial positive correlation, according to the regression equation $Y = a + b1x1 + b2x2 + ... + b6x6$. F of Regression = 4.0576. P = 0.0038. Coefficient of multiple determination $(R2xy) = 0.4173$ and multiple correlation coefficient $(Rxy) = 0.6460$.

Conclusion: F is significant for $p < 0.0001$, at least one of the independent variables influences the dependent variable. The coefficient of determination means that 41.73% of the Y variation can be explained by the model, the remaining 58.27% are inexplicable and If due to other factors or at random, the variable that has the smallest value of p is the skilled industrial labor variable, so it is the one that most explains the variation of Y.

The results of this research express, through the tests, the correlation of all variables of the GSI Model (Table 3), applied in the MIs and PEs of the sample (Polary, 2012), which makes possible an analysis of the effectiveness of the model in the view of the managers , On the management, success, permanence and phases and processes of MPEs, and suggest the continuity of application of this model in service

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and commercial MPEs. These results are consistent with the studies and research of ILDA (1984) and SOUZA (2009).

In another research (Polary et al., 2016), on the Technologies of Contemporary Administration, among them the GSI Model in Microenterprises MIs and Small Enterprises EPPs in the industrial and services sectors in São Luís do Maranhao, the results express: as for TEM, 64% of MIs are in the range of 1 to 4 years 9% between 5 and 8 years 18% between 9 and 12 and 9% over 12 years in EPPs, 50% are over 12 years, 25% up 4 years 19% between 5 and 8 years and 6% between 9 and 12 years (figures 2 and 3).

In analogy to the MPEs phases (Polary, 2012), the majority of MIs (45%) are in the stable maintenance phase; 23% in the growth phase; 23% remaining in business to recover the invested capital; and 9% acquired financial stability with investments in several areas; In the EPPs, 63% are in the stable maintenance phase, with success in business, without structural and physical growth "; 31% in the growth phase, structural, physical, number of employees, customers and financial gain; And 6% acquired financial stability, with investment in management technology and the workforce, remaining perennial and fulfilling their mission (figures 4 and 5).

As to the relevance of the variables of the GSI model it was verified that the one of higher average in the MIs was: Preservation of the environment (8,18); and in the EPPs was: Business location (8.68), according to tables 9 and 10, which show the analysis of all variables. Regarding the GSI technology variables present in the MIs and EPPs that contribute the most to the perenniality, products and services predominated, with averages of 8.75 and 8.36, respectively (tables 11 and 12), which show the Analysis of all variables.

IV. CONCLUSION

It is concluded from the analysis of literature and field research that in Brazil and other countries surveyed, the difficulties and challenges to keep perennial organizations persist, but there was a significant advance of governments and private initiative regarding the policies favoring Micro and Small Businesses - MPSs, in spite of recognizing their economic and social importance. In the analysis of the Integrated Sustainability Management Model (GSI) (Polary, 2012), it was found to be a viable alternative to MPEs, in which two relevant conclusions are highlighted: 1. The Management of MSEs, when applied in the GSI Model, Favors the Perenniality of the industrial MPEs of the sample; And 2. The permanence of industrial MPEs has a positive impact on the Industrial Development of the State of Maranhao.

As for the 12 variables of the GSI Model most important for the success of the industrial MPEs in its five phases, it was concluded that "Competences and managerial skills of the managing partners and others that administer or advise the business - GSI Professional Management" was the The most important variable for the success of MPEs in the creation, maintenance, perennial maintenance and growth phases, and for the sustainability phase was "Prioritizing the qualification of industrial labor".

In the conclusions of Polary et al. (2016), of application of the GSI Model, as one of the Administration technologies and its influence in the perenniality of the Microenterprises MIs of the sample, predominated the variable: preservation of the environment, and in the EPPs, location of the business. As for the GSI Model technologies present in the MIs and EPPs that contribute most to its sustainability, the "products and services" variable was highlighted for both.

The technologies revolve around the products and services of the company, because it is through them that some kind of value will be offered to the customers. The object of supply of the MIs and EPPs represent not only the maintenance of their customers and establishment of competitive advantage, but also a means of reducing costs through industrial efficiency and effective working methods, as verified in the variable "products and services" which obtained higher mean for MIs and EPPs.

As to the level of formal qualification of managers, their experience and talent in the MPEs of the sample (Polary et al., 2016), 39% of the managers have a medium level, 50% higher level and 11% with

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a specialization or a master's degree. "knowledge and experience in the area in which it operates and seek its development" to act in the MIs and EPPs ", for the managers of the MIs the average was 8.27 and the EPPs were 9.06.

These conclusions give answers to the problem investigated, to the research questions raised and confirmation of the hypothesis, having thus reached its objectives. The expectation is that these results and conclusions contribute to further research in MPEs in the area of Management Technologies, among them, Management for Integrated Sustainability GSI, as one of the technologies and innovations that favors the perpetuation of MPEs and the development of countries.

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IX.   TABLES

Table 1 - population for stratification, according to municipalities by size of industries.

Nº	Counties	MICRO	SMALL	TOTAL
		Quantity	Quantity	
01	Alcântara	01	-	01
02	Bacabal	36	09	45
03	Balsas	59	21	80
04	Caxias	17	20	37
05	Cajapió	04	-	04
06	Imperatriz	192	97	289
07	Lago da Pedra	16	03	19
08	Paço do Lumiar	04	01	05
09	Raposa	02	-	02
10	Rosário	08	08	16
11	São João dos Patos	11	-	11
12	São José de Ribamar	21	09	30
13	São Luís	739	380	1119
14	Timon	32	10	42
	Total	1142	558	1700

Source: Adapted from FIEMA (2006) and Polary (2012).

Table 2 - significant samples stratified industries, according to municipalities by size of industries.

Nº	Counties	MICRO	SMALL	TOTAL
		Quantity	Quantity	
01	Alcântara	01	-	01
02	Bacabal	03	02	05
03	Balsas	06	02	08
04	Caxias	02	02	04
05	Cajapió	01	-	01
06	Imperatriz	16	08	24
07	Lago da Pedra	03	02	05
08	Paço do Lumiar	02	01	03
09	Raposa	01	-	01
10	Rosário	02	01	03
11	São João dos Patos	01	-	01
12	São José de Ribamar	02	01	03
13	São Luís	51	22	73
14	Timon	02	-	02
	Total	93	41	134

Source: Adapted from FIEMA (2006) and Polary (2012).

Table 3 - population of mis and epps active for stratification in são luís-ma by size.

Nº	Counties	Company Size		TOTAL
		Microenterprise-MI	Small Business Company-EPP	
		Quantity	Quantity	
01	São Luís	14.183	929	15.112

Source: JUCEMA (2016).

TABLE 4 - ACCESSIBILITY SAMPLES OF MIS AND EPPS ACTIVE FOR STRATIFICATION IN SÃO LUÍS-MA BY SIZE

Nº	Counties	Company Size		TOTAL
		Microenterprise-MI	Small Business Company-EPP	
		Quantity	Quantity	
01	São Luís	22	16	38

Source: JUCEMA (2016).

Table 5 - the 06 variables of the gsi model that most positively influence the management, success and perennial of the industrial mis of the state of maranhao, in the view of the managers.

Variables	n	%	Average	Minimum	Maximum	DP
1. Management skills and abilities of the managing partners and others who administer or advise the business - Professional Management (GSI), based on Entrepreneurship...	92	98.92	8.99	1	10	1.5442
2. Technological support (machinery and equipment, systems and working methods)...............................	90	96.77	8.86	1	10	1.5107
3. Make feasibility study: technical, economic and financial..	88	94.62	8.83	3	10	1.5773
4. Qualified industrial labor force.............................	92	98.92	8.63	1	10	2.1315
5. Level of industrial efficiency.................................	92	98.92	8.62	4	10	1.4207
6. Preservation of the local environment of the Industry……………………………………………	90	96.77	8.58	1	10	2.1093

Source: Polary (2012).

Tabela 6 – the 06 variables of the gsi model that most positively influence the management, success and perennial of the industrial pes of maranhao.

Variables	n	%	Average	Minimum	Maximum	DP
1. Management skills and abilities of the managing partners and others who administer or advise the business - Professional Management (GSI), based on Entrepreneurship...	41	100.00	8.95	7	10	1.0476
2. Technological support (machinery and equipment, systems and working methods)...............................	41	100.00	8.80	7	10	0.9992
3. Qualified industrial labor force................................	41	100.00	8.61	5	10	1.4980
4. Level of industrial efficiency....................................	40	97.56	8.58	6	10	1.1068
5. Location of the Small Business.....	41	100.00	8.56	4	10	1.4841

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	n	%	Average	Minimum	Maximum	DP
6. Preservation of the local environment of the Industry……………………………………………..	41	100.00	8.44	1	19	2.7023

Source: Polary (2012).

Table 7 - the 06 most important variables for the success of the industrial mis of maranhao in the perennial phase..

Variables	n	%	Average	Minimum	Maximum	DP
1. To reinvest in Microenterprises to better serve their workforce, their clientele and fulfill their economic and social function in order to remain successful in the market, in the view of the managers..................	90	96.77	9.38	6	10	0.9189
2. Prioritize the qualification of industrial labor and maintain the required levels of efficiency and productivity of the sector..	93	100.00	9.25	1	10	1.4192
3. Prioritize the technical and professional development of the partners they direct and of others who administer or advise the company..	93	100.00	9.22	3	10	1.3092
4. Preservation of the local environment of industry……………………………………....	92	98.92	8.88	3	10	1.5956
5. Use the Industrial Development Plan - PDI 2020..	84	90.32	7.24	1	10	2.8523
6. Public policies of the Federal, State and Municipal Governments, attractive investments and microenterprise partnerships with Government and private nterprise..	91	97.85	6.77	1	10	3.0553

Source: Polary (2012).

Table 8 - the 06 most important variables for the success of the industrial pes of maranhao in the perennial phase.

Variables	n	%	Average	Minimum	Maximum	DP
1. Prioritize the qualification of industrial labor and maintain the required levels of efficiency and productivity of the sector	41	100.00	9.20	5	10	1.1878
2. Reinvesting in Small Businesses (PEs), to better serve the workforce, the clientele and fulfill its economic and social function in order to remain successful in the market..	41	100.00	9.10	4	10	1.2001
3. To prioritize the technical and professional development of the members who direct and of	41	100.00	9.07	6	10	1.2528

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others who manage or advise the business the PEs..						
4. Preservation of the environment..............................	41	100.00	8.56	4	10	1.5008
5. Use the Development Plan. Industrial - PDI 2020..	40	97.56	8.20	4	10	1.7127
6. Public Policies of Federal, State and Municipal Governments, attractive investments and partnership with Small Businesses with Government and private initiative..............................	41	100.00	7.51	2	10	2.0140

Source: Polary (2012).

Table 9 - relevance of the variables of the gsi model for the perenniality of the mis of the sample

Variables	Media
Competences and management skills - Professional Management - GSI of the partners and others who run the business, based on Entrepreneurship	7,40
Make feasibility studies (technical, economic, financial)	7,09
Technological support (machinery and equipment)	6,36
Technological support: systems and working methods	7,95
Level of industrial efficiency (appropriate use of production inputs)...................................	7,77
Public Policies of the Federal, State and Municipal Government	6,31
Legal, tax and labor aspects	7,77
Local Strategies and Political Institutional Partnerships, Industrial Segment and Civil Society	7,22
Industrial Development Plan	6,68
Skilled labor force	7,68
Investment attractiveness: internal, external and local government	5,95
Preservation of the environment	8,18

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....	
Business Location	8,13
....	

Source: Polary et al. (2016).

Table 10 - relevance of the variables of the gsi model for the perenniality of the epps of the sample.

Variables	Media
Competences and management skills - Professional Management - GSI of the partners and others who run the business, based on Entrepreneurship	8,18
Make feasibility studies (technical, economic, financial)	6,62
Technological support (machinery and equipment)	8,37
Technological support: systems and working methods	8,18
Level of industrial efficiency (appropriate use of production inputs)...................................	7,93
Public Policies of the Federal, State and Municipal Government	6,31
Legal, tax and labor aspects	6,87
Local Strategies and Political Institutional Partnerships, Industrial Segment and Civil Society	6,43
Industrial Development Plan	5,25
Skilled labor force	7,18
Investment attractiveness: internal, external and local government	6,18
Preservation of the environment	7,75
Business Location	8,68

Source: Polary et al. (2016).

Tecnologias	Media
The physical system, database, software, machines and equipment	7,77
Individuals' minds; Knowledge and qualification; Experience and accumulated talent	7,18
Products and services	8,36
Organizational system and management strategies; Procedures and organizational routines	7,31
Management for Integrated Sustainability - GSI as one of the management technologies, Based on entrepreneurship	7,40

Table 11 - technologies present in the mis that contribute most to the perenniality.

Source: Polary et al. (2016).

Tecnologias	Media
The physical system, database, software, machines and equipment	7,50
Individuals' minds; Knowledge and qualification; Experience and accumulated talent	8,25
Products and services	8,75
Organizational system and management strategies; Procedures and organizational routines	8,12
Management for Integrated Sustainability - GSI as one of the management technologies, Based on entrepreneurship	7,50

Tabela 12 - Technologies present in the EPPs that contribute most to the perenniality.

Source: Polary et al. (2016).

FRAMES

Nº	Counties	PIB a preço corrente	%
1	Alcântara	R$65.418.000,00	0,17%
2	Bacabal	R$505.600.000,00	1,27%
3	Balsas	R$1.120.221.000,00	2,82%

4	Cajapió	R$22.781.000,00	0,06%
5	Caxias	R$825.527.000,00	2,08%
6	Imperatriz	R$2.000.735.000,00	5,03%
7	Lago da Pedra	R$152.435.000,00	0,38%
8	Paço do Lumiar	R$291.564.000,00	0,73%
9	Raposa	R$100.920.000,00	0,25%
10	Rosário	R$134.819.000,00	0,34%
11	São João dos Patos	R$89.164.000,00	0,22%
12	São José de Ribamar	R$473.407.000,00	1,19%
13	São Luís	R$ 15.337.347.000,00	38,58%
14	Timon	R$715.427.000,00	1,81%
	TOTAL PIB (municipalities participating in the research)	R$ 21.835.365.000,00	54,93%
	TOTAL PIB (municipalities not participating in the research)	R$ 17.918.346.000,00	45,07%
	PIB Maranhao	R$ 39.753.711.000,00	100%

Frame 1 - PIB14 municipalities of the sample of 134 MPEs researched in the Industrial Sector-MA

Source: PIB of the municipalities of Maranhao – 2009 (IBGE - 2012).

Nº	PHASES OF MPEs	DEFINITIONS
01	CREATION	It is the legal formalization of MPE, via a social contract and / or constitution document, in which the company is created to operate and meet a market demand.
02	MAINTENANCE	It is to fulfill the mission of creating the business, and keep working until leaving the phase of "loss" (recovery of capital invested in the creation phase), and from there, to remain in the market with the generation of own resources and operating at a profit.
03	PERENE MAINTENANCE	The company remains stable, successful in business, but without structural and physical growth. Staying alive successfully in business, and consciously avoiding expansion.
04	GROWTH	It is to grow the business in its structural and physical aspects, with the increase of the number of employees, greater market share and expansion of the clientele, increase of financial gains, among others.

05	PERENITY	It is to remain alive in the market, long-lived and succeeding generations, with constant feedbacks from the creation, maintenance and perennial maintenance phases, with the capacity to maintain structural growth, the market, the clientele, and acquire financial stability, prioritizing the development Of management technologies and of the workforce that guarantees professional maturity and can fulfill its political, economic and social function in the face of its mission.
N°	**PROCESSES OF MPEs**	**DEFINITIONS**
01	SUCCESS	MPE presents good administrative, operational and financial results, generating capacity for its continuity, providing the necessary conditions for the company to reach the remaining phases and achieve longevity, thus fulfilling its political, economic and social mission in the environment in which it operates.
02	LOW PLANNED	Closing of the activities of the MPE in the market in which it operates, carried out in a manner planned by the owner, after complying with its legal, fiscal and labor obligations. It is a professional decision not to want to continue in the business, regardless of the reason.
03	FAILURE	It is the poor result of MPE, and its inability to continue operating in the market in a viable way to administrative, technical, operational and financial matters, being compromised the relation with the employees, clients and the results of financial profit.
04	MORTALITY	Insolvency of MPE, ceasing the normal operation of its administrative, technical and operational activities, for not achieving economic and financial success. It ceases to exist functionally with an active organization, reflecting negatively on the economic and social development of the environment in which it operates.

Frame 2: Phase Cycle and Processes of MPEs.

Source: Polary (2012).

MODEL	DIMENSIONS	COMPONENTS	VARIABLES
GSI	Administrative Technological	Management	Skills and Management Skills - Professional Management-GSI, based on Entrepreneurship.
			Feasibility studies: technical, economic and financial.
		Technology	Technological support (machinery and equipment, systems and working methods).
			Industrial efficiency level.
	Political Institutional	Policies	Public Policies of the Federal, State and Municipal Government.
			Legal, tax and labor aspects.
		Strategies	Local Strategies and Political Institutional Partnerships, Industrial Segment and Civil Society.

			Industrial Development Plan - IDP-2020.
	Economic Social	Economic and Social Indicators	Qualified industrial labor force.
			Investment attractiveness: internal, external and local government.
			Preservation of the local environment of industry.
			Business Location.

Frame 3 - The GSI model integrates 03 dimensions, 05 components and 12 variables.

Source: Polary (2012).

Independent Variables (Peddler)	Partial regression coefficient	t	P
Constant (Intercept)	1.4039(a)	-	-
Skills and managerial skills of the managing partners and others who administer or advise the business - Professional Management (GSI), based on Entrepreneurship	0.0234(b1)	0.2571	0.7977
Technological support (machinery and equipment, systems and working methods)	0.2817(b2)	2.9741	0.0038
Conduct feasibility studies: technical, economic and financial	**0.3615(b3)**	**3.6469**	**0.0004**
Qualified industrial labor force	-0.0444(b4)	-0.7225	0.4719
Level of industrial efficiency	0.2301(b5)	2.3558	0.0207
Preservation of the local environment of industry	0.0414(b6)	0.5946	0.5536

Frame 4 - Multiple linear regression between the variables that most positively influence the Management, Success and Perennial (Independent) and Prioritize the qualification of industrial labor and maintain the levels of efficiency and productivity required of the sector (Dependent) in the industrial MIs of Maranhao.

Source: Polary (2012).

Independent Variables (Peddler)	Partial regression coefficient	T	p
Constant (Intercept)	1.9189(a)	-	-
Competencies and management skills of the managing partners and others who administer or advise the business allied to Professional Management (GSI) and Entrepreneurship.	0.2420(b1)	1.4464	0.1571
Technological support (machinery and equipment, systems and working methods)	-0.2618(b2)	-1.3601	0.1827

Qualified industrial labor force	**0.3233(b3)**	**2.7789**	**0.0088**
Level of industrial efficiency	0.3970(b4)	2.1712	0.0369
Location of the Small Business	**0.0773(b5)**	**0.6751**	**0.5042**
Preservation of the local environment of industry	0.0550(b6)	0.7674	0.4481

Frame 5 - Multiple linear regression between the variables that most positively influence the Management, Success and Perennity (Independent) and Reinvest in the PEs to better serve their workforce, the clientele and fulfill their economic and social function to remain successful in the market (Dependent) In the industrial PEs of Maranhao.

Source: Polary (2012).

IX.   FIGURES

Physical system, database, software, machines and equipment

System (fabric)
Organizational and
management strategies
Procedures and routines
organizational.

experience

Technological
Capacity =
specific
knowledge of
the
organization /

Minds of guys -
tacit knowledge and
formal qualification of
engineers and technicians,
operators.   Your

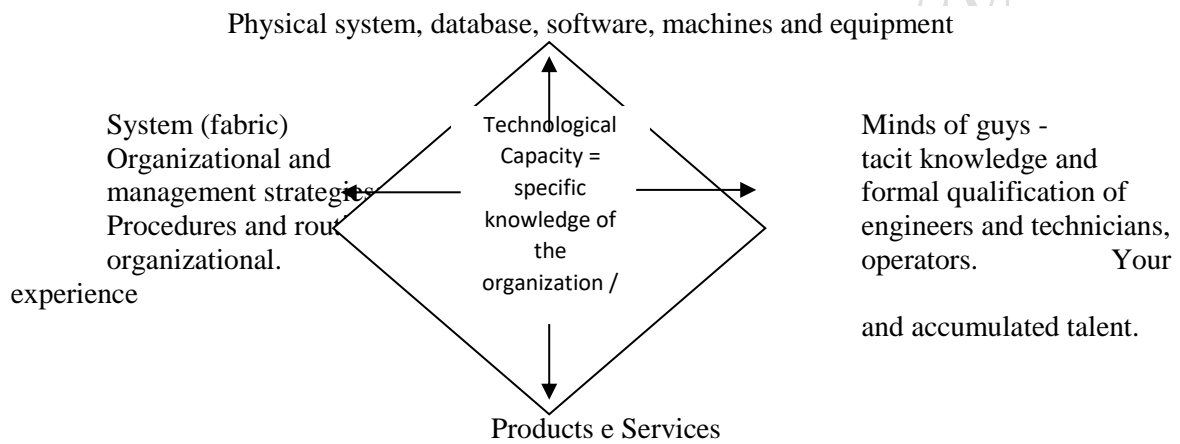and accumulated talent.

Products e Services

Figure 1: Visualization of the technological trajectory of developing economy companies.
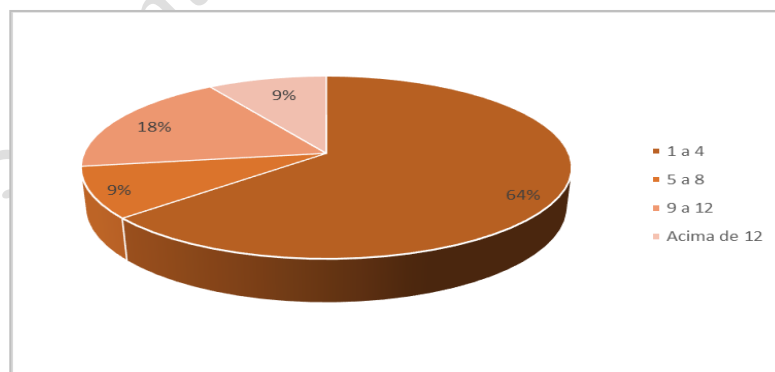Source: Lall (1992); Bell & Pavitt (1995); Figueiredo (2003).

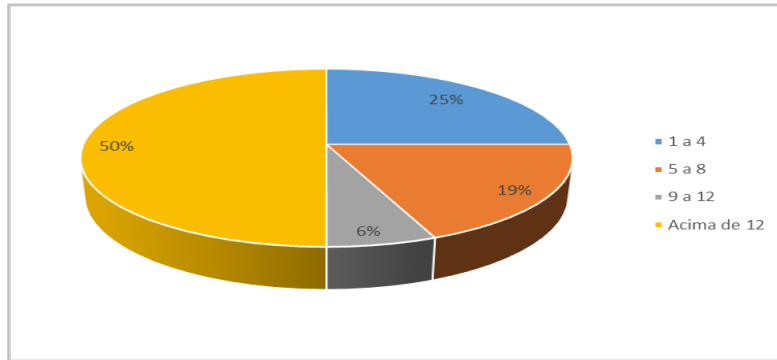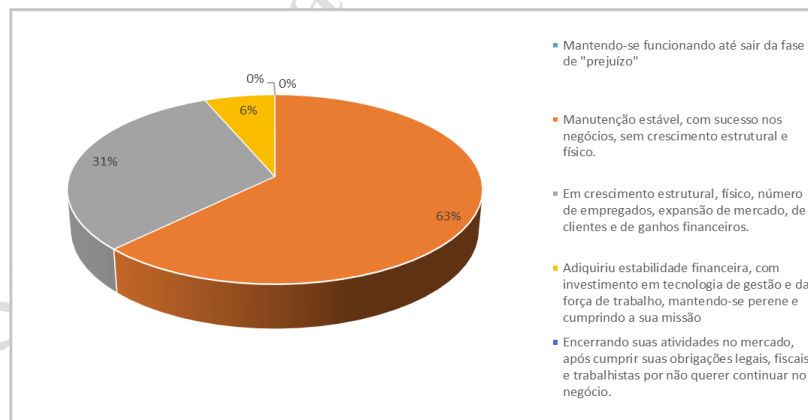Figure 2 – TEM of the sample MIs.
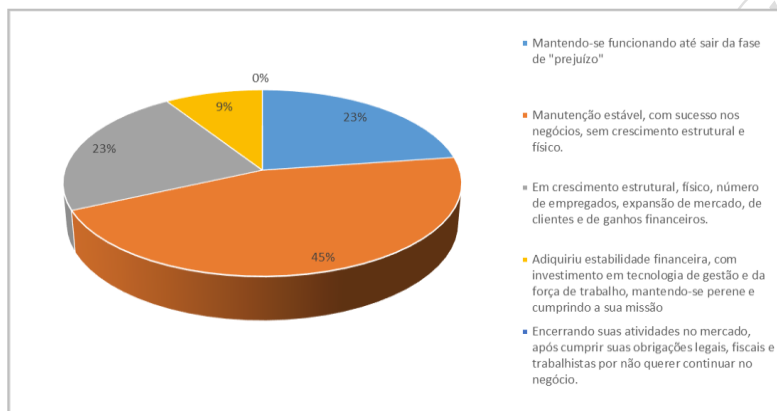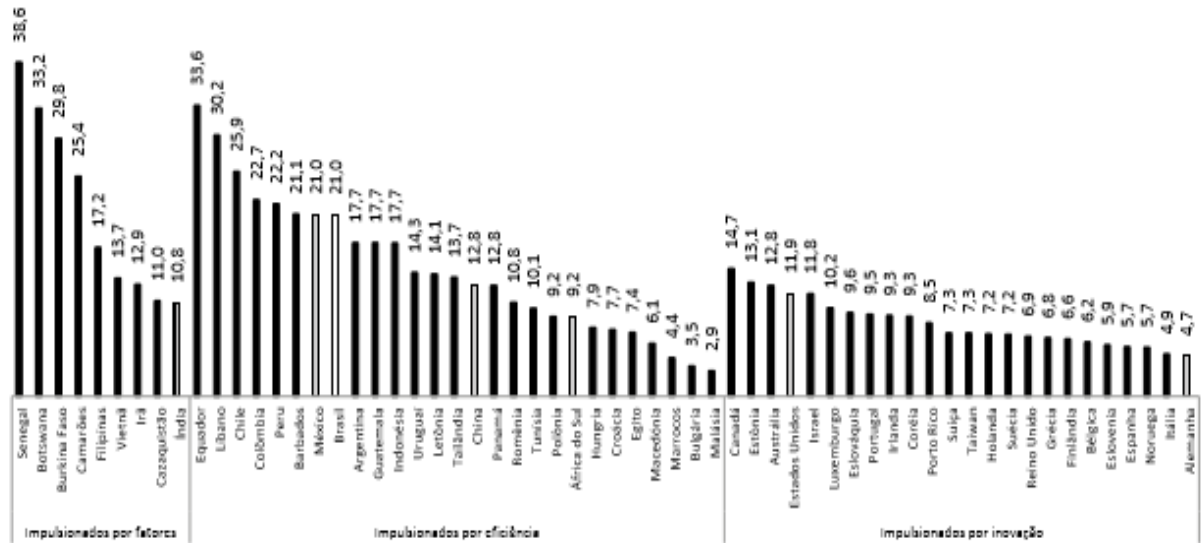
Source: Polary et al. (2016).

Figure 3 – TEM of the sample EPPs.

Source: Polary et al. (2016).

GRAPHIC

Graphic 1 - Initial entrepreneurship rate (TEA) of GEM participating countries grouped according to the economic development phase [xlvii] - 2015.

Source: GEM (2015).

015).

End notes

[ii] **MENA 21 countries :** Middle East and North African region: This region is comprised of the following countries Bahrain , Egypt, Iraq, Jordan, Kuwait , Lebanon , Libya , Morocco , Oman , Qatar, Saudi Arabia , Syria, Tunisia , United Arab Emirates , Yeme , Iran, Djibouti, Algeria some analysts consider Palestinian authority, Israel and Turkey as part of MENA region but other institutions such as world Bank report on MENA 2010 does not include the three countries . It has four regional agreements Agadir agreement, Arab Magrheb Union, Gulf Cooperation Council (GCC) and GAFTA

[iv] **"Veritable spaghetti bowl of [iv]intertwined** relationships and overlapping associations"; where every MENA party is a partner to at least one regional economic agreement and many countries are members of five or more of such agreements causing conflict in their RoO and fragments benefits resulting from region's intra trade (Walkenhorst andShui, 2010).
[iv]Agadir Free Trade Agreement: Free trade agreement between four Arab south Mediterranean countries (Morocco , Tunisia, Jordan and Egypt). It is an initiative of the Union for Mediterranean incepted by the European Union and an example of South South integration policy.

[v] **Agadir Agreement Countries** and their effort to build up an industrial base linked to trade between its members and entire set of MENA countries

[vi] **Maghreb Union:** The Arab Maghreb Union: Sub regional bloc within MENA region, consisting of the following countries: Libya, Morocco, Algeria , Tunisia & Sudan (Walkenhorst and Shui, 2010).

[vii] **Gulf Cooperation Council GCC:** Gulf Cooperation Countries (GCC) are: Bahrain, Kuwait, Qatar, Oman, Saudi Arabia and United Arab Emirates (Walkenhorst and Shui 2010).

[viii] **Euromed association agreements:** They represent the reciprocal bilateral association agreements between some of south Mediterranean Arab countries and E.U. starting chronologically by Morocco, Jordan, Egypt, Algeria, and Lebanon.

[ix] Free Trade Agreements with the United States: Some MENA countries entering into free trade agreements with (e.g., Jordan, Morocco, Bahrain, Oman and QIZ between Egypt and US and Israel) QIZ: Qualified Industrial Zones: It was a trilateral free trade area established between Egypt, U.S.A and Israel for further enhancement of economic and industrial cooperation in

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some sectors precisely textiles and garments. The only condition is the 11% of the any commodity passing duty free from Egypt to U.S.A is to have 11% of this commodity complied and accumulated in Israel (Rouis and Tabor 2013).

[x] **Greater Arab Free Trade Agreement (GAFTA):** including 20 of the MENA countries except for Algeria. It also include one non MENA country which is Sudan (Walkenhorst and Shui,2010).

[xi] [xi] **Pan Arab Free Trade Area:** PAFTA known as well as the GAFTA and signed during 1997 ; including the membership of over 18 Arab countries and it accounts for 80% MENA's total trade (Rouis and Tabor 2013)

[xiii] Association agreement between E.U and MENA countries were dated chronologically: Tunisia 1998, Morocco 2000, Jordan 2002, Egypt 2004, Algeria 2005 and Lebanon 2006.

[xiv]**Row Rest of the World:** refers to merchandise trade value with all world countries and precisely U.S.A. Japan, China, India and Asian countries in general but does not include the E.U. 27 or intra-MENA merchandise trade which are both excluded.

[xviii] The Pan Arab Free Trade area established during 1997between 17 members Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestinian Territories , Qatar, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates, Yemen.

[xix] **ATU:** Agadir Technical Unit Report

[xx] **Polity Index:** focusing on the rule of law , state of institutionalized democracy, regulations of political participation, control of corruption and also includes the degree to which polity dominates over the selection and transfer of executive power inside governmental institutions and finally how this impacts all a country's institutions including trade institutions.it represents a score given a total of 21 points assigned to a range of regime changes and it covers a dataset of all major independent states of 167countries in the global system over the period 1800-2014 gathered through analysts, experts in academia and organizations. The categorization of countries is built upon four pillars and these are openness of Elections, competition in executive recruitment, executive constraints and participation competition and categorized into a score ranging from [-10 -6] on autocracies, [-5 +5] anocracies and [+6 +10] given to democracies. (Teorell and Jan and Samanni and Sören and Bo Rothstein, 2011)

[xxi] **Consolidated Democracy:** refers to the high graded scale of democracy resulting from institutions built totally upon democratic regime and laws and signalling to citizen's values, concept and behaviour practice of democracy has been absorbed and changed and there is no way back to authoritarian system.

[xxii] **Hereditary Monarchy:** a form of power of ruling where sovereign power descends by right of inheritance and it signals in some instances and countries to the extreme state of autocracy.

[xxiii] The Polity IV index is comprised of four pillars recording changes in the institutionalized qualities of governing authority referring to the competitiveness of the executive recruitment whether in elections or transitional one. In second place comes the openness of executive recruitment through dual elections, constraints on the chief executives whether they are exposed to unlimited authority or more towards limitations. The participation in political institutions is it restricted or a secular one (Marshall and Gurr and Jaggars 2016)

[xxiv] **Trade Freedom :** is a composite measure of tariff and non-tariff barriers that affect the exchange of goods and could be summarized into an It is the name of the index used in quality of government database code book and denoted by irat and

it ranks world countries based on a combined composite measure of trade restrictiveness 0.75 and custom trade facilitation of 0.25. The Lowest score below 0.60 indicates presence of trade freeness , and lower barriers to trade ,meanwhile, bigger scores over 0.6 0 indicates absence of trade freeness. (Teorell and Jan and Samanni and Sören and Bo Rothstein, 2011)

[xxv] **Administrative Impediment:** hindering trade represent lengthy and redundant trade procedures that might account from 2% up to 15% of the value of traded good. Non- tariff barriers as a part of administrative constraint will include and not be limited to : administrative burdens, information/transparency, inconsistent or discriminatory behaviour of officials, time constraint, payment, infrastructural challenges, securityconstraints and legal (OECD 2002; WTO 2012)

[xxvi] Lutmar 2011 indicated that intra-and inter-regional integration efforts in the MENA region did not yet fully successed in promoting political and social reforms in Arab Meditteranean countries.

[xxvii] **Binding Constraint:** meaning that directly after a regime is shifted into a democratic one, there should be a direct abrupt change in its institutions, it takes time achieve this shift and recovery of the institutions from the previous influence into ones of higher credibility and accountability, and better governance and promising to investors. Nabli and Jáuregui (2012),

[xxx] **Group I Middle Income Countries** referring to members of the Agadir Association agreement between MENA countries and E.U. 26 countries and they include Egypt, Jordan, Tunisia, Morocco and as a potential member Algeria.

[xxxi] **Group II are resource rich countries** of the Gulf area and they are Saudi Arabia, Kuwait, Qatar, U.A.E, Bahrain and Oman (same six GCC countries)

[xxxii] **Group III** are in continuous conflict or post conflict and they are isolated right now attempting to re-built their infrastructure such as; Libya, Iraq, Syria and Yemen.

[xxxiii] **CEPII gravity dataset from the** 'Centre d'Estudes Prospectives et d'Informations Internationales'; allows the estimation of bilateral international trade flows in the form of gravity equation accounting for bilateral GDP flows between country pairs and trade costs through bilateral distance Dyad. (Head and Mayer, 2013)

[xxxiv] **OLS (Ordinary Least Squared Method):** the econometric estimation used in calculating the gravity model for the country pairs . It highlights the coefficients of the model's independent variables in relation with the dependent variable. It also computes the standard errors that are robust to clustering by country pairs (Rose 2003).

[xxxv] **Fixed Effects Dummies:** The time and country fixed effects by origin and destination and as well time fixed effects by Feenstra (2004) were introduced to the PPML estimations to help in accounting for unobserved country characteristics that are fixed over time; thus allowing for these unobservable effects to differ between countries of origin and destination. Origin fixed effects expressed as $\pi_{i,t}$ for origin country fixed effects accounting for outward multilateral resistance, meanwhile, destination fixed effects known $by\ \chi_{j,t}$ refers to expenditures and inward multilateral resistance. As well η_{ij} acted a set of variables reflecting upon the internal conflicts, wars and civil disputes between country pairs in the region. All the time changing variables retained the same signs for PPML estimations but some of the variables show lower significance.

[xxxvii] Helliwell (1998) and Callum (1995) estimated the border effect to be around 20% in Canada US trade and that both countries were able to trade at 20 times higher attributed to sharing a common border and the implied effect.

[xxxviii] MENA countries sharing a common past before in Algeria, Morocco, Tunisia and Libya all being colonized by the French long ago but all gained independence , as will be seen later the Arab Maghreb Union composed of those countries show one of the highest intra-trade coefficients in the MENA region.

) is composite index taking into account mean tariff rate, revenue from taxes to trade, regulatory barriers to trade, actual /expected trade values.

[xl] **The Middle Income _5 countries:** included in this dummy are comprised of Agadir agreement countries (Egypt , Jordan , Tunisia and Morocco) plus Algeria.

[xli] This study is a part of the opportunity presented through the Christos and Mary Papoutsy Distinguished Chair in Ethics and Social Responsibility, held by the author during the 2016-2017 academic year. I wish to express my profound gratitude to Christos and Mary Papoutsy for their support both through the Chair and directly for this opportunity and this project. I would also like to express my gratitude to the staffs of both the International Institute of New England, of which I have been the Chair of the Board of Directors since 2011, and the Bhutanese Community of New Hampshire, where I have been a member of the Advisory Board since 2012, for their continued and substantial assistance.

[xlii] Mr. Acharya's story is derived from interviews and conversations with him beginning after we first met in 2009 in Manchester, New Hampshire. As a member of the Board of Directors of the International Institute of New England, the resettlement agency that directly managed the Acharya family's arrival in and introduction to Manchester, I met him shortly after his arrival due to his advocacy efforts on behalf of the Bhutanese community in New Hampshire. We, and our families, have developed and maintained a close relationship since 2009.

[xliii] The list of organizations identified here is not intended to be comprehensive but is representative of the support that is available to entrepreneurs in the Manchester area. It should be noted that each of these organizations has assisted many entrepreneurs start businesses and the apparent lack of utilization of their services by the entrepreneurs in this study is not in any way intended as a comment on the efficacy of the services provided by the organizations or their outreach efforts.

[xliv] See, for example, the U.S. State Department's description of the program at https://www.state.gov/j/prm/releases/factsheets/2017/266447.htm

[xlv] Refugees are eligible for other support through the Office of Refugee Resettlement, a division of the U.S. Department of Health and Human Services, generally determined on an individual need basis, for up to five years after arrival.

[xlvi] For more information on the Bhutanese Community of New Hampshire, visit the website: www.bhutanesecommunitynh.org

[xlvii] This classification is based on the Global Competitiveness Report - Publication of the Economic Forum considering PIB per capita and the share of primary goods.