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CONTENTS

Research

Review

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IMPACT OF PETROLEUM ON SMES GROWTH IN NIGERIA

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ABSTRACT

The study undertakes an empirical research on the impact of petroleum on small and medium scale enterprises (SMEs) development in Nigeria. The log linear error correction model was adopted to examine how petroleum price (PP), Imported petroleum (IMP) and domestically produced petroleum (DPP) had impacted on Nigeria's SMEs. Unit root test was carried out on each of the variables to determine their level of stationarity. They were however found stationary after first difference (that is, they are all integrated of order one (I(1)), then it was safe to proceed with Johansen Cointegration Test. The integrated variables were then used for the regression analysis. The cointegration result showed that the variables used in the model have a long term, or equilibrium relationship between them. It was observed that from the analysis that PP and IMP were found to be statistically insignificant and both had negative relationships with SMEs development Nigeria, while DPP had a positive impact and is statistically significant. Due to the underproduction of the Nigerian petroleum refineries, the government had to resort to importation of the shortfall which also has its cost implications on its sales and distribution. Local manufacturers and farmers had to pay more for transporting their goods and services to the markets. Incessant price hikes of petroleum products have led to crisis and industrial actions led by some pressure groups in Nigeria which has caused distortion in the SMEs activities of Nigeria overtime The study thus recommends that the down-stream oil need to be deregulated to allow private investors come in to build in more refineries so as to produce the petroleum at a relatively lower cost to propel the growth of SMEs in the country.

1 INTRODUCTION

Oil is a major source of energy in Nigeria and the world in general. Oil being the mainstay of the Nigerian economy plays a vital role in shaping the economic and political destiny of the country. Although Nigeria's oil industry was founded at the beginning of the century, it was not until the end of the Nigeria civil war (1967 - 1970) that the oil industry began to play a prominent role in the economic life of the country.

The Nigerian petroleum industry has been described as the largest among all industries in the country. This is probably due to the belief that petroleum is one of the major sources of energy

worldwide. The size, international characteristic, and role assumed by the petroleum industry were noted to have originated from the notion that petroleum is versatile as it currently satisfies a wide variety of energy and related needs. Petroleum is the most vital source of energy, providing over 50 percent of all commercial energy consumption in the world. The revenues obtained from crude oil in Nigeria are of absolute advantage to expenditure commitments on various projects at the local, state, and federal levels. (Onaolapo, Taiwo & Adegbite, 2013)

Crude oil discovery has had certain impacts on the Nigeria Small and medium scale enterprises (SMEs) both positively and adversely. On the negative side, this can be considered with respect to the surrounding communities and businesses within which the oil wells are exploited. Some of these communities and small businesses still suffer environmental degradation, which leads to deprivation of means of livelihood and other economic and social factors. Although large proceeds are obtained from the domestic sales and export of petroleum products, its effect on the growth of the SMEs as regards returns and productivity is still questionable, hence, the need to evaluate the relative impacts of petroleum on SMEs growth in Nigeria.

The problems with Nigerian economy have been traced to failure of successive governments to use oil revenue and excess crude oil income effectively in the development of other sectors of the economy especially the small scale businesses (Yakub, 2008). Over all, there has been poor performance of national institutions such as power, energy, road, transportation, politics, financial systems, and investment environment have been deteriorating and inefficient (Nafziger, 2008).

This paper therefore seeks to examine the impact of petroleum on SMEs growth in Nigeria

2 LITERATURE REVIEW

2.1 The Concept of Oil Sector Development

Various literatures have identified economic development as efforts that seek to improve the economic well-being and quality of life for a community by creating jobs and supporting or growing incomes and the tax base. Dominant theories of economic growth have suggested that significant relationship exist between national income and economic growth. That is, when income is invested in an economy, it results in the growth of that economy. For example, Harrod (1939) and Domar (1946) models state that growth is directly related to savings (unspent income). Similarly, Ogbonna & Appa (2012) observed that income from a nation's natural resources (e.g. petroleum) has a positive influence on economic growth and development. Contrary to this opinion expressed above, other studies on this subject matter, found that natural resources income influences growth negatively. That is, an increase in Income from natural resources does not necessarily result in an increase in economic growth. For example, Sachs and Warner (1997) using a sample of 95 developing countries that included Indonesia, Venezuela, Malaysia, Ivory Coast and Nigeria, found that countries that have a high ratio of natural resource exports to GDP which appears to have shown slower economic growth than countries with low ratio of natural resource export to GDP.

In theory, proponent of oil-led development (as an example Eromosele, 2004) observed that countries lucky enough to have petroleum, can base their development on this resource. They point to the potential benefits of enhanced economic growth and the creation of jobs, increased government revenues to finance poverty alleviation, the transfer of technology, the improvement of infrastructure and the encouragement of related industries. But the experience of almost all oil-exporting countries to date, especially Nigeria illustrates few of these benefits (Omeje, 2006). To say the least, Nafziger (1984) says that Nigeria's case is increasingly degenerating to a state of chaos as petroleum income is brazenly mismanaged while the basic national institutions such as

electricity, energy, road, transportation, political, financial systems, and investment environment have been decreasing and inefficient in Nigeria, the infrastructure is still poor; talent is scarce. Poverty, famine, and disease afflict many nations, including Nigeria (Chironga, et al, 2011)

2.2 The Concept of SME

Various literature exists on Small and Medium Enterprises (SMEs) written by various authors and in different languages and for various purposes. This fact underscores the essence, importance and relevance of this sub-sector in the development of any given economy. The experiences of developed economies in relation to the roles played by SMEs cannot be overemphasized especially among the Less Developed Countries (LDCs) or rather developing country like Nigeria. SMEs have been variously referred to as the "engine of growth", this stems from the fact that almost all countries that have focused on the SMEs sector and ensures its vibrancy have ended up succeeding in the significant reduction and its attendant enhancement in the quality and standard of living, reduction in crime rate, increase in per capita income as well as rapid growth in GDP among other salutary effects (Mordi, 2005).

According to allbusiness.com (2010), the abbreviations SME's occurs commonly in the European Union and in international organizations such as World Bank, the United Nations and the World Trade Organizations. Also the term Small and Medium Scale Businesses (SMEs) is predominantly used in the United States of America. The European United States traditionally has their own definition of what constitutes SMEs. For instance, the traditional definition in Germany limit Small and Medium Scale Enterprises to two hundred and fifty (250) employees while in Belgium, it is limited to one hundred (100) employees. Recently, the European union has standardize the concept by categorizing enterprises with less than ten (10) employees as "Micro" those with fewer than fifty (5) employees as "Small" and those with fewer than two hundred and fifty (250) employees as medium". In the United States of America, any business with fewer than one hundred (100) employees is classified as "small" while medium scale business refers to a business with fewer than five hundred (500) employees.

In Nigeria, micro and small enterprise play a pivotal role in the overall industrial economy of the country. It is estimated that in terms of values, the sector account for about 39% of the manufacturing output and about 33% of the total export of the country. Also in South Africa, the term small, medium and micro enterprises (SMMEs) are usually used. While in Nigeria, the term small and medium scale enterprise (SMEs) is generally used. From the foregoing, it can be deduced that small and medium scale enterprises are enterprises that have the capacity to employ at most five hundred (500) employees at a time and it has been proved to be the backbone of every economy. The brain behind every successful small and medium scale enterprises is entrepreneurship is an undertaking in which one is involved in the task of creating and managing an enterprise for a purpose. The purpose of further stated may be personal, social or developmental. One who is involved in this task is called an entrepreneur. Also a line between an entrepreneur and business owners must be drawn while business owners establish and manage their own enterprise for personal gains, entrepreneurs exploit ideas that create a business that benefit them, the society and act as development weapon (Olagunju, 2004).

Histrich and Peters (1998) explained that the study of entrepreneurship has relevance today, not only because it helps small business or entrepreneur, better fulfil their personal needs, but also because their economic contribution of the new ventures, their study therefore sees SMEs as a positive force. In economic growth and development, Ekanem (2006) summarizes the importance of SMEs to include ensuring rapid development, increased utilization of local resources and provision of a training ground for indigenous managers and semi-skilled workers reduction of the rural-urban drift, development of indigenous technology and raising the living standard of rural

dwellers and so on. In fact, SMEs accounts for the economic development in most developed economics of the world today. It has helped in the balance of payment position of countries; it reduces over dependences on inputs relative to their Capital Investment. A study by Ekpenyong (1997) showed that very little financial supports have been provided by the traditional Financial Institutions (the Commercial Banks) to the SMEs. The reasons are that small businesses have serious inherent structural defects that make them high risks borrowers and the traditional banks are not structured to cater for the type of credit demanded by the small businesses owing to the nature of their credit assessment procedures (Hammend, 1995).

There is a consensus that if all stakeholders are to show serious commitment to the development of the SMEs Sub-Sector, it follows that the economy must necessarily witness meaningful transformation and prosperity. A dynamic SME sub-sector is vital and imperative for the overall economic development of the country. Aside from providing opportunities for employment generations, SMEs help to provide effective means of curtailing rural-urban migration and resource utilization.

2.3 The Performance of the Oil Sector in Nigeria

The Nigerian oil sector can be categorized into three main sub-sectors, namely, upstream, downstream and gas. The most problematic over the years has been the downstream sector, which is the distribution arm and connection with final consumers of refined petroleum products in the domestic economy. The incessant crisis in supply of products culminated in the decision by Government in 2003 to deregulate the downstream sub-sector. However, the manner of its implementation has been controversial because it ignores the economic realities in Nigeria. Oil production by the joint venture (JV) companies accounts for about 95 % of Nigeria's crude oil production. Shell, which operates the largest joint venture in Nigeria, with 55 % Government interest (through the Nigerian National Petroleum Corporation, NNPC), produces about 50 % of Nigeria's crude oil. Exxon Mobil, Chevron Texaco, ENI/Agip and Total, Elf operate the other JV's, in which the NNPC has 60 % stake (Idowu, 2005)

The over-dependence on oil has created vulnerability to the vagaries of the international market, as observed in the preceding section that show the contribution of oil to some macro-economic variables.

In particular, the place of oil in the mind of the average Nigerian has become more profound since the deregulation of the downstream segment of the Nigerian oil industry in 2003. The contradiction is more glaring now with the recent rise in crude oil prices at the global markets, which meant more external earnings for Nigeria, but also increased the expense burden on imported refined petroleum products! It is such contradictions that make the Nigerian economy appear strange at times, as policies seem to ignore what appears obvious to do. As such, policies designed to address the deficiencies and defects in the structure end up being poorly articulated and/or implemented because of regional, political or rent-seeking selfish interests.

Obviously, it is the same rent-seekers that continually sabotage the reinvigoration of the domestic refineries, making Nigeria to depend on importation of refined products to meet the domestic need. At present, Nigeria has four refineries, with a combined installed refining capacity of 445,000 barrels per day (bpd).

The combined capacities of these refineries exceed the domestic consumption of refined products, chief of which is premium motor spirit (gasoline), whose demand is estimated at 33 million litres daily. The refineries are however, operating far below their installed capacities, as they were more or less abandoned during the military era, skipping the routine and mandatory turnaround

maintenance that made products importation inevitable. Importation notwithstanding, there have been persistent product shortages that gave strength to the argument for deregulation of the downstream oil subsector in Nigeria.

The monetization of oil revenue has been a major factor in liquidity management in Nigeria. Measuring liquidity as the narrow and broad money definitions by the CBN, the early 1990s saw increases that were dampened by 1995 up until the civilian administration came on board in 1999. The new Government maintained disciplined fiscal operations for about one year and thereafter, the floodgates were opened. Since then, the CBN has been battling to keep liquidity in check, in order to ensure that it does not create adverse effects on the three key macroeconomic prices (i.e., interest rate, exchange rate and inflation rate). The greatest challenge is when Nigeria generates more revenue from crude oil sales than it budgeted, like now. Such excesses have always been monetized, creating market distortions and inflationary pressure [Iyoha, 2007].

The same argument goes for deficit fiscal operations in comparison to the GDP. The pattern of this ratio indicates the optimism that accompanies increase in oil revenue and makes Government to engage in frivolous spending or unnecessary projects. Deficit spending invariably makes Government resort to borrowing from the Central Bank through the instrument of Ways and Means Advances, which later convert into short term debt instruments that are quite expensive to service at market rates.

At this point, there is sufficient ground to examine how economic policy formulation has been impacted or induced by petroleum oil in Nigeria. As much as possible, major economic policies since Nigeria gained political independence would be examined vis-a-vis the state of the oil sector. This should provide adequate basis for making a few specific recommendations on how to reduce the dependency.

2.4 Empirical Literature

Empirically studies have been have provided results showing the impact of natural resources on small business growth. Some of these studies not only reported that resource abundance had positive impact on growth and development but also found that resource dependence had no adverse impact on growth.
Several empirical studies have confirmed the natural resource curse hypothesis. Some other reasons why resource-rich countries might suffer resource curse are reduced returns to human investments, precipitated by natural resource exploitation (Gylfason, 2001) and poor economic management that leads to inefficient resource allocation among business e (Rosser, 2006). All in all, while there are strong theoretical grounds to suspect a broad correspondence between natural resource abundance especially oil and low growth, the nature of the linkage is neither direct nor simple. Empirical literature has not provided conclusive answer to whether abundant natural resource is a curse or blessing. Even among studies that claimed the curse of natural resources actually exist, there is no agreement on what exactly drives the curse of the natural resources and on how it exactly plays out. This explains why further research should be focused on the causal link between natural resource abundance and SMEs growth in the resource rich economies.

Petroleum is no doubt a predominant source of Nigeria's revenue and foreign exchange. Previous studies on the Nigeria economy in the last decade show that the petroleum industry has been playing a dominant role and occupies a strategic position in the SMEs development of Nigeria (Azaiki and Shagary, 2007). This is evidenced by the total oil revenue generated into the Federation Account from 2000 to 2009 which amounted to N34.2 trillion while non-oil was N7.3 trillion, representing 82.36% and 17.64% respectively. The mean value of oil revenue for the 10 year period is N3.42 trillion compared to non-oil revenue at N732.2 billion (Central Bank of Nigeria, 2011).

Further evidence was ten year's average crude oil and condensates production of 832,866,752.1 barrels from 2000 to 2009. The importance of crude oil to the SMEs development of Nigeria cannot be over emphasized, Nigeria gained an extra $390 billion in oil-related fiscal revenue between 1971 and 2005 (Central Bank of Nigeria, 2011).

Unfortunately, the SMEs has been bedeviled by sustained underdevelopment evidenced by poor human developmental and economic indices including poor income distribution, militancy and oil violence in the Niger Delta, endemic corruption, unemployment, relative poverty (Baghebo, 2012). Irrespective of Nigeria's huge oil wealth, the SMEs has remained highly underdeveloped. Despite the fact that crude oil has been the source of Nigerian economy, the economy is faced with high rate of unemployment, wide spread oil spillage, increasing poor standard of living, low per capita income and high rate of inflation which (Baghebo, 2012).

3 RESEARCH METHODOLOGY

3.1 Estimation Procedure/Method of Data Analysis

The research work made use of the econometric approach in estimating the relationship between Petroleum and the Nigerian SMEs growth. The dependent variable is SMEs contribution to real Gross Domestic Product while the independent variables are petroleum price (PP), imported petroleum (IMP) and domestically produced petroleum (DPP). The Ordinary Least Square (OLS) technique was used in obtaining the numerical estimates of the coefficients in different equations using e-views. The OLS method is chosen because it is the best linear unbiased estimator. The estimation period cover 1993 to 2013.

The data for this study was obtained mainly from secondary sources, particularly from Central Bank of Nigeria (CBN) Statistical Bulletin, CIA fact fish and NNPC statistical bulletin. We adopt two stage methodologies in this study. First the stationary status of the data series was examined using Augmented Dickey Fuller unit root test. This is followed by Johansen cointegration test.

Research design is the structure and strategy for investigating the relationship between the variables of the study. The research design adopted for this work is the experimental research design. The reason is that experimental research design combines the theoretical consideration with empirical observation. It enables a researcher therefore to observe the effects of explanatory variables on the dependent variables

3.2 The Structural Regression Model

This section is preoccupied with the formulation of an appropriate model, which theoretically establishes the relationships between our petroleum variables and SMEs development variable. For this purpose, the equation below have been formulated and simultaneously analyzed:

$$SMEG = f(PP, IMP, DPP) \text{--------} 1$$

Specifying equation (1) in an exponential regression model, we have;

$$SMEG = \phi PP^{\beta_1} IMP^{\beta_2} DPP^{\beta_3} e^{\mu_t} \text{-------} 2$$

In this form, the coefficients $\beta_1, \beta_2, \beta_3$ can be directly estimated by applying log-linear regression techniques via logarithmic transformation; and those coefficients will be the elasticities. Taking natural logs of both sides of the equation, we have:

$$\ln SMEG = \ln \phi + \beta_1 \ln PP + \beta_2 \ln IMP + \beta_3 \ln DPP + \mu_t \text{ -------3}$$

Where;
ln= Natural logarithm
ϕ = is the autonomous parameter (or the intercept)
SMEG **=** SMEs contribution to GDP
PP **=** Petroleum price
IMP **=** Imported petroleum
DPP **=** Domestically produced petroleum
μ_t = represents the stochastic error term.

4 RESULTS AND DISCUSSION OF EMPIRICAL FINDING

4.1 Unit Root /Stationarity Test Results

Macroeconomic time series data are generally characterized by stochastic trend which can be removed by differencing. Unit root test therefore is a test of stationarity or non-stationarity of series data used in the model. This is to find out if the relationship between economic variables is spurious or nonsensical. This test is conducted by adding the lagged values of the dependent variable so that the error term is serially uncorrelated. Thus, this paper used or adopted Augmented Dickey-Fuller (ADF) Techniques to test and verify the unit root property of the series and stationarity of the model.

The result is presented in Table 4.1 below.

Table 1 **Summary of Unit Root Test Results**

Variables	**ADF Test Statistic(at first difference)**	**Order of Integration**
SMEG	-6.075895(-4.284580)*	*I(1)*
PP	-12.01805(-4.374307)**	*I(1)*
IMP	-3.693498(-3.622033)**	*I(1)*
DPP	-5.929077(-4.296729)*	*I(1)*

Source: Authors Computation, 2014 (Eview-7): Note: (a) MacKinnon critical values for the rejection of hypothesis of unit root are in parenthesis in Columns 2 and the tests include intercept and trend; the star imply 1%,and 5% level of significance.

As shown in Table 4.1, the ADF unit root tests indicate that the null hypothesis of unit root is rejected at first difference for two of the variables at 1%level of significance, with the exception of PP and IMP which were found stationary at 5%(ADF). Thus all the variables are stationary at first difference as the case may be. The stationary values shall be used for the analysis.

4.2 Co-integration Test

If two or more time series are not stationary, it is important to test whether there is a linear combination of them that is stationary. Economically, variables are cointegrated if they have a long term, or equilibrium relationship between them. It is a pretest to avoid spurious regression situations. It is possible for a combination of some series to achieve long run equilibrium; although they may be individually non-stationary. This phenomenon is referred to as the test for cointegration(Gujarati and Porter, 2009). The evidence of cointegration implies that there is a long run relationship among the variables

Table 2 **Results of Johansen Multivariate Cointegration Test**

Date: 10/18/14 Time: 14:20
Sample (adjusted): 1993 2013
Included observations: 33after adjustments
Trend assumption: Linear deterministic trend
Series: SMEG, PP, IMP, and DPP
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.683043	58.58979	47.85613	0.0036
At most 1	0.321893	22.97109	29.79707	0.2475
At most 2	0.293778	18.92916	15.49471	0.0159
At most 3	0.004717	0.146576	3.841466	0.7018

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.683043	35.61870	27.58434	0.0038
At most 1	0.321893	12.04194	21.13162	0.5435
At most 2	0.293778	17.78258	14.26460	0.0654
At most 3	0.004717	0.146576	3.841466	0.7018

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Authors Computation, 2014 (Eview-7)

The Johansen cointegration test results (both the trace test and the maximum eigenvalue test) show that the variables are cointegrated. Therefore we will conclude that there is a long-run or equilibrium relationship among PP, IMP, and DPP

4.3 Analysis of Findings and Policy Implications

This section is pre-occupied with the presentation of result and interpretation of the empirical results. From our earlier stated regression model, we have:

$$\ln SMEG = \ln \beta_0 + \beta_1 \ln PP + \beta_2 \ln IMP + \beta_3 \ln DPP + \mu \text{ ----------3}$$

The regression result is presented in table 4.3 below:

$$SMEG = -0.82 - 2.46PP - 0.19IMP + 0.44DPP \text{ ----------4}$$

$SEE =$ 0.06 1.26 0.11 0.12
$t* =$ -0.12 -1.95 -1.67 3.40
$F* =$ 6.92; Prob(F-statistic)=0.28
$R^2 = 0.97; Adj.R^2 = 0.83$
$DW = 2.01$

The F-statistics examines the overall significance of a regression model. Therefore, by examining the overall fit and significance of the model, it can be observed that the model does not have better fit, as indicated by a lower value of the *F*-statistic, 6.92 and it is insignificant at the 5.0 per cent level. That is, the F-statistic value of 0.28 is greater than 0.05.

The R^2 (R-square) value of 0.97 shows that the model has a very good fit. It shows that proper variables capturing the activities of the petroleum and SMEs sector was utilized. It indicates that about 97 per cent of the variation in SMEs growth is explained by petroleum price, imported petroleum and domestic petrol production, while the remaining unaccounted variations of 3percent are captured by the error term.

Durbin Watson statistics is used to test for the presence of autocorrelation. The model also indicates that there is no autocorrelation among the variables as indicated by Durbin Watson (DW) statistic of 2.01. This shows that the estimates are unbiased and can be relied upon for policy decisions.

Studying the regression model, it could be observed that PP is statistically insignificant and more so contributes negatively to the growth of SMEs in Nigeria. It shows an increase in petroleum price dwindle the performance of SMEs in the country. Most time when government increases the price of premium motor spirit (PMS), it normally altered or causes fluctuation to supply and distribution of the product. The marketers tended to gain more during this period thereby causing artificial scarcity of the product throughout the country. This is in-line with the findings of Adeleke(2012) who stated that price increase of PMS leads to increase in cost of production and distribution of other commodities including agricultural products. The findings revealed that most prices of other commodities skyrocketed as transportation fare rose during price increase of PMS. Local manufacturers and farmers had to pay more for transporting their goods and services to the markets; this resulted in increase in price of PMS which caused increase in transportation fare thereby leading to increase in the cost of commodities. The function thus shows that a 1percent increase in petroleum price (PP) decreases the growth of SMEs by 2.46percent. This is consistent with findings in previous studies such as Arenze (2011), Ougunbodede, Ilesanmi and Olurankinsa (2010) who have also posited that incessant price hikes of petroleum products have led to crisis and industrial actions led by some pressure groups in Nigeria which has caused distortion in the SMEs activities of Nigeria overtime.

The imported petroleum (IMP) was also found to be statistically insignificant and contributed negatively to the growth and performance of SMEs in Nigeria. Due to the underproduction of the Nigerian refineries, the government had to resort to importation of the shortfall which also has its cost implications on its sales and distribution. The independent marketers cause an artificial scarcity after buying these imported shortfalls to make more gain. This explains why the IMP has had insignificant influence on the growth of SMEs in Nigeria. This collaborates with the findings of Arenze(2011) who noted that this slow movement of imported petroleum, coupled with the limited quantity transportable through tankers, created shortages, which caused long queues in filling stations across the country and bred black marketing, therefore made small scale businesses to pay exorbitant prices. The model thus showed that a 1percent change in imported petroleum dampens the growth of SMEs by 0.19percent.

Finally, only domestically produced petroleum (DPP) was found to be statistically significant and had contributed positively to the growth of SMEs in Nigeria. The function shows that a 1percent increase in domestic petroleum production increases the performance of SMEs in Nigeria by 0.44percent.

CONCLUSION AND RECOMMENDATION

The petroleum industry has grown steadily over the years to become the cornerstone of the nation's economy in recent times. Since the 1970s, the nation's crude oil Industry has contributed immensely to the government's revenue profile. In addition to dominating other sectors, the oil industry has accounted for the bulk of the nation's revenue and foreign exchange reserves. However, its displacement of SMEs as a major contributor to the growth of the economy has created structural imbalances for the economy, undermining economic performance and national development.

In Nigeria, the focus of the reform should be for the oil and gas institutional structures and regulatory framework to maximize the economic benefits of petroleum resources, which could enhance reduced cost of production and operations of SMEs. The policy should facilitate economic prosperity for small business growth in Nigeria through petroleum price reduction. The caveat issue to keep in mind is that the petroleum downstream sector deregulation ought to be deregulated in other to ensure production efficiency, effective and equitable, which could result in durable infrastructures and optimal petroleum pricing for sustainable SMEs development.

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DOES EVIDENCE CHALLENGE THE DSGE MODEL?

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ABSTRACT

DSGE are for a time the favorite models in the simulation of monetary policies at the central banks. Two of its basic assumptions are discussed in this paper: (a) the absence of endogenous nonlinearities and the exogenous nature of shocks and (b) the persistence of or the return to equilibrium after a shock, or the absence of dynamics. Our analysis of complex financial markets, using historical data of S&P500, suggests otherwise that financial regimes endogenously change and that equilibrium is an artifact.

KEYWORDS

Market Crises, Stochastic Geometry, Efficient Market Hypothesis, General Equilibrium, Financial Markets.

JEL Codes

C19, C49, C69.

INTRODUCTION

A founder of modern approach to General Equilibrium economics, Kenneth Arrow, suggested almost twenty years ago that the standard models were deficient and falsified by the real dynamics of several markets, such as the labor market and the financial market. In particular, he emphasized the "excess volatility of share, oil, metal and other mineral prices, which is hard to explain as movements in expected discounted values of future prices" and "as for share prices, there are a number of other difficulties in reconciling the actual course of prices with any form of rational expectations. In particular, the observed data on neither the excess return on equities compared with bonds nor the volume of trading on securities (and other financial markets) can be explained in these terms" (Arrow, 1994). This paper addresses these difficulties considering the contemporaneous standard approach used by central banks to model macroeconomics, which combines the real business cycle theories with the Keynesianism view of price rigidities, resulting in the New Keynesian Perspective (Clarida et al, 1999) or New Neoclassical synthesis (Goodfriend and King, 1997).

Within this approach, Dynamic Stochastic General Equilibrium (DSGE) models present simple stochastic processes and impulse reaction functions to some shocks. They became popular among academics but particularly among researchers at central banks because monetary policy decisions

appear in the DSGE as instruments, in contrast with classical models were monetary policy is assumed to be of no relevance to real activity fluctuations.

The importance of DSGE models has been widespread among decision markers who rely on this type of models for monetary and fiscal guidance. Although DSGE models have been developed with important realistic features compared to Keynesian models or to neoclassical general equilibrium models (as it is the example of sticky prices, monopolistic competition in the goods market, intertemporal budget constrains) there are several assumptions that are far from reality and bear important implications (Leijonhufvud, 2009; De Grawe, 2010).

In this paper we challenge two of the DSGE assumptions, (a) the absence of endogenous nonlinearities and (b) the persistence of equilibrium or the absence of dynamics, and argue that evidence falsifies both.

The DSGE model

In DSGE models shocks are exogenous (Leijonhufvud, 2009; De Grawe, 2010). The model is composed by a state of functions working in a steady-state growth, and conditions are imposed to the coefficients for determinacy of equilibrium. Besides the equilibrium process, some shocks might be introduced and the model is deemed to absorb the shocks until the equilibrium path is recovered in the former way or in a different but still in an equilibrium path. Shocks are presented in the most equations of the model, because it is the element that brings dynamic to the system. One of the shocks is the cost-push, which shifts the aggregate-supply relation, and affects consumers' utility function. The typical formalization of the aggregate-supply relation in each period is (Woodford, 2003):

$$\prod(t) = kX(t) + bE(t)\prod(t-1) + \mathrm{u(t)}$$

where $\mathrm{u(t)}$ is an exogenous cost-push shock.

This is an unanticipated shock, but in any case, the economy's state contingent evolution must satisfy the condition that allows for a determinate equilibrium. The model does not analyze the different nature of the shocks, but the different reactions of it in the case of optimal policy commitment or in the case of discretionary optimization, resulting from the fact that in the first the model is history dependent while in the second it is forward looking.

The absence of financial markets dynamics results from the fact, as Solow (2008) points out, that the same model is valid in different time horizons, as there is no distinction between short run and long run. In fact, besides from the exogenous shocks, the model does not take into account any turmoil. The model assumes data as a result of a data generating process, i.e. it is assumed that empirical data is the result of the model and thus disturbances are a random walk. This confusion between the theoretical representation and the empirical variables contributes to the absence of empirical dynamics with no regret.

In the presence of the financial turmoil in 2007, some models tried to circumvent the lack of dynamics and increased the role given to financial variables. For instance, stock prices were, in some cases, introduced as an exogenous cause of friction to the monetary policy objective. Christiano et al (2011) deal with the impact of stock prices in inflation, and conclude that if inflation is low during stock market booms and if the interest rate rule is too narrowly focused on inflation it will destabilize asset markets and broader economy. This is in line with previous literature, as in Bernanke and Gertler (1999, 2001). However in Bernanke and Gertler stock prices

are observed as the result of monetary policy and an undesirable source of inflation. Using data from the US and Japan in a standard New Keynesian (NK) model, the authors conclude that inflation targeting may destabilize a boom: monetary policy is in part responsible for at least some booms by responding to the fall in inflation with interest rate cuts. The robustness of results was tested with a medium-size NK model that incorporates capital and various frictions, according to the business cycle data. In the same line, the model by Gust and López-Salido (2009) is consistent with the evidence that unanticipated changes in monetary policy have important effects on equity prices through changes in risk. In this model, households rebalance their portfolio according to the economy's risk, and because monetary policy affects equity premium it affects household rebalancing and consumption and investment decisions.

Based on a demand approach to the stock prices affecting real economy, Castelnuovo and Nisticò (2009) have shown evidence of a significant role of stock prices on business cycle. In this standard DSGE model, a stock-price gap is built to measure the financial slack in each period. It is calculated as the percent deviation of the real stock-price index from its frictionless level relevant for monetary policy, the latter being consistent with equilibrium with no dynamic distortions. As it captures the cyclical nature of stock prices, and being statistical significant, it is an important variable in the monetary policy decision. In this model, stock prices induced by a financial shock affect the whole economy, although the effect on the output gap is not straightforward. In the case of a stock-price boom, there is a positive effect through the wealth effect on consumption but also an indirect effect on the induced variations in the interest rate. This indirect effect has an opposite direction, as the effect of rising interest rates is contractionary on current output due to consumers' intertemporal substitution effect. The net effect depends on the relative strength of the two, although empirically it turns to be that the direct effect dominates. The output gap tends to be positively influenced by a financial shock, although moderately. In Nisticò (2011, 2012) the effect of stock price dynamics in wealth is seen as an additional dynamic distortion. It concludes that some fluctuations in output and inflation may be optimal as they reduce volatility of financial wealth.

This is in line with central banks concerns on financial stability, and increasingly authors have been considering financial stability as an independent target of a welfare-maximizing central bank. The link between financial assets and monetary policy has been more explored since the financial market distress in 2001. Some results reveal that monetary policy might be improved, in the sense of approaching to the optimal, if macroprudential concerns are taken into account. In this line, some studies introduce financial asset prices dynamics, and as they turn to be relevant it shows that they are not just relevant as affecting consumer prices, but they have an active role in determining business cycle. Lambertini et al (2011) developed a DSGE model where the central bank has macroprudential concerns, testing if the monetary authority should react to housing prices or credit growth movements to avoid boom-bust cycles in the financial market. They conclude that a higher level of welfare might be reached if monetary policy responds to financial conditions.

Also in line with financial distress has been the concern over international financial integration. Milani (2011) suggests a bilateral financial linkage analysis that exposed important cross-border wealth effects. The empirical study revealed that Ireland, and at a lesser extent Austria, revealed a cross-border wealth effect: changes in international stock prices (US and UK stocks) have an important impact on the economies' aggregate consumption and real activity.

These developments stress the importance to take into account the dynamics of financial variables. The general equilibrium path might be affected by the stock prices dynamics, but DSGE models do not consider the endogeneity of its dynamics. Our results suggest otherwise.

The model

The strategy of measurement of the space of the financial market is simply stated in the following terms. From the set of returns of the stocks and their historical data of returns over the time interval, and using an appropriate metric (Mantegna, 1999, 2000), we compute the matrix of distances between the stocks. Considering the returns for each stock,

$$r(k) = \log(p_t(k)) - \log(p_{t-1}(k)) \tag{1}$$

a normalized vector

$$\vec{\rho}(k) = \frac{\vec{r}(k) - \left\langle \vec{r}(k) \right\rangle}{\sqrt{n\left(\left\langle \vec{r^2}(k) \right\rangle - \left\langle \vec{r}(k) \right\rangle^2 \right)}} \tag{2}$$

is defined, where *n* is the number of components (number of time labels) in the vector $\vec{\rho}(k)$. With this vector one defines the distance between the stocks *k* and *l* by the Euclidian distance of the normalized vectors.

$$d_{ij} = \sqrt{2(1 - C_{ij})} = \left\| \vec{\rho}(k) - \vec{\rho}(l) \right\| \tag{3}$$

with C_{ij} being the correlation coefficient of the returns $r(i)$, $r(j)$.

As the distance is properly defined according to the due metric axioms, it is possible to obtain, from the matrix of distances, the coordinates for the stocks in a Euclidean space of dimension smaller than N. The standard analysis of reduction of the coordinates is applied to the center of mass and the eigenvectors of the inertial tensor are then computed.

The same technique is also applied to surrogate (time-permuted and random) data, namely to data obtained by independent time permutation for each stock, and these eigenvalues are compared with those obtained from actual data in order to identify the characteristic directions for which the eigenvalues are significantly different. They define a reduced subspace of dimension f, which carries the systematic information related to the market correlation structure.

This corresponds to the identification of empirically constructed variables that drive the market and, in this framework, the number of surviving eigenvalues is the effective characteristic dimension of this economic space (f). This procedure is the key for the following method, since it allows for the consideration of populations of hundreds of stocks, given that only a very small number of coordinates describing their distances is used in the computation of our measures of the multivariate space.

The new axes

After calculating the one-day returns for each of the companies and taking a time interval ΔT, the vectors r(t) are defined with coordinates corresponding to the returns of each company in each day t of the chosen interval Δt.

$$\vec{\rho}(t) = \frac{\vec{r}(t) - \left\langle \vec{r}(t) \right\rangle}{\sqrt{n\left(\left\langle \vec{r^2}(t) \right\rangle - \left\langle \vec{r}(t) \right\rangle^2 \right)}}$$

where n corresponds to the length of the vectors r(t), that is, to the number of companies.

Then, the distance between day t_1 and t_2 is computed as

$$d_{t1,t2} = \sqrt{2(1-C_{t1,t2})} = \left\| \vec{\rho}(t_1) - \vec{\rho}(t_2) \right\|$$

$C_{t1,t2}$ being the correlation coefficient between the daily returns in t_1 and t_2, using a time window of n companies.

In so doing, the difference from the original method is the exchange (switching) of the space and time axes. As a consequence, each point in R^{t-1} now represents a position in the set of companies in each of the days of the chosen time interval.

One can then follow the evolution of the market over time and investigate whether there are important variations in the geometric representation of the days of crisis or its predecessors.

The points in the cloud no longer represent individual companies but each of the days in the chosen interval.

In order to quantify the extent of the flights in each market space, we measure its corresponding Spread as the difference between the maximal and the minimal distance in the 3-dimensional space:

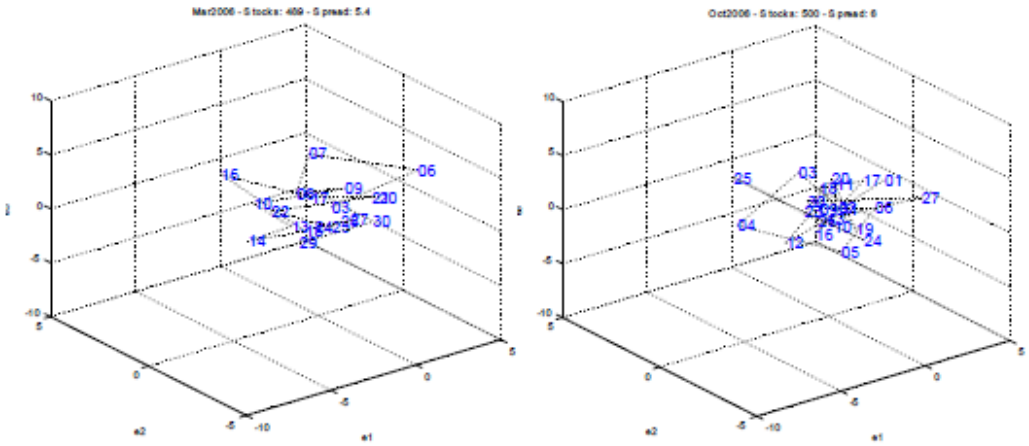
$$\text{Spread} = \max\{d(t_i),(t_j) - \min(d(t_i),(t_j)\}$$

This method allows for a description and measurement of the dynamics of the market in the different periods of time we consider.

Preliminary results

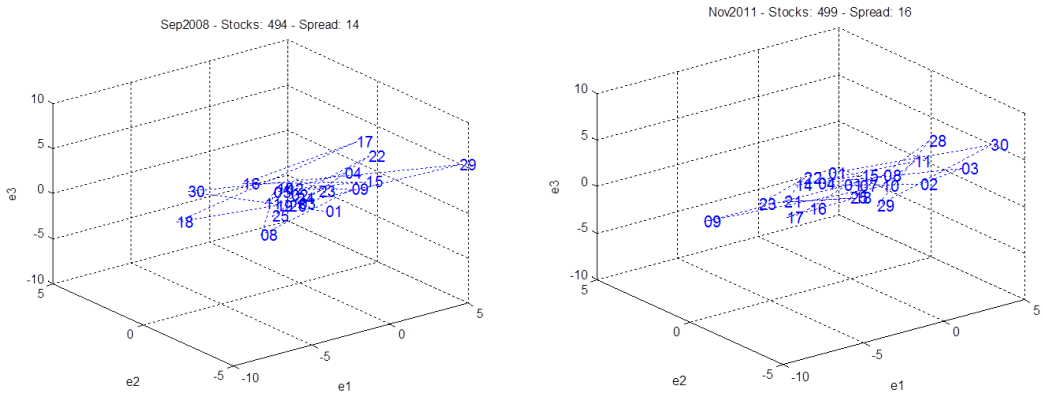
Figure 1 shows the market space obtained for March and October 2006, two periods of business as usual. In both cases the flights away from the core are hardly noticeable, being the corresponding spreads are 5.4 and 6, respectively. This is used to compare the periods of normal trade with those of crashes and large perturbations in the stock market.

Figure 1 **Hardly noticeable flights: Mar.2006 and Oct.2006.**



Instead, the first plot in Figure 2 shows the geometrical spaces built from daily data of September, 2008. In this case the flights away from the central core of data are more prominent and involve a greater number of days around the most critical days. As a consequence, the value of Spread is larger than in the previous example of business as usual periods, as expected.

Figure 2 **More prominent flights in Sep. 2008 and Nov. 2011.**



A similar result can be observed in the second plot of Figure 2, where the 22 business days of November 2011 were considered to built the geometrical space. Being more prominent, those geometrical spaces display high Spreads values of 14 and 16, respectively.

The plot in Figure 3 - showing the geometrical space built from a 22-days window around the first Black Monday, 1987 - shows that he bulk of the data consists of a central core of small fluctuations with a few large flights away from this center. This is the typical description of events in the case of large crash. These few large flights correspond precisely to the day of the crisis, one day after and one day before.

Figure 3 **The large flights on the 1st Black Monday.**

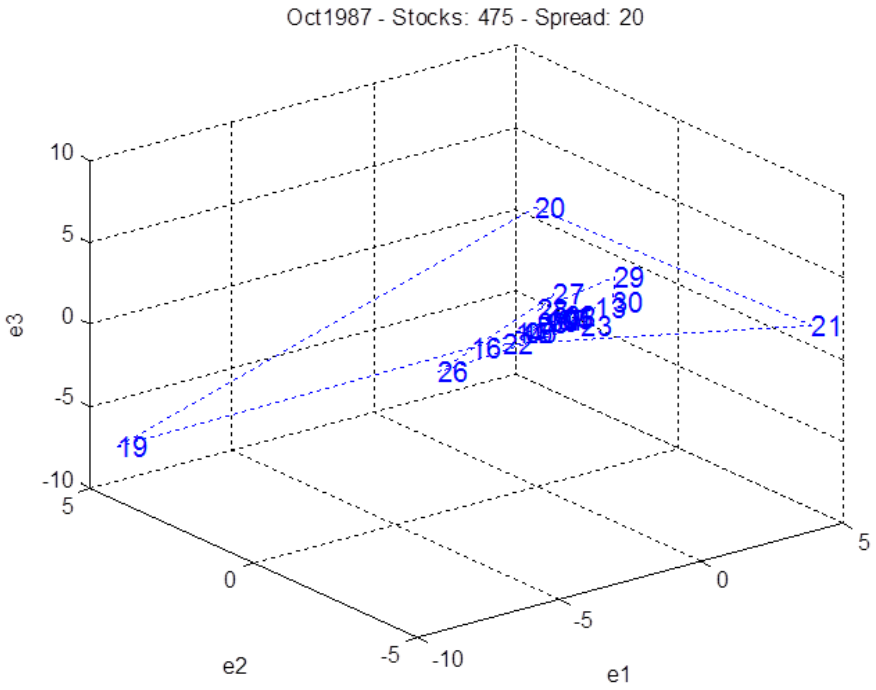
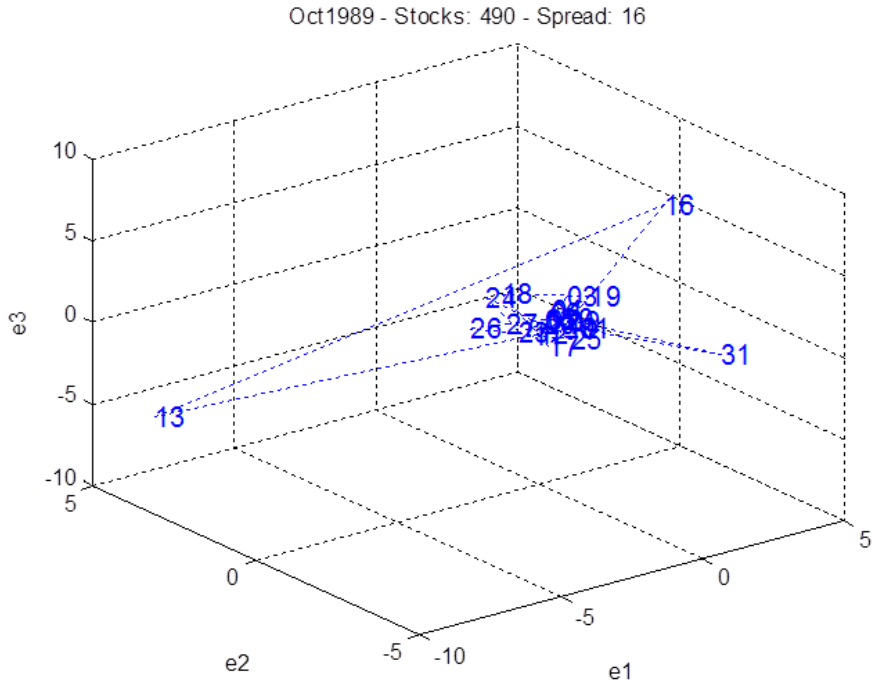


Figure 4 **Big flights in October, 1989.**



The Spread of the market space obtained in this example reaches the high value of 20, emphasizing how distances among days expand in periods of crash and turbulence.

A result similar to the one presented in Figure 3 can be observed in the plot of Figure 4, where the 22 days around the October 13, 1989 (when the US stock market fell almost 7%) were considered in the building of the geometrical space. In this example, besides the critical days (13 and 16) the flights away from the central core of data also involve a day (31) far from the epicenter of the crisis. The corresponding Spread value is 16.

A measurement of regime changes

In this section, we add a second dimension to this discussion of the assumptions of DSGE, considering now its statement on the persistence of or the return to equilibrium after a shock, or the absence of dynamics. Although evidence from the long series describing the financial markets is quite well known, for the purpose of this argument we simply evoke the measurement of the long term dynamics.

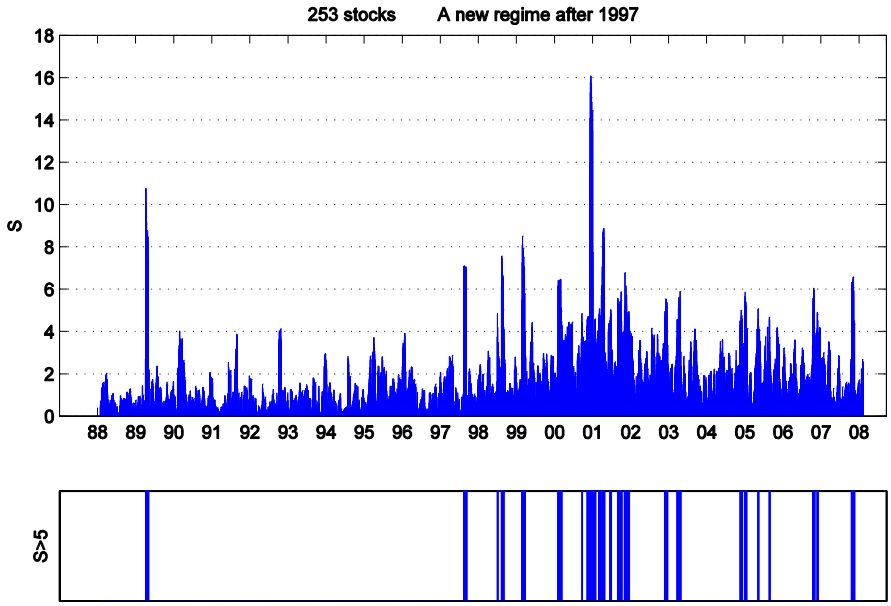
In that sense and based on the previously outlined definitions, we state S as:

$$S_t = \sum_k \lambda t(i) / \lambda^* t(i)$$

Where $\lambda t(i)$ are the largest d eigenvalues of the market space and $\lambda^* t(i)$ are the largest d eigenvalues obtained from surrogate data, namely from data obtained by independent time permutation of each stock. In computing S, at a given time t, both $\lambda t(i)$ and $\lambda^* t(i)$ are obtained over the same time window and for the same set of stocks.

S is therefore a measure of the aggregate dynamics of the market. For a long term perspective, the plot presented in Fig. 5 summarizes our findings on the evolution of the S.

Figure 5 **The Structure index S.**



The graph also indicates those crashes that imply an S larger than 5. This seismography highlights how a new regime emerges after 1997, with larger current values of S and more frequent crash episodes. This confirms the larger consensus in the literature about the changes of the stock market through time.

CONCLUSION

Two of the core assumptions of DSGE were scrutinized in this paper: the assumption of exogeneity of the shocks, and absence of endogenous perturbations, and the assumption of a return to equilibrium after the dampening of the effect of the shock. Confronting such hypotheses with the real dynamics of the financial market as described by the historical series of the S&P500, we find evidence for rejecting both.

A stochastic geometry technique is used to describe the pattern of change through different periods of time. We found that in normal periods of trade the geometric object formed by the distances among the firms and their time patterns is clustered and the dispersion is very limited, unlike what happens in periods of turmoil - a large spread is registered then. We measure this spread for several periods of crashes and interpret these perturbations as part of the financial process itself, from the action of the agents and their decisions.

Furthermore, we found that regime changes may emerge as the market is organized after the shocks. This obviously the case of the impact of modifications of the global market and the regulation procedures since the early 1980s. In both cases, we find evidence to challenge the standard assumptions of the sophisticated DSGE models.

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INVESTMENT OF TEMPORARILY FREE RESOURCES OF CZECH SENIORS – PRESENT AND PERSPECTIVES

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ABSTRACT

The article deals with investment of Czech seniors into investment instruments. This article aims to find out how seniors invest in investment instruments in the Czech Republic and how much of their retirement they are willing to invest. The main problem that occurs in the investment environment in the Czech Republic is a reluctance to invest public investment. The result is the finding whether the seniors investors invest or not, including the introduction of new knowledge arising from research conducted at the chosen target group on the basis of the questionnaire survey. Investors in retirement are an important group of investors in terms of population, where their number is growing every year. The disadvantage of the elderly is often neglected investment company with regard to their age and income.

KEY WORDS

senior, income, age, investment instrument, model, investment.

INTRODUCTION

In the modern day, when the age boundary for old-age retirement has been pushed back, it is recommended that the current generation put aside part of their expenditures for investing in certain investment instruments. The reason for saving is to ensure respectable living conditions in old age after having finished an active working life.

One of the options offered to current as well as future senior citizens is to invest available financial resources in financial and real investments. Actualized investments can increase invested financial resources, which the investor can use for expenditures in old age or in the case of immediate need. It is assumed that resources that have been put aside will be used to preserve or increase the quality of living conditions via spa stays, travel or above-standard medical care, for example.

Current market conditions are not able to utilize the financial potential offered by today's senior citizens in the Czech Republic. Although this segment of consumers is not regularly engaged in employment, a certain percent does show willingness to further invest and increase the value of their available assets. Not utilizing this potential is the main problem arising from current market conditions. There are specific attributes that support this state, i. e., age and income.

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The goal of this article is to determine whether Czech senior citizens invest, if they are willing to invest, or any other possible factors limiting and discouraging investment. The main problem is not utilizing or appreciating the available financial assets that this segment has at hand. This is a segment of consumers which shows numerical growth each year.

It is necessary to start with the fact that certain senior citizens have just recently completed their active life and have spent part of their productive life within market conditions. Therefore, there is a definite assumption that they could have experience with investing, supported by the voucher privatization that the Czech Republic underwent in the 1990's. Empirical conclusions can be naturally supported by the success of implemented investment goals and further developments. On the other hand, voucher privatization and negative results from other implemented investment goals could actually discourage a large number of senior citizens for their entire lives.

A marketing research of a group of seniors living in the Czech Republic has been done to meet the established goals and to solve the main problem. Criterions of the research were predetermined.

1 THE SENIOR CITIZEN INVESTOR TITLE

In a number of advanced countries, this consists of key clients, because their number is growing, and it is expected that they will have a primary role on the market in the future, including determining trends. Nonetheless, this group of consumers is invariably omitted in certain countries with a developed market economy.

Riedl (2012, page 29) warns that a senior citizen is a customer for the future; he confirms this with seven statements aimed at marketing for senior citizens. This has been caused by societal development, which has affected certain sectors, e. g., products for children. Businesses that react in time to this population change gain a competitive advantage on the market. This statement is confirmed by Hartman, a manufacturer of children's diapers that experienced a market decrease in this specific segment. The company used the market's currently changing demographic conditions to its advantage and began to manufacture diapers for adults. *"Today, they sell 1.3 billion items a year, and, in 2015 at the latest, it will be two billion."*

Retirement is very important for senior citizens, because their living standard is dependent on this and, as a result, their willingness to invest. However, there are significant differences in retirement among senior citizens. These differences are caused by employment, profession, education and other factors which influenced the current amount of their retirement income.

Vlachynský (2013) points to differences primarily caused by economic inequality, though not only for senior citizens; he considers the influence to be mainly global risks from macroeconomic and microeconomic perspectives. From the macroeconomic perspective, this is the standard of a country's inhabitants, which is expressed predominantly by one indicator, i. e., GDP. The microeconomic perspective considers retirement inequality from within the context of the individual country.

1.1 Senior Citizen Investment in the Czech Republic[3]

In the Czech Republic, senior citizen investment is not widespread and is lacking any kind of conception for investing in the future. The negative stance towards investment is caused by a range of factors which reflect investment goals. One of these is voucher privatization, which, even today, arouses mostly resentment and disappointment in today's senior citizens. With respect to the fact that negative information spreads quickly and is passed from generation to generation, it is very difficult to compel current, or even future, senior citizens to invest, for example, in stocks. These words are confirmed by Sejkora (2013), who writes literally that society sees trading in securities and mostly with company stocks as wheeling and dealing not as a legal way to appreciate their available financial assets.

In contrast, Syrový (2012, page 37) emphasizes the risk that annuitants are exposed to when investing. One of these risks is the growth of living costs via inflation. For annuitants who are retired, expenses can increase on account of changes in their state of health, which can be supported by further cost increases dependent on special aids, nursing services, etc. Another risk is long life span. *"One of the options to protect against this risk is to arrange for insurance that guarantees that the insurance will pay a fixed annuity for the rest of a person's life."* The last risk is inefficiency and a decline in the markets, which creates fluctuation in property value. Therefore, it is good to create an investment portfolio that diversifies risk.

The greatest satisfaction in life for seniors is having a sufficient financial base including property; however, this satisfaction is supplemented by the specific senior citizen's education. When these attributes are fulfilled, it results in senior citizens having better psychological states and more active personal lives. (Bočková, 2011)

In fact, demographic studies and prognoses should become the trigger impulse for investing in the Czech Republic. This current state should create ways in society for citizens of all groups of all ages – from productive to senior – to invest. Not dealing with this imminent problem would be hazardous to the future of human kind in old age, which could lead to conflict between generations (Gruss, 2009). Dvořáčková (2012) builds on this theory, putting emphasis on possible changes in the Czech Republic's demographic structure during the next sixty years due to long lifespan and low birthrate. A number of authors, i. e., Bartoňová (2010), Klufová (2010) and Roubíček (1997), are concerned, either peripherally or in detail, with the problematic of demographic development, its situations and characteristics. Demography and an aging population proves to be a significant problem; the government has therefore created national programs for resolving the investigated problematic, e. g., the Czech National Programme of Preparation for Ageing of 2008-2012 (2008).

However, on the other hand, it is necessary to actively engage financial institutions in order to create an investment environment for the senior segment in the Czech Republic. This is confirmed by Tůmová (Peníze, 2009), who says that the two million citizens here older than 60 is naturally a small investment base for monetary institutions on the Czech market. Despite this, certain of these institutions already offer products directly made for pensioners, i. e., Komerční Banka, which offers the PROGRAM SENIOR package. A number of banks admit that special products for senior citizens tend to be lacking. (Bankovní poplatky, 2012)

Savings appears to be another insufficiency, because a majority of income is absorbed by necessary expenses. If it is still possible for an individual to put aside a part of their expenses for savings, the

[3]There is a lack of literary sources directly focussed on investment of senior population. That is the reason why mainly Internet sources, which are not completely sufficient too, are used in the article.

amount does not regularly exceed 1,500 CZK per month, as shown by the Deposit Insurance Fund's research. (Investujeme, 2013) Although small amounts remain for seniors to invest, professionals exhort Czech senior citizens to invest boldly and thereby increase their savings. Czechs of retirement age are much more careful with their investment goals; this is seen in the fact that they invest in low-interest investment instruments. (Idnes, 2013)

When a senior citizen is financially secure in old age, they are able to utilize high-quality services offered on the market. The current day offers business opportunities in sectors aimed at senior citizens, because it is assumed that most of them will use their savings to live out the rest of their lives under dignified conditions. (Podnikatel, 2013) However, in order for seniors to live their lives under suitable living conditions, it is necessary for them to start creating savings and investing them in real and financial investments in time. (Polách, 2012)

1.2 Senior Citizen Investment in North America[4]

Other countries are also concerned with the problematic of the senior citizen population. North America was chosen to evaluate investment options, because the most developed form of capitalism can be found here, namely in the United States of America. Although Canada and the USA are countries that have been long founded on market principles of economic development, even these countries deal with certain problems similar to those senior citizens encounter in the Czech Republic – senior population growth, investment, eliminating fraud, etc.

In Canada, they warn of the problematic of citizens that were born between 1946 and 1964, because these represent the largest group of investors. In the next decade, it is expected that senior citizens will control 70% of investment activities in this country, and, in 2030, it is presumed that they will represent 20% of the overall population of Canada. Here, the problematic is further examined so that this segment of consumers does not become victims of financial fraud such as, for example, a Ponzi scheme. (Canadianmoneysaver, 2014) It is recommended that Canada's aging population invest in the following investment instruments, i. e., bonds, guaranteed investment certificates, dividend stocks, annuities and stocks. (Canadianliving, 2014)

In contrast to this, citizens are able to have retirement income from more sources in the USA; most commonly, these are social security, income from savings, investment and part-time employment. The average income in retirement from these activities reached 31,742 USD in 2012 and concerned citizens 65 and over. If an American senior citizen does not have sufficient financial resources from the above options, then it is recommended that they stay employed part-time in order to preserve living standards. (Money Retirement, 2014) Other areas where seniors are recommended to invest are gold futures, coins or bars as well as government bonds, which have a reliable government rating. Because senior citizens are limited by age, it is therefore good to invest in short-term investments such as certificates of deposit or money market funds. (Caregivers, 2014) Another safe investment recommended for American seniors is certificates of deposit, because they are completely insured and protect this group of investors against loss of principal, interest and even against bank collapse. Treasury securities continue with this type of investment; they are similarly supported by the US government and are considered the safest investment. The last type recommended for senior citizens are GNMA (Government National Mortgage Association) bonds – a type of bond that is covered by mortgage loans and is also supported by the US government like the previous two investment instruments; these are thus very safe sources of income not only for seniors. (Ehow, 2014)

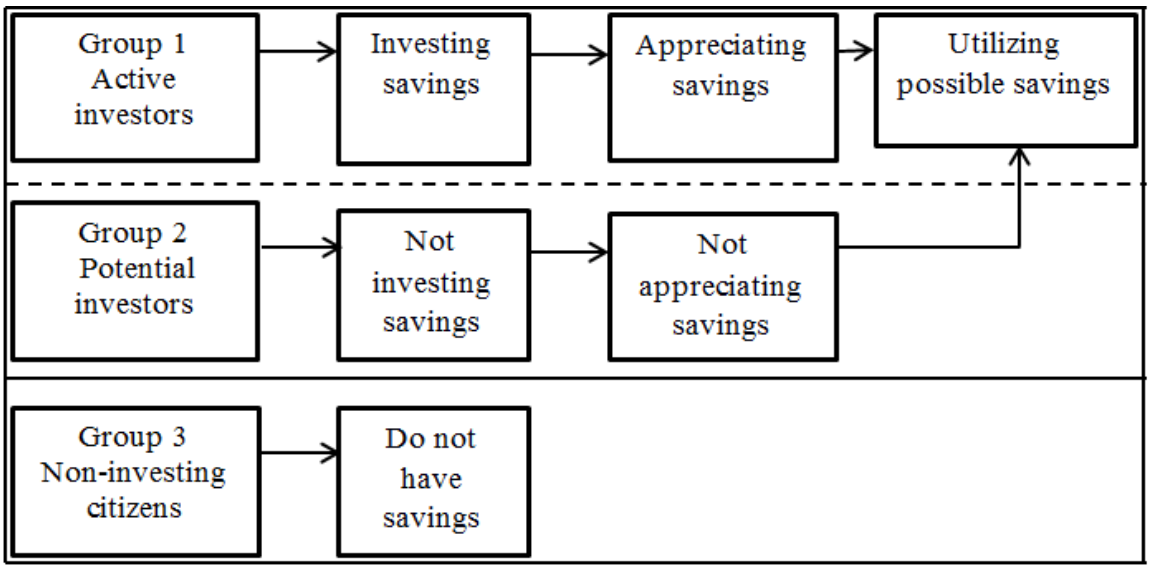
[4]As well as in the Czech Republic, there is a lack of foreign-language literature dealing with matters of investment of seniors abroad, therefor only internet sources are used too.

The USA is considered the country with the most highly developed form of market capitalism and thus also financial services provided. The senior population segment is not forgotten here, which a range of companies can attest to. The problematic is supported by publishing activities, including informational websites concerned with investment, such as ECONOMICTIMES (2010), MONEYOVER55 (2014), BUSINESS STANDARD (2013) and SENIOR LIVING (2014). An important document for senior citizens on the American financial market is the Guide for Seniors: Protect Yourself Against Investment Fraud, which protects senior citizens in the field of financial investment and which precisely describes: how not to become a victim of financial fraud, what the most common forms of fraud are, when to turn for help, etc. (SEC, 2014)

2 RESEARCH METHODOLOGY

For determining the conditions and options for Czech senior citizen investment, research was conducted at the beginning of 2014. The research concept came out of current theoretical and empirical findings relating to the problematic of senior citizen investment. The senior citizen population segment was chosen for research purposes, because this is the segment of the future, mainly because of the number of residents and the assets generated. Scientific methods were specified for preparing the research and model construction. The main method was analysis, which was used for background research of literature related to the investigated problematic concerning investing in investment instruments. A survey with questionnaire was part of the research. The senior segment was chosen according to previously established criteria, and it was used for conducting empirical research; quantitative research built on this to confirm or overturn the set hypothesis. Another method used was modeling, resulting in the creation of a model – Senior Investment Potential; it can be used during decision-making by company management as depicted in Fig. 1. The principles of logic and logical thinking were also used when conducting research and evaluating results, data and the proposed model.

Figure 1 **Senior Investment Potential**



(Source: Own*)*

As seen from the model, the first group is composed of senior investors who actively use their saved financial assets allowing them to further appreciate, thereby generating their own assets. The second group is composed of potential investors who do not use their investment potential to generate

further assets for themselves. The goal is to get these investors into the model's first group so that they can evaluate their investment options. The last group is composed of non-investing citizens who do not have savings. The possibility of enabling these citizens to get into the higher groups is very small. As a rule, these people are limited, for example: by serious disease, executions or low old-age pension. Therefore, they are designated as non-investing citizens in the model.

3 THE CHARACTERISTICS OF RESEARCH CONCERNING SENIORS

First, criteria were defined for the conducted research. Age, residence, citizenship and territorial specifications were included. The condition for including respondents in the research was that they fulfill the listed criteria, i. e., receiving an old-age pension, being 60 years or older and being a Czech citizen with permanent residence in the region of Svitavy. After establishing the criteria, the sample number of respondents was calculated according to the formula for an unknown composition of respondents presented by Kozel (2006).

$$n \geq \frac{z^2 \times p \times q}{\Delta^2} \qquad (1)$$

where n - is the minimal number of respondents

p and q - are the number in percentages of respondents familiar with the problematic, i. e., tending towards the first variant (p) and unfamiliar, i. e., tending towards the second variant (q); if this number is not precisely known, we must make the maximum product of p x q, therefore 50% x 50%,

□□□□is set by us as maximum permissible error

z - is the critical value of normalized normal distribution at the chosen level of significance.

For calculation of the minimum sample size, reliability was set at 90%, where we find the selected quantile of normalized normal distribution for construction as 90% of the confidence interval value at 1.645. (Hindls, 2006) Permissible error was set at 10%, and the following result was attained on the basis of this data:

$$n \geq \frac{1.645^2 \times 0.5 \times 0.5}{0.1^2} \qquad (2)$$

$$n \geq 67.65$$

On the basis of the calculation, it is necessary that a minimum of 68 or more respondents participate in the research according to the established criteria. The research was conducted randomly with the help of a personal questionnaire from January to March 2014 and 97 corresponding questionnaires were received that fulfilled the specified criteria. The final number of correctly filled-in questionnaires was considered to be sufficiently representative, because the number was higher than the final result of the calculated sample for minimum respondent sample size.

3.1 Evaluating the Questionnaire

The questionnaire was composed of five parts. The first part was aimed at verifying the established criteria. One of these criteria was the respondent's age, and the questionnaire was divided into four groups according to age. Of the participating respondents, 32% were in the 60 to 65 age category, the 66 to 70 category had the same percent, i. e., 32%, the 71 to 75 group was 27%, and the least amount of respondents were in the category of 76 and above, i. e., 9%.

The second part was composed of questions where the seniors could express their personal opinion on investing without taking into consideration whether or not they invest. The first of the questions to which the seniors were able to respond was phrased in the following way: “Do you think that savings products are more appropriate for you than investment products?” The majority of the

respondents said yes at an overall relative response of 72%. Of these, they most frequently – 37% – chose the option that savings products are safer and have the option of depositing small and irregular monetary amounts; 20% added age considerations to this, and the last option was personal pension, which 15% of respondents chose. However, 28% of respondents listed a negative response to this question, because they leaned towards the option that each investment product has its own advantages and disadvantages. The second question relying on the respondents' opinion concerned financial and real investments. The question was worded in this way: "Do you prefer financial investments over real investments?" The option listed by the respondents with the highest number for this question was that it depends on the concrete investment at 38%, close behind this answer was that they preferred real investment at 37%, 21% recommended a combination of real and financial investments and 4% preferred financial investments.

The third part of this questionnaire was aimed at courses on financial investment for senior citizens. The first question in the third section verified personal experience with taking courses. The research question was phrased in this way: "In the past five years, have you taken any courses in investing?" At 94%, most answered that they haven't taken that type of course, 3% went only once, 1% went only twice, and 2% of respondents went more than twice. The next question tied in to this with respondents having to respond to the question: "What kind of professionals should lead courses specifically for seniors?" The senior citizens mostly preferred the combination of professionals from academia and companies concerned with this problematic at a rate of 49%, following this was professionals only from companies at 27%, from academia 23% and other areas 1%. The next question was aimed at respondents' willingness and travel distance concerning a free course in investing. The question was as follows: "Would you welcome a free course in investing?" Of respondents, 51% were interested if the distance was 20 km or less, 2% if it was 50 km or less and no respondents were willing to travel more than 50 km. However, this question was given a negative response, and a lack of interest in a free financial course was shown by 47% of respondents.

The next-to-last part of the questionnaire was aimed at missing elements in the investment environment and reasons for lack of interest, including financial fraud within the investigated group of respondents. The first of these elements concerned reacting to: "What do you feel is lacking the most within the Czech investment environment?" Investment products made specifically for senior citizens were lacking at 39%, a professional approach by firms at 18%, most respondents listed a combination of the previous questions (lack of products and firms' approach) at 41%, and only 2% listed other elements. Following up on lacking elements was neglect of the investigated group on the financial market: "Do you think that Czech senior citizens are neglected in the area of investing?" That they were overlooked because of age was listed by 24%, because of income was 13%, most frequently chosen was the preferred combination of age and income at 56%. Only 7% listed that they do not feel neglected in the area of finance. The last question in this part was aimed at financial fraud. The research question verified: "Have you ever been a victim of financial fraud in the past?" Experience with this base practice was listed by 14 % of respondents including 11% with loss up to 10,000 CZK and 3% with loss up to 50,000 CZK. None of the respondents listed loss above 50,000 CZK. However, 86% of seniors, the majority of the investigated group, listed that they had never been victims of financial fraud.

In the last section of the survey, questions were asked that had the purpose of testing the three set hypotheses. All the hypotheses mentioned were verified by the same test, including the same significance level – alfa 0.05. This was a one-sided hypothesis concerning relative frequency, where we want to determine whether the relative frequency is significantly greater than 0.5. (Pecáková, 2011)

$$U = (p - \pi o) / \sqrt{\frac{\pi o(1-\pi o)}{n}} \quad (3)$$

where n - is normalized normal distribution
p - is determined relative frequency from the sample
W - is the critical field (for □= 0.05): U□1.645

The data for the tested hypotheses are listed in Tables 1, 2 and 3, including the calculation and position for verification or refutation of the listed hypotheses.

Hypothesis 1
"More than half of Czech senior citizens have experience with investment in the past." For purposes of refuting or proving the investigated hypothesis, seniors were asked the following question: "Have you ever invested in investment instruments, e. g., stocks, bonds or share certificates?" Seniors were given a number of options for answering the research question; they are listed in Table 1.

Table 1 **Experience with Investment in the Past**

Experience with investing	Absolute frequency	Relative frequency (%)
Yes, in the past	47	**48**
Yes, I am investing currently	6	**7**
I have been considering doing it this year	0	0
No, I have never tried it	44	45
Total	**97**	100

(Source: Own)

$$U = (0{,}55 - 0{,}5) / \sqrt{\frac{0{,}5(1-0{,}5)}{97}} = 0{,}98 \quad (4)$$

The results of the test value U shows it to be smaller than 1.645, therefore, we do not dismiss H_0. We were not able to show that more than half of Czech senior citizens had experience with investing in the past. It is possible to state that the set hypothesis was not proven.

Hypothesis 2
"The majority of Czech senior citizens have financial resources for investing in investment instruments." The following question was posed to respondents for verifying or refuting the second hypothesis: "Are you able to set aside a monthly amount from your current personal pension or savings to put into investment instruments?" The respondents were given a number of options for answering the investigated question; results are listed in Table 2.

Table 2 **Investing Part of Personal Pensions and Savings**

Investment of pension and savings	Absolute frequency	Relative frequency (%)
Yes, up to 500 CZK	31	**32**
Yes, up to 1,000 CZK	30	**31**
Yes, more than 1,000 CZK	9	**9**
No	27	28
Total	**97**	100

(Source: Own)

$$U = (0{,}72 - 0{,}5) / \sqrt{\frac{0{,}5(1-0{,}5)}{97}} = 4{,}31 \quad (5)$$

The result of the test value U is greater than 1.645; therefore, we dismiss H_0 and accept the alternative hypothesis. We were able to show that the majority of Czech pensioners do have financial resources for investing and the set hypothesis was proved.

Hypothesis 3
"The majority of Czech senior citizens are mostly turned away from investment because of distrust – uncertainty about the investment environment supported by the occurrence of fraud and difficulty enforcing the law." For refuting or confirming the third hypothesis, respondents were asked this question: "What do you think drives Czech senior citizens away from investing in investment instruments?" The respondents were given a number of possible answers for the question, with the results listed in Table 3.

Table 3 **Factors Preventing Investors from Investing**

Factors preventing investors from investing	Absolute frequency	Relative frequency (%)
Distrust of the investment environment	48	**49**
Uncertainty of return on investments	22	**23**
Ignorance of the problematic of investment	18	19
Other life priorities – grandchildren, travel	9	9
Total	**97**	100

(Source: Own)

$$U = (0{,}72 - 0{,}5) / \sqrt{\frac{0{,}5(1-0{,}5)}{97}} = 4{,}31 \quad (6)$$

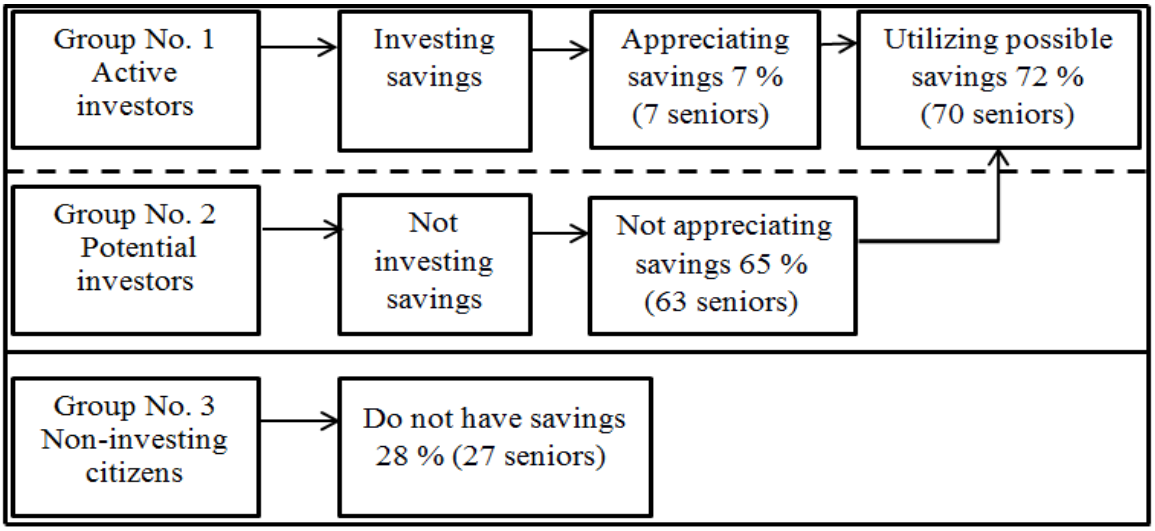
The result of the testing value U is greater than 1.645, therefore, we can reject H_0. We were able to show that Czech seniors distrust the investment environment including uncertainty of the return of investment in the Czech Republic. The set hypothesis was proved.

4 VERIFICATION OF THE PROPOSED MODEL

Verification of the Proposed Model – the Investment Potential of the Investor – is derived from Tables 1 and 2, which are listed and evaluated for Hypotheses 1 and 2. From Table 1, seniors who currently invest are important, at 7% of the investigated group; From Table 2, all data are used in relative terms, i. e., 32% of seniors willing to invest up to 500 CZK, 31% up to 1,000 CZK, 9% more than 1,000 CZK, and 28% not able to put aside a part of their personal pension or savings in to investment instruments.

We will use the present research and introduce the data gathered into the model, where we will assume that 7% of the investors who are willing to set aside more than 1,000 CZK are currently investing, see Table 1; they will be included in the model under Group no.1 among active investors. The other senior citizens who are willing to set aside part of their expenditures are included in the second group among potential investors including the 2% which stated that they put aside more than 1,000 CZK. The seniors who are not able to generate any savings are put into the last group in the model. The resulting data attained from the research are taken and applied to the model, which is depicted in Fig. 2.

Figure 2 **Applying the Model in Practice**

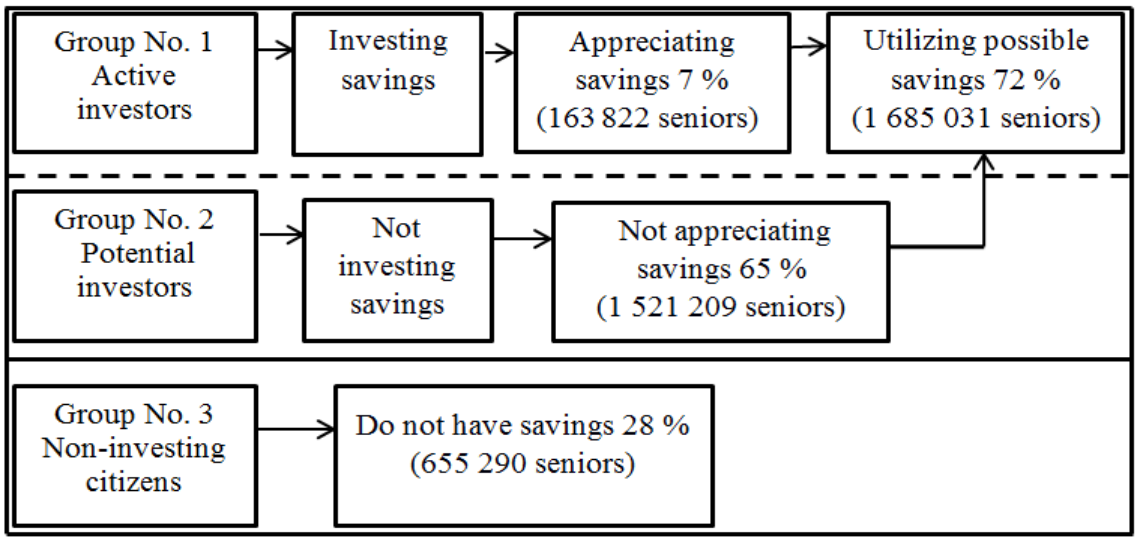


(Source: Own*)*

It is possible to express the results shown in the model in absolute values, where the most important is the second group of 63 seniors who do not use their financial resources. We can assume that the seniors in this group are willing to invest the average amount of 800 CZK per month. Thus, these 63 respondents are currently not investing the amount of 50 400 CZK per month, which totals 604 800 CZK per year. The amount was set on the basis of data from the research with senior citizens.

We can also apply the data attained from the research that is listed in Fig. 2 to the overall population of seniors living in the Czech Republic – 7% invest, 65% do not invest and 28% do not have savings. In the Czech Republic, the number of seniors receiving old-age pensions was 2 340 321 individuals as of Dec. 31, 2013. (ČSSZ, 2014) In Fig. 3, we see the model as applied to the overall population of senior citizens.

Figure 3 **Applying the Model for the Overall Population of Senior Citizens in the Czech Republic**



(Source: Own*)*

As in the research conducted, the second group is also fundamental here on a country-wide basis. It includes all potential investors and comprises the largest number of seniors, which totals 1 521 209 in absolute terms. The assumption is that these investors can likewise invest the same amount of 800 CZK that the respondents were willing to invest. The results show that 65% of Czech senior citizens do not use the overall amount of 1 216 967 200 CZK per month, which totals 14 603 606 400 CZK per year.

5 DISCUSSION

As it has already been stated in the introduction, in the matter of resources owned by Czech seniors, the demand and a serious bid are not in balance. Not only mentioned trauma of voucher privatization, but also contemporary developments in the economic area affect their "investment courage."

At the end of 2014 most banks operating in the Czech Republic gave its clients a Christmas "gift" in the form of a notice of interest rate cuts. Such minimal appreciation of classical banking products has been reduced to almost insignificant value. Appeasement for seniors may be perhaps the fact that bank deposits are insured and therefore they should not lose them.

After all, money saved “under the pillow” at home is not the safest way too. Banks offer mediation called "safe investment" in the funds that manage their" daughters". However, one question arises here, what do they expect the funds to benefit from when their "mothers" fail? The answer is simple because they have only two options: speculation or government bonds.

The first case is unacceptable for the seniors because they would incur the risk of losing what have left to them. If the funds tout that they are secured against debacle, then only by using of theirs or "mother's" reserves. Of course, such protection may end badly because one always earns over the other on the secondary market. The second case-the use of investments in government bonds - is currently more common, less risky, but also less profitable. The functioning of this procedure, however, depends on the state's ability to earn for revenues they have to pay. They must not do gradual "rolling" or breaking one wedge by another over the budgets of the coming years. But the seniors will hardly be interested in the indebtedness of the next generation.

The business environment in the Czech Republic is divided between large, medium and small businesses. Unfortunately, most of them are not tradable on the stock exchange and the largest ones, mostly owned by foreign companies, leave nothing by using of effective optimization, except for social security and health security.

These two categories are also problem in the Czech Republic, regarding the demographic trends the social one is not good enough and the health one is not good enough too considering the previous solidarity in the health system. Thus there is not where the money and capital markets invest in the Czech Republic. Perspective is identical to the current situation. That is why a number of various fund managers uses the opportunities offered by foreign financial markets. It is certainly possible, if not the correct procedure, reducing the risk according to Markowitz portfolio theory (to minimize the positive correlation between investments). There are, however, investors (our seniors), entirely in the hands of those who can read foreign markets and can (at least they think so) predict their movements. Anyway, most seniors are still not able to make their own investment choices and to take care of their resources regularly.

The problem is global economic development, which globalize rapidly and it causes that the mentioned necessary negative correlation gets cracked. There are more and more companies that

provide everything from raw material extraction to the final most complex products. Most of the state budget deficit is growing, not only in the EU. Thus an uncertain period is waiting for the seniors, regarding the multiplication of existing savings as well as the upcoming savings and the certainty of the primary resources.

If representatives of the Czech Republic together with investment companies do not start to deal with this matter to achieve savings being evaluated, there is a possibility that there will be more poor seniors because their savings will be devalued. These people cannot do without help from our state, which will burden the state budget. If we add demographic prognosis for the Czech Republic and EU, then young generation will not be able to support the seniors receiving an old age pension, which could lead to citizens at productive age leaving for countries where better living conditions than just to work for older citizens will be offered to them.

CONCLUSIONS

The research conducted using seniors has contributed new findings about this segment of investors. These findings confirmed or refuted the set hypotheses. The main finding resulting from the research was that the majority of seniors can put aside a part of their expenditures for investment but are not yet able to sufficiently use their investment potential. The proposed model confirmed this and was also applied to senior citizens on a country-wide scale.

The investigated sample of respondents represented 97 senior citizens; nonetheless, this research can be considered representative, because it was confirmed by the formula for an unknown composition of respondents. The limitations of the research can be seen in the fact that it covered only part of the Czech Republic's territory. In order to establish results with greater objectivity, it would be appropriate to expand the investigated sample to other parts of the Czech Republic. Therefore, the subject of further research will be to gradually expand the sample of respondents and thus attain results of a higher quality.

Professional literature primarily discusses and describes in detail demographic changes, social services, active aging and health care for senior citizens. However, the Czech market environment almost entirely lacks any type of description of investment products and strategies for appreciating available financial resources specifically for senior citizens. Omitting the senior segment is not directly on target with respect to their growing numbers in society, which was confirmed by the research conducted. The proposed model and its application in practice clearly demonstrate the substantiation and significance of this investigated segment, which is full of considerable financial potential. Advantages can be seen in the fact that most monetary institutions are not concerning themselves with this group of customers at all. This thereby creates business opportunities on the market for financial entities that can fill this market gap in time and utilize it to their own entrepreneurial advantage.

This problematic definitely deserves more attention not only in the area of theory but also in practical application. There are definite ways here to develop the investigated problematic to allow it to gain popularity at an investment firm. It is theoretically advisable for the expansion of the investing public to include senior segment investment in investment instruments to be supported by publishing activities relating to retirement-age investing. Investment entities having practical experience with investing seniors should supplement the quality of such publishing activities. It is also possible to conduct further marketing research for this segment of customers. The results of such research could bring new findings and thereby support the popularity of investment by senior citizens.

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HOW TO RECOGNIZE REVENUES FROM GROSS WRITTEN PREMIUM: SOME EVIDENCE FROM INSURANCE COMPANIES OPERATING IN CEE MARKETS

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ABSTRACT

The research objective of this paper is to compare the current approaches in reporting of gross written premium in selected Central and Eastern European countries. Under current Czech regulations, the gross written premium in majority of Czech insurance companies is charged under the payment method set in the contract (i.e. annually, quarterly, monthly, etc.), however revenues from gross written premium for the accounting period are always shown in the proper amount. Our research confirmed that presented information about gross written premium in various jurisdictions is based on different methodologies and proved that for the comparability of data and for their information capability there is crucial to develop a precise definition of gross written premium; only in such case there would be possible to ensure the credibility of statistical data. Using these incomparable data may lead in many cases to misleading conclusions when evaluating the level of insurance in various countries and regions.

KEY WORDS

insurance, gross written premium, life insurance, non-life insurance

INTRODUCTION

All changes in the society are directly reflected in the insurance activity. New risks appear and therefore new insurance products appear as well. Insurance activities are divided into non-life insurance, life insurance, and in recent years increase also a share of life unit linked insurance. Yield in the form of gross written premium arises to the insurance company under insurance contracts and then must be adjusted about so called unearned premiums.

1 THEORETICAL BACKGROUND OF APPROACHED AREA

The insurance system is an exceedingly important branch of every free market economy and its function is non-fungible in a modern state with a free market economy. All changes in the society directly reflect into the insurance industry as well. Trade literature documents that new risks appear

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hence new insurance products appear as well (see Belás *et al*., 2012; Bonaci *et al*., 2010; Smrčka *et al*., 2013).

In conditions of the Czech Republic under the term insurance system is understood a branch of economics that deals with insurance, security and intermediary activity in area of commercial insurance and connected activities. For the summary of risks covered by an appropriate insurance as they are undertaken by the insurance company is used a term insured risk. The insured risk is always determined by the insurance law scope, the insurance time validity is mentioned – period of coverage and local definition. The activity of insurance companies is at the present time controlled by laws, public notices, stipulations and by-laws of insurance companies that represent so-called insurance terms and conditions, extension of the contribution (Bokšová, 2010).

Premium represents a pre-paid hire for assignment of negative financial implications of accidentality from the enterprise and other economic entities to the insurance company. The insurance payment represents a compensation for damage by the insurance company on the insured property, compensations from the casualty, life, retirement income insurances or the insurance payment with the liability insurance.

Basic classification of premium is for the non-life insurance – above all represented by property insurance, liability insurance, casualty insurance and private health insurance and for life insurance – above all represented by insurance of persons. Among basic differences in accounting of insurance companies and business entities belong:

- different asset classification for financial placement and other property of the insurance company;
- creating technical reserves;
- valuating by the fair value at financial placement and technical reserves to the date of final accounts or to another moment when the final accounts is made;
- separated monitoring of life and non-life insurance;
- costs and profits are divided in accordance with activities on a servicing account for the life insurance and a non-servicing account;
- accounting about reinsurance; and
- insurance company solvency declaring.

Premium represents a price of insurance. Insurance serves in the insurance company for coverage of insurance risk, acquisition costs, costs of management, saving items and insurance company margin. In the Czech Republic is the written insurance defined as: „specified insurance includes all due amounts payable during the accounting period in accordance with insurance agreements independently of the fact if these amounts are related to the later accounting periods“. Written premium includes premium from new insurance agreements, from renewed insurance agreements, changes of existing agreements and received reinsurance premium. Specified premium represents a profit for the insurance company and simultaneously appears a receivable account behind the client (Bokšová, 2010). Receivable from gross written premium does not arise from legal insurance and life unit link. In these cases is account on the cash basis (Fox *et al*, 2013).

Often discussed question is whether account about the premium in a set year in accordance with its maturity or account about the year´s premium without the connection to particular payments. I think that written premium originates without a connection to particular payments because the payments themselves are not a specification but only a way of payment.

Even for insurance companies is valid that profits and costs must be declared at the moment of their occurrence and in a period they are objectively and time connected with, it means keeping the

accrual principle of accounting. Part of the specified premium that is in the insurance company payable in the current year is related to following accounting periods must be time distinguished with help of the technical reserve for unearned premium, separately for life and non-life insurance, i.e. on the technical account of the non-life insurance or to the technical account of the life insurance. Technical insurance reserves are created into cost and are payable into insurance company profits. Direction of EU make possible to use several methods for the calculation of unearned premium reserve (method with linear risk distribution - pro rata temporis, twenty-fourth, twelfth or methods with non-linear risk distribution).

There are several moments for which the insurance policy premium might be recognised as revenue. These include:

- when the insurance contract is signed;
- when the insurance policy becomes effective;
- when the premium is received;
- when the premium is due from the policyholder.

Obviously premium revenue for life insurance is recognised as an income when the premium is received. In contrary for property-casualty insurance the premium revenue is obviously recognised over time as the risk covered by the policy runs off (concept of "deferral-matching approach" with use of "Written Premiums" account).

Based on IFRS 4 Insurance Contracts treatment there is expected an asset-liability approach rather than a deferral-matching approach. Based on such asset-liability approach, revenue shall be recognised once the insurance company gained a control over the asset resulting from the revenue. Within the moment the insurance policy becomes effective there is recognised the total amount of premium charged, that's why there wouldn't be recognised any unearned premium revenue (Albu *et al*., 2013; Bokšová, 2010; Strouhal *et al*., 2014).

However, it shall be stated, that such approach surely not utilise the concept of earned premium. For this reason profit/loss statement relying on earned premium should need to be adapted to reflect the different premium revenue recognition treatment. Policy year concept from this perfective could better reflect the premium reporting approach rather than fiscal (accounting) year (Jáčová and Horák, 2013; Strouhal *et al*., 2014).

2 RESEARCH METHODOLOGY

Based on IAS 18 revenue is considered as an income arising in the course of ordinary activities of an entity and is referred to by a variety of different names, e.g. sales or fees. Revenue is measured at fair value of the consideration received or receivable.

As a research tool structured personal interview with Mr Pavel Mencl who acts as group internal auditor at Generali PPF Holding B.V. Questions were also forwarded to European companies being part of Generali PPF Holding B.V. The object of this research was to compare the reporting of gross written premium in selected countries of Central and Eastern Europe by Generali PPF Holding branches. Firstly it was necessary to define a set of questions which were addressed to insurance companies in particular countries:

- If there are contracts in non-life insurance with less than annual instalments (quarterly, monthly), does the gross written premium for the year contain only the instalments that are due in this year or the whole contacted amount?

- If there are contracts with life insurance, is the gross written premium counted on paid premiums during the year or a different method is used?
- If there are contracts with several instalments in the year, how big is the receivable for the client? i.e. Is the receivable created in the amount of the instalment or the amount counted on an annual base?
- If there are taxes connected to the premium, are these taxes part of the gross written premium and then deducted as cost, or are they accounted separately?

The main aim of this set of question was to find whether the gross written premium is reported in all selected countries in the same way and how many of these countries are in favour of the procedures used in the Czech Republic. The authors of the research believe that the methodology of reporting of the written premium in the Czech Republic is not representing true picture of reality during the year, as the gross written premium in most of the insurance companies in the Czech Republic is charged under the payment method set in the contract (annually, quarterly, monthly, etc.), but revenues for the accounting period from gross written premium are always shown in the proper amount. However the biggest problem is that majority of insurance companies belong to larger groups and therefore at least for the purposes of consolidation it is necessary to work with comparable data.

3 RESULTS

Responses were collected in scope of the survey from 13 countries, including the Czech Republic. Based on the analysis it was found that there is not unified methodology of reporting of gross written premium in these countries even within one single insurance group. From the authors' perspective the option A, i.e. charging of the gross written premium on the basis of annual premium, is the most proper presentation.

3.1 Non-Life Gross Written Premium

There are currently following options for non-life insurance:

- Option A – Gross written premium is charged on the basis of annual premium.
  - Bulgaria, Croatia, Poland, Romania and Ukraine.
- Option B – Gross written premium is charged on the basis of instalments (set method of payment).
  - Czech Republic, Hungary, Serbia, Slovakia and Slovenia.
- Option C – Gross written premium is charged at the time of acceptance of the cash payment.
  - Belarus and Kazakhstan. There is a high probability of failure to pay the claim from the insurance contract in these states, and therefore the revenues are showed at the moment when the payment is credited.
- Option D – Gross written premium is charged at one time for the entire contract.
  - Russia, and also within certain Anglo-Saxon countries.

3.2 Life Classic Gross Written Premium

There are currently following options for the life classic insurance:

- Option A – Gross written premium is charged on the basis of annual premium.
  - Bulgaria, Romania
- Option B – Gross written premium is charged on the basis of instalments (set method of payment).
  - Czech Republic, Hungary, Poland, Russia, Slovakia, Slovenia and Ukraine.

- Option C – Gross written premium is charged at the time of acceptance of the cash payment.
  - Kazakhstan and Serbia.
- Option D – Gross written premium is charged at one time for the entire contract.
  - nowhere

3.3 Life Unit Linked Gross Written Premium

There are currently following options for life unit linked insurance:

- Option A – Gross written premium is charged on the basis of annual premium.
  - Bulgaria
- Option B – Gross written premium is charged on the basis of instalments (set method of payment).
  - Poland and Romania.
- Option C – Gross written premium is charged at the time of acceptance of the cash payment.
  - Croatia, Czech Republic, Hungary, Slovakia and Slovenia.
- Option D – Gross written premium is charged at one time for the entire contract.
  - nowhere

The following table illustratively summarizes the various options of reporting of gross written premium in particular countries (despite by companies forming one insurance group), divided into non-life insurance, life classic insurance and life unit linked insurance.

Table 1 **Recognition of Gross Written Premium in Selected CEE Countries**

Country	type of insurance		
	Non-life	Life classic	Life unit linked
Belarus	C	N/A	N/A
Bulgaria	A	A	A
Croatia	A	C	C
Czech	B	B	C
Hungary	B	B	C
Kazakhstan	C	C	N/A
Poland	A	B	B
Romania	A	A	B
Russia	D	B	N/A
Serbia	B	C	N/A
Slovakia	B	B	C
Slovenia	B	B	C
Ukraine	A	B	N/A

(Source: results are based on structured interview with Mr Mencl (Group Internal Auditor for CEE Region – Generalli PPF Holding B.V.) and the data provided by the Group)

Notes:
A (annual) – accounting for gross written premium at once based on contractual amount (annual amount)
B (instalments) – accounting for gross written premium based on instalment frequency
C (cash) – accounting for gross written premium based on collection of gross written premium
D (contract) – gross written premium is charged on the basis of the entire contract

4 CONCLUSION

This analysis confirmed that the presented information about the revenues of commercial insurance companies (in terms of gross written premium) in particular countries is based on different principles and recognition methodologies. From this perspective statistical information provided from each region (Central Europe, Eastern bloc, etc.), types of insurance (non-life, life classic, life unit linked) and the like are biased and in many cases they cannot be aggregated. Even companies forming one insurance group (within our specific case Generali PPF Holding B.V.) report revenues from gross written premium in different ways (yearly based without distinction of accruals and deferrals, quarterly based etc.) – from this perspective it seems we are trying to summarize what's called at grammar school "apples with pears" and the results are not only comparable but for this perspective even not reliable for making proper economic decisions.

For comparability of data and its information capability it is necessary to establish a precise definition of gross written premium. Only in such case there would be possible to ensure the credibility of statistical information. However even the current updating project of standard IFRS 4 is not dealing with this topic what might be considered as a major limitation not only of our analysis but also of current stage of reporting of gross-written premiums worldwide. Paradoxically even new IFRS 15 standard also do not deal with this issue.

To generalize our findings it shall be stated that currently presented data about gross written premiums in worldwide statistical books are implausible figures and have to be omitted as a possible data source for making any economic decisions.

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VALUATION OF CULTURAL GOODS: EVALUATION OF PERSPECTIVE METHODS

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ABSTRACT

Valuation of cultural assets represents a very actual topic not widely discussed within contemporary accounting and financial research. Main motivation of this paper is therefore to provide an empirical evidence of the methods for valuation of cultural and artistic goods. In general, any method for valuating cultural and artistic goods or institutions cannot bring results as objective as those available to valuate assets in the real market economy. Within this paper we did focused on valuation on a specific case of cultural institutions (theatre, museum) and also we aimed to analyse the economic impacts of cultural organizations.

KEY WORDS

cultural goods, creative industry, valuation methods, economic consequences, state grant policy, Czech Republic

INTRODUCTION

Our truly fundamental problem in trying to define the value of cultural goods from an economic perspective is the fact that we are uncertain of even the absolutely simplest basic terms in this field. And we can apply scientific procedures and methods only with difficulty in areas where precisely defined terms are unavailable. Without a firm spot, we cannot move the earth; but likewise, we can reach a consensus only with difficulty if each of us attributes to all basic terms such as value, cultural good, and public interest or art either completely or perhaps just a little different meaning.

Yet why one should be concerned with the economic contexts of cultural or artistic goods when the issue is clearly a problem which may indeed concern the economy, but only marginally? One sees the appearance of a social demand, primarily from political circles, that economics (as an economic science connecting the exact field of mathematics on one hand and social sciences on the other) provide governments or municipalities with certain scales for evaluating the success of spending

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public funds aimed especially at supporting culture or performing arts. The demand concerning expenses for maintaining monuments and the so called cultural heritage is less vociferous.

Nevertheless, it too exists. The administrations of states, regions and municipalities admit that they lack the instruments that would suitably and indubitably enable reaching political decisions as to the apportionment of public funds in the direction of culture and art. Politicians require these tools from economists, as they themselves are frequently the targets of criticism for the lack of objectivity and readability of their decision-making. In the Czech environment which, like many other countries, faces acute problems in the field of public finances, this demand is very strong.

1 PROBLEM FORMULATION

We use as our departure point the hypothesis that it is possible to create various mechanisms enabling at least elementary assessment of cultural and artistic goods in terms of their value and thus enable at least a retrospective assessment of adequacy of expended funds. This hypothesis is quite bold; in fact, considerable skepticism, which has been summarized by many authors to date, prevails in this matter (O'Brien, 2010), and we shall also mention the majority of the most frequent arguments for the impossibility of the task.

We call the set of such methods (in accordance with the mechanisms for the support of scientific research that is standard in the Czech Republic) the certified method for valuating cultural and artistic goods. Now, we will not venture to construct this method, but rather define aspects that it has to take into consideration from the perspective of its own economic efficiency. Several of them appear in certain previous works (Kislingerová, 2013; Raabová, 2011).

Kislingerová (2013) presents a comprehensive summary of numerous aspects of the problem of creating mechanisms for evaluating the efficiency of public funds expended in the area of culture and art. In the following passages, we will repeatedly refer to this study. Besides this work, the team of the Arts and Theatre Institute in Prague (Raabová, 2011) presents a proposal for certified methods for calculating the economic impacts of cultural organizations. These are two attempts to examine what is in principle the same problem from different angles. The first procedure attempts to gain information on the value of a cultural or artistic good (work, activity, existence of a museum or theatre), the second attempts to ascertain at least the real economic impacts of the existence of cultural institutions, i.e. not only directly, but also mediated in various ways. We will subsequently ground our observations also on this research.

This problem is, of course, not only the specific theme of the Czech Republic – on the contrary, it has a considerable tradition in the Anglo-Saxon world. This tradition is developed especially in connection with the development and support of the creative industry. Cikánek (2009) gives an elegant overview of this branch, although the work of Florida (2002) (in the area of defining the creative industry) or authors such as Alpizar et al. (1998) (when explaining the possibility of experimenting with selection mechanisms) are among the fundamental works on this theme.

Even on the basis of these departure points, we need to admit that creating a certified methodology that could generally be applied to the field of art and culture is practically unimaginable. It will therefore be necessary to proceed not with the intention of creating a single mechanism, but rather to define an idea framework. Within it, detailed mechanisms specified for specific cultural or artistic goods, or rather aggregates of goods, will then be defined.

2 DETERMINING THE VALUE OF CULTURAL GOODS

The first and possibly the most serious trouble is the fact that a mere minority of cultural goods has a market price, which only partially covers the overall value of the cultural goods. We can easily demonstrate our statement on two examples. Let us say we have at our disposal an important painting by a renowned artist – perhaps The Scream by Norwegian painter Edvard Munch. The painting has its market price, which was exactly set during the last auction of this masterpiece. Yet does it also express its value as a cultural object? Let us justly be afraid it does not. The painting became the foundation of many other works of art, which follow it, use its main motif both in the area of visual arts or in literature and film. If – hypothetically – the world society (or humankind, to put nicely) was forced to choose: either you collect a certain sum of money or this painting will be destroyed forever, what result would we arrive at? What total sum would the humankind be willing to sacrifice for this indisputably unique cultural object? We cannot give it a try; hence we have no answer that would withstand criticism. Moreover, the situation itself would certainly have a number of possible variations, each of them likely to offer a wide scale of answers. For instance, the outcome would depend on whether the situation was a one-off event or whether the humankind would have to face the same threat every now and then and was forced to pay for Da Vinci's Mona Lisa or the Great Pyramid of Giza.

Let us imagine another option relating directly to the Czech reality. The historic building of the National Theatre will fall into ruins unless the Czechs collect among themselves a larger sum – say 400 million EUR. Moreover, they would have to contribute with 40 millions from their own pockets to the venue's further operation every year, rather than paying more or less anonymously through the tax system. Would every single citizen be truly willing to spend his or her share on such events? Everyone in the Czech Republic would have to do without forty EUR on the spot and then start giving away for EUR every year. The sum is not too large in itself and if we carried out a survey, the results would probably be quite optimistic. Yet we can only guess how many people would be willing to spend the sum in reality (their number surely being substantially lower than the survey would have suggested).

The second trouble is that we are unable to define exactly the term cultural goods. We could debate about this topic for a long time, explaining why it is so difficult to describe culture with a definition. Yet all the important facts have been said, so we can only sum up the elementary: Culture is an absolutely individual sphere (Kant, 1965), therefore its definition is different for every person, and sometimes the differences can be huge. Every individual also sees differently the importance of culture, which figures within their value system not as one phenomenon, but as hundreds or thousands of particular qualities. It therefore stands that culture is not a homogenous concept and it can denote a set of artefacts, experiences, performances and so on, where the individual components have in fact nothing in common. Apart from a concrete individual person who places those into the "culture" group (Cikánek, 2009).

The third decisive trouble related to valuing cultural goods is the fact that the very use of the term value is rather confusing in this respect – and it is particularly confusing for economists. Theoreticians and professionals alike are used to applying the term value in strictly defined and mutually related meanings. Actually, they understand it as a value common in goods and a use value. They are both an expression of the fact that every particular object, thing or machine has both a usual value given by external aspects and a use value reflected in the possibility or capacity of the owner of the object or commodity to use their goods for production or for providing services.

Here we are getting to a problematic situation – philosophy and other humanities are much more creative in the use of the word value, which causes noticeable chaos in the subsequent discussions. The economy sees value as something measurable and quantifiable by standard means that is by a

larger or lower sum of money. Or possibly something that can be measured additionally, for instance by cash flow. Of course, this does not mean that price is set by assigning a value prior to the process of changing the owner of assets. Value is always just a thought concept in this respect, and becomes price only once it is tested by the transfer of assets through the payment of money. This too is a cause of trouble when one tries to understand the ideas concerning the valuation of cultural goods and the valuing of assets in general.

The term value (social value of a work of art or cultural good) is a key term when evaluating the relative importance of a work of art or cultural good and thus for assessing the efficiency of funds expended from public sources. Numerous fatal misunderstandings occur in this area among economists and social scientists. It is necessary to forget about terms such as exchange value, use value or usual value. In some way, we need to determine the value a particular work of art, particular artistic or cultural institution or certain artistic action has for society, in what way it influences it or moves it forward. We then have to compare this ascertained value with the public funds that have been expended for achieving the assessed result.

As we have suggested, the problem lies in the non-existence of value criteria. If the judgment of taste is entirely individual, as Kant (1965) assumes – and we have no reason to doubt it – then for all questions regarding the value of art or culture, we will necessarily have to get the same number of answers from as many respondents that we manage to approach. In that case, however, we arrive at a difficult situation and we must either choose another method (for instance, asking only experts) or delimit such approximate spaces for answer variants that would force the majority of respondents either to significantly rectify their views in order to fit the answer or desist from the task. As for the judgment of taste, Kant deduced, among other things, that it is impossible to conduct a discussion about it as he did not consider it to be a category of reason. For the same reason, we can conceive a methodology for evaluating cultural goods only with difficulty. Moreover, there is the problem of defining scale. In fact, Kislingerová (2013) draws attention to the fact that, thanks to the inability of our society to fix a monetary value to a work of art or cultural good, we tend to make a declaration about "inestimable value". In this regard, the author observes, among others, that: In fact, "inestimable" in this context does not mean "infinitely high", but far more likely "unknown" or "individually irrelevant". Let us admit that we might certainly consider the discovery of Celtic ceramics, bronze jewels and imported pieces of silver with amber to be significant and culturally important, but we would do so more likely because this is "the done thing" than because we would truly be convinced that, thanks to decorations on bowls, we would gain an insight or even develop culturally. Despite this, we will accept the statement that it is a discovery of "inestimable value". The author then observes that this phenomenon concerns many works of art and cultural goods, not only the archaeological diggings that she uses as an example.

Interestingly, we are automatically able to describe the opposite experience more precisely in connection with money – "it wasn't worth the money", "what a waste of money". This is obviously given by the fact that a certain monetary sum was paid and the comparison with the value of money for a particular individual is thus given. It therefore seems that the procedure for evaluating works or goods in terms of use or value for society is truly a difficult problem to solve, and one cannot even rely on expert opinions. We must yet again take the example from the field of financing performing arts in the Czech Republic. In Prague, the country's capital city, a discussion has been underway for practically twenty years regarding the funding of the theatre network, and even though many experts on theatre have been gradually involved in numerous evaluating commissions (due to "severance of friendly relations"), even from other cities and abroad, none of the accepted models have been recognized as being adequately functional and capable of self-reflection.

If, strictly economically, we apply the term value on the sphere of cultural goods, we obtain a "value" expressed in money, but we often use it together with other expressions that simply defy

such application. It often happens with archaeological finds of the type that does not include artifacts, but rather jewellery or crafted objects of daily use or coins. There is, on the one hand, the value of the material (i.e. its market price) the object is made of, such as precious metal, and collectible value, which one can find out by trying to sell the object, for example at an auction. Moreover, there is historic value, often referred to as priceless. The historic value is a sui-genre value of a cultural good, too. Yet if it is so "priceless", the team that found such objects provided "priceless" benefits to humanity. If we took such statements literally, archaeologists would have to be among the wealthiest people, because they would have to be remunerated for their benefits. Which they are not. In fact, "priceless" does not mean "extremely valuable" here, but rather "unknown" or "individually irrelevant". Let us admit that we consider the finding of Celtic ceramics, bronze jewellery and imported pieces of silver with amber as important and culturally beneficial, but mainly because "it is appropriate", rather than because we are truly convinced that we might learn something from the decoration on a bowl or develop culturally. Yet we will accept the statement that the finds are "priceless". A similar paradox actually concerns a vast number of other kinds of cultural goods, not just archaeological finds.

Similarly, we may be able to unmask the notion that literature, theatre and arts in general bring something that "money cannot buy" to humankind. Though it is a true statement in itself, the fact is that the benefit for humanity is in surprising contradiction to the way individuals value it. As for them, they are not ready to pay any absolute prices for such cultural objects. It is a strange and hardly tangible contradiction between the value perceived by the society as a whole, expressed by extensive and strong evaluating proclamations, and individual value expressed by the real price people in the world of economic acts are willing to spend in terms of the money they sacrifice.

From this it follows that the way our basic communication tool, i.e. language, copes with the issue, can be a real eye-opener to some extent. If we take a closer look at some of the commonly used phrases, we find in them the very cluelessness we experience when facing the issue from the scientific point of view.

We might go on and on like this for a long time in bringing together all the arguments against the possibility to value cultural goods.

The literature concerning economic relations in the field of culture is rather scarce in the Czech Republic. In addition, the most notable works concern a related area, dealing with the question of creative industries (Cikánek, 2009). The attempt at carrying out a more detailed study of economic activities that could, according to some researchers, become the driving sector of national economies in the developed countries in the upcoming decades, is by all means quite interesting. Yet it does not contribute in any way to the solution of questions regarding the public funding of non-commercial cultural events. Similarly, it can help even less to explain the trouble with valuing cultural goods. Nevertheless, we would like to mention the work of Richard Florida, who puts forward the thesis that public funds expended to support quality culture do pay off, because they help to create an environment suitable for the development of the "creative class". It is a group of people with substantial creative skills, which we can interpret quite straightforwardly as workers able to create new methods, new objects, and new solutions. The creative class cannot exist without sufficient impulses, one their sources being art, especially quality art (Florida, 2002). Of course, one can reject such thought constructs as calculated statements built upon partial research. Similarly, we could cast into doubt the whole structure of creative industries as an artificial concept creating a uselessly complex scientific argument around events that are natural, normal and non-surprising. Although we do not have enough space here for a more detailed analysis of this question, dealing with the issue of creative industries in such a straightforward way would be too simple.

As far as attempts at valuing cultural goods are concerned, the works describing the possibility of using some methods developed in other countries are an interesting practical incentive from the Czech area (Kubíčková, 2012ab).

2.1 Purpose of Valuing Cultural Goods

It would be truly misfortunate letting ourselves discourage by the complexities of valuing cultural goods from the attempts at finding a method or set of methods able to bring decent results. Keeping in mind, of course, that always, and under any combination of reasonable conditions, we need to take the results with a pinch of salt, as something auxiliary and providing us with only elementary orientation. To sum up, we can define this attitude as follows: let us keep trying to create and apply methods that will enable us to somehow value cultural goods, define its social value by transferring it to money units. Yet let us be absolutely skeptical towards any result we arrive at.

Yet why should we actually endeavor to keep searching to find something we are not sure about? Not only are we uncertain to succeed, but we know that succeeding does not equal to any thinkable result achievable by correct methods.

The answer lies in the area of public funding. Somewhat automatically, in the European context we believe that creating cultural goods (we need to note that we are not quite sure what is a cultural good and what is not) is a sphere that requires public funding, and we accept the thesis that culture cannot "make its own living" because if we left it to its own devices, it would be only commercial and pandering. For certain cultural, political and other reasons, the European society has accepted the idea that although most of its members prefer to consume mainstream and pandering culture, we need to foster other cultural areas as well, especially the arts in this context. The culture of mass consumption has thus been shifted into the area of entertainment industry, and this mass production is not primarily the aim of grants or subventions. On the other hand, the culture (again mainly the arts) that we call high is considered by the majority to be a legitimate recipient of public funds. In other words, there is general consent that this kind of culture should be granted money from public funds.

We do know for sure that any allocation of money from public resources where unambiguous and clearly defined rules cannot be set, always ends up by waste of public funds and their allocating for activities that have no direct connection with the original purpose of the subsidy or grant. Many cases are known of subventions intended to support significant art events being granted to subjects running rather commercially oriented events of little artistic value. If we had the possibility to conduct estimates of the value of cultural goods in terms of the relation between the actual public funding granted to a particular activity and the way the society values such activity, we would get some basic guidelines for the assessment of public funding.

2.2 Attempts at Valuing Cultural Goods

We have to admit that some of the methods at hand supposed to help us with determining the value of cultural goods are unusually sophisticated. An interesting overview from the Anglo-Saxon area was provided to the Czech researchers by the above-mentioned authors of the attempt at valuing the theatre and museum in the town of Tábor (Kubíčková, 2012ab).

Both authors chose the method of contingent valuation supplemented by Victor S. Yocco's method; using this theoretical apparatus they examined the value of the two cultural institutions in relation with the amount of public funding they receive, and the value of both institutions for individual groups of citizens, such as for theatre- and museum-goers on the one hand, and for non-goers to either venue on the other hand.

For illustration purposes, let us quote from one of the studies' conclusion: "The survey included 121 respondents from the Tábor region and it was conducted by oral and electronic method. The first part of the survey concerned the frequency of visiting the theatre. We found out that in the last 12 months, the goers visited the theatre 5.25 times on the average. From that it follows that the Oskar Nedbal Theatre Tábor actually has quite a narrow base of regular goers who frequent it several times a year, rather than appealing to a wider spectrum of people. Furthermore, we assessed 19 statements created by Victor S. Yocco which refer to three hypothetical categories of value. According to Yocco's tool adjusted to theatre environment, theatre was valued positively, receiving an overall average of 4.96 points on a seven item scale. People appreciated most the criteria of individual value, which means for instance the fact that the theatre provides the opportunity for an artistic experience or that it is the source of pleasure and entertainment. This seems to support the idea outlined in the theoretical part that valuing culture on the basis of its economic and socioeconomic impacts is insufficient for expressing its actual value.

As regards the willingness to pay, after removing the extreme values and one anticipated protest response, the average individual willingness to pay amounted to 56.19 CZK, the average for goers was 74.02 CZK and 35.27 CZK for non-goers. If we go back to the thesis' main goal, the overall yearly value of the benefits of the Oskar Nedbal Theatre Tábor in the year 2012 amounts to 42,055,602 CZK, where 20.5% concerns the goers value and the remaining 79.5% non-goers value. The smaller proportion of the goers' value is caused by the above-mentioned fact that the theatre only has a narrow base of regular goers who frequent it several times a year. If we compare the value of benefits and the costs of subventions, which for the year 2012 are set to 8.941 million CZK, the benefit-cost ratio indicator achieved 4.7. Thus the value generated by the Oskar Nedbal Theatre Tábor in the year 2012 exceeds 4.7 times the subvention provided by the South Bohemian Region. In other words, for every crown the Oskar Nedbal Theatre Tábor receives from public funds, it generates a value of 4.7 crowns for the economy of the Tábor region. The net value amounts to 33,114,602 CZK.

All in all, the study has brought optimistic results. Although the majority of people in the Tábor region do not go to the theatre, they would be willing to pay a certain amount for it. As has been mentioned in the theoretical part, the reason behind that may be to maintain the possibility of visiting the theatre in the future or simply the wish to maintain its existence although they are not planning to visit it. The possibility of using the method of contingent valuation was another positive aspect. Although the method has a lot of limitations, its use for the valuation of cultural institutions is becoming more frequent.

The question is whether it could be used for decision-making processes in the public sector, but the answer tends to be negative. For this purpose, the method is too time-consuming and the uncertainty of estimated value is considerable. Moreover, the specification of value should not be the only criterion the public sector considers when making decisions about cultural goods." (Kubíčková, 2012a).

2.3 Analysis of Some Questions Concerning Valuation

We can clearly see both the positives and the negatives of the methods used. The main trouble with the valuing methods used on the practical level to assess the theatre and museum in Tábor is their fragility against the relevance of responses. It is a classic economic dilemma faced by choice experiments always and just because they are experiments. The willingness to pay expressed non-bindingly in a survey does not have to, and surely will not, comply with the actual willingness to pay in reality. Yet there is a higher level to the issue. We are looking for such a valuation (calculation of value) that the people in a given region spontaneously ascribe to a cultural object;

that means we are not actually looking for a sum they would be willing to pay, if they were invited to do so – from this angle the method used may seem flawless. According to the rules of the choice experiment thought concept, the presented values of the willingness to pay do reflect the value ascribed to a specific cultural object both by its users and non-users.

This "valuation game" would then really indicate the extent to which people appreciate some cultural goods, which indisputably is the purpose of the matter. In terms of a closed thought concept like this one, the suggested method is therefore suitable and brings quite interesting food for thought.

But still one cannot get rid of serious doubts.

The first problem arises with the "closed" system. In order to ascertain the relevancy of the presented benefit-cost ratio amounting to 4.7, we would have to provide an appropriate comparison with similar data from different areas – in our case, the only coefficients available are the one for the regional theatre and the one for the regional museum, which was determined by the same method (Kubíčková, 2012b) and amounts to 3.4. Compared to the actual volume of subventions, people of the Tábor region ascribe greater value to their theatre than to their museum. Such comparison is undoubtedly interesting, but we are still moving in a rather closed value system which ought to be tested from other aspects. That means finding out the same coefficient for other public services, such as the swimming pool, ice stadium, etc. When compared to values ascertained for other cultural or free-time venues, the two available coefficients would become more valuable and ready to be interpreted.

Although an interesting thing to find out, the value people ascribe to their theatre or museum or their willingness to pay for preserving both institutions will gain greater information value only when compared to the willingness to pay for other cultural goods.

In the subsequent research, a strict interpretation discipline will have to be followed when working with the results and determining what they actually mean. For instance, should the willingness to pay be studied only in relation to one cultural institution, one has to understand the response as a unique one, given regardless of the real economic background of an individual. In other words, merely as a theoretical personal appreciation of preserving the possibility to use such institution in the future.

2.4 Particular Conclusions

Despite all the gathered doubts, the method used in the quoted studies (Kubíčková, 2012ab) seems to allow us – at least basically – to find out an exceptionally interesting datum, that is the valuation of cultural goods by the public, both by the users and non-users of an institution.

If, sometime in the future, we were able to collect a larger amount of similar data, using statistically comparable methods and samples of respondents, we might – if nothing else – more or less objectively measure the development of the influence of cultural institutions on their direct and more distant environment. Of course, the changes of benefit-cost ratio depend on the actual sum of subventions or support from public resources, but the initial data, i.e. the declared willingness to pay for preserving certain cultural goods, are important as well. The development of the willingness would be an interesting way to measure whether the value of a cultural institution increases or decreases in the eyes of its users and non-users.

Should other attempts at similar research are carried out in the future we recommend some partial improvements, which do not mean we cast the above-mentioned results into doubt. Firstly, one

should take into account not only direct subventions from public resources, but also add the tax that was not paid to the state in cases where cultural institutions are supported by donors (such as businesses). That would definitely increase the objectivity of collected data and improve the possibility of comparison.

However, we need to be aware that the chosen degree of supporting the creation of cultural goods is always a primarily political decision. Similarly, the way public resources are allocated is a political decision, too. In terms of economic assessment of the situation, we have to accept the fact that – seen from the outside – the allocation will always be little representative and little transparent. Besides that, many steps certainly will not be realized, which would logically occur if we moved in a classic market environment. To demonstrate it, let us take the example of the Dejvice Theatre in Prague. According to available statistics (MCCR, 2011), for many years now the theatre has achieved an attendance rate of one hundred percent (for its own performances). From the economic point of view, the theatre (the company and creative team) should be transferred to a larger venue and a less successful company (in terms of attendance) should be transferred to the Dejvice Theatre. However, in the system of grants and subventions, such situation cannot occur for various reasons. It also means that this project's economic results cannot improve significantly, and the need for subventions shall remain – even if the benefit-cost ratio amounted to unusually high rates in this case. We need to admit, though, that if such theatre was not able to receive subventions and grants form public resources, its owner (be it an individual or business company) would make every effort and perhaps the necessary investment to promote sales of his product, which means transferring the company to a larger venue to get a bigger audience.

3 ECONOMIC IMPACT OF THE EXISTENCE OF CULTURAL ORGANIZATION

The assessment of direct and indirect impacts of the existence of a cultural organization (a funded work of art) offers more sensible results from an economic point of view. In reality, however, it too suffers from serious shortcomings. In its proposal for a pertinent certified methodology, the team of the above-mentioned Arts and Theatre Institute (Raabová, 2011), for instance, grants that: The presented methodology for the calculation of the economic impacts of cultural organizations is based upon an internationally recognized input/output analysis, which has at its disposal instruments for the quantification of mutual connections between subjects (branches or sectors) in the economy. In contrast to other methods, it enables also the quantification of multiplying effects that are caused by the connections of the organization examined and its visitors on other branches of the economy (the exit of one branch is at the same time often the entry of other branches of the national economy and vice versa). This is, of course, quite fundamental, although the authors in fact add: The presented method has been tested on several festivals in the CR, whilst it has been confirmed that its usage is suitable especially for large international projects that attract foreign visitors and, with them, also new incomes for the economy. This method cannot be fully applied for the calculation of local effects of cultural activities (impacts on the city and region), as the input-output model reflects the structure of the whole national economy, not the economy of the city or region. With a measure of tolerance, it is possible to estimate the direct impacts on the local economy (with the aid of direct coefficients), not the indirect (multiplying) effects.

Not even this method answers questions that the government and local authorities have posed to professional circles in recent years. After all, John Myerscough (1998), a classic of these methods, has shown that calculations of the impact of cultural institutions are more useful when gauging organizations with a large number of visitors and a national or at least above-regional significance; his critics have at the same time constructed quite significant theses that cast the method into doubt or transform it into an auxiliary method. Myerscough and others do indeed measure economic impacts, but they do not deal with the public aspect of matters in any way. From this point of view,

the most substantial feat is that of film or musical production, which employs many people and attracts many visitors. This means that this is the calculation of impacts of funding the creative industry in the true sense of the word.

However, it says nothing about the social significance or aesthetic value of the work whatsoever or – from another angle – a successful test using Myerscough's methods (when the result shows strong multiplying effects on the level of economic impacts) can in fact show the popularity, superficiality and consumer character of the examined institute or cultural good. This means that a cultural or artistic work which is of consumer quality, but which mostly does not need practically any support from the state or municipality, will withstand a similar examination with the greatest success. In other words, funding a musical production is basically supporting a business project and not art in the sense art is usually understood.

4 THIRD WAY

There is yet another relevant method that can be incorporated into considerations regarding the potential creation of a certified method for evaluating cultural goods or works of art (or productions). This method involves examining the value that is placed on a particular work or good by its consumers, and perhaps also generally by the inhabitants of a region or country. This is a mechanism of creating a hypothetical market for goods that are not in the marketplace – for instance, cultural goods or institutions or also the demand for infrastructure or public interest in the case of environmental projects.

Simply put, we can ascertain how much people would be willing to pay for the above-mentioned good or work to be accessible, to be available to the public (WTP) or how much they would demand as compensation in case this good, institution or work were not available (WTA). In a contingent evaluation, we thus investigate the willingness to subsidize, and if such a will exists, the amount of subsidy which is considered adequate by the public (consumers and potential consumers). We might also ascertain how much consumers or potential consumers would expect as compensation if the good under examination were not available.

Understandably, this method too has several problematic areas and numerous critics. One of the evident problems is the fact that the respondents are aware that the answer is not binding; it therefore does not entail any promise of returning the declared sum or really gaining the demanded sum. This is to a large extent an intellectual game based on surveying public opinion through a standardized questionnaire survey. The second fundamental problem is a fact arising from the problem of the first – given that the survey is non-binding, respondents will have a tendency to answer in the sense of social expectation, i.e. they will overestimate even those cultural institutions and goods that in fact do not interest them whatsoever.

CONCLUSIONS

In the preceding sections, we have only summarized very approximately the basic problem of valuating cultural and artistic goods in terms of their significance and social influence as the only true gauge for evaluating the adequacy and efficiency of public funding.

If we were now to evaluate the conclusions very briefly, we would arrive at the conviction that it is in fact impossible to find a method (a certified method of valuating cultural goods), that would without modifications and specification be applicable to all areas of culture. Individual methods necessarily have to be distinguished – although the basic framework could be essentially identical.

Furthermore, it seems that any method which should truly serve as a serious foundation to evaluate the efficiency of subsidizing cultural programs and grants would have to be multilayered; this means that it has to contain significant elements from all the above-mentioned methods.

Besides this, however, it is necessary to take into account the valuation provided by experts – people knowledgeable in a certain area and whom we could consider to be experienced in this regard. Understandably, it is evident at first glance that implementing this idea would be inadequately expensive. Let us now model the procedure for institutions that traditionally elicit considerable embarrassment in Prague – that is, for theatres and theatre groups that receive several-year grants from the city. Realizing a mere contingent evaluation would entail implementing a pertinent questionnaire not only for individual theatres separately, but also independently among groups of traditional viewers and incidental citizens (while it is quite probable that the "incidental citizen" will not be a regular or even an occasional theatre-goer).

In this respect, let me just mention a humorous result of a colleague's survey, in which he asked roughly one hundred students how often they and their family members went to the theatre. After converting the result to the number of inhabitants in the Czech Republic, it transpired that the total number of sold tickets in the country would have to be about fivefold against all really sold tickets and the number of viewers thus calculated would exceed by about threefold the number of seats available at the given time.

The contingent survey would nevertheless have to show the measure of "respect" commanded by the theatre among the public. In addition, we would probably have much to ascertain as regards the "media" success (familiarity) of the theatre in question and the degree to which at least a part of the public associates certain popular actors with the corresponding theatres. It should here be mentioned that the vast majority of theatres in the Czech Republic are grounded in the tradition of repertory theatre, with a stable group of actors and a traditional directional and dramaturgical foundation.

There are only a minimum of one-off productions or studios in the Czech Republic that are designated to produce a limited number of performances. Any contingent evaluation necessarily has to be supplemented by an analysis by selected experts, which naturally entails further expenses – at least if the statements are to be completely professional, expertly serious and also independent. Likewise, it is also necessary to use as a departure point further analysis, or an attempt must at least be made to evaluate the economic benefit of the functioning of theatres in a given area and in the whole context of the town or city. Even this, however, entails further costs for subsequent implementation of forthcoming economic decisions.

It would also be necessary to evaluate economic data for the funding period until then, investigate the influence of subsidies on the theatre's economy and further evaluate the theatre according to standard procedures. The results may seem absurd at first glance, but in the context of other information ascertained, they will become a logical basis for decision-making processes. And finally, the core of the problem itself cannot be forgotten, i.e. the attempt to estimate the extent to which the good or artistic institution fulfils its social objective. All of the above-mentioned procedures, including expert evaluation of general artistic quality, are only auxiliary tools that create a necessary contrast to this evaluation.

We are convinced that the foundation of this evaluation should be a comparison of potential attendance (maximum capacity) with actual attendance. Although many experts on art express doubts about this scale (again from the perspective of suspicion that what boasts high attendance need not necessarily be of high quality), we are convinced that this criticism can be eliminated with the aid of outputs from other elements of the evaluation as a whole. We also consider it absurd to

compare absolute numbers of visitors; the relationship of capacity to reality appears to be more useful.

The methodology of comparing the number of visitors to capacity requires further processing, as the interpretation of the given numbers is a decisive element. In reality, however, we are convinced that if the pertinent data are analyzed to the fullest consistency – for instance, the attendance of individual performances, numbers of repeat performances and the assessment of their reception over a longer term, as well as in terms of real profits from sales against the original official price (to eliminate the influence of sales promotion) and further aspects, they can bring forward a lot of information decisive for assessing the efficiency of expended funds – of course, in connection with all the other above-mentioned information.

Any method for valuating cultural and artistic goods or institutions cannot bring results as objective as those available to valuate assets in the real market economy. Nevertheless, when expending considerable funds to collect necessary information and to analyze it, one can conceive of methods enabling to gain results in this area which could be relatively objective and would encompass the significance and social impact of cultural and artistic goods.

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INNOVATION AND INTERNATIONALIZATION: RELATIONSHIP AND IMPLICATIONS FOR MANAGEMENT AND PUBLIC POLICY

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ABSTRACT

Innovation and internationalization are two basic growth strategies which contend for both the firms' and governments resources. At the same time, they are linked by a two-way relationship that has been widely documented in previous studies. However, often preceding literature is disconnected and does not integrate innovation and export promotion studies into the analysis. In this article we review and synthesize the different approaches regarding these relationships, while considering also the research on the impact of export promotion programs. As a result, a list of recommendations is deduced both for management and public policy regarding the development of these two strategies.

KEYWORDS

innovation, growth strategy, export performance, internationalization, profitability.

INTRODUCTION

Innovation and internationalization are two basic methods for companies' growth and competitiveness. At the same time, they contend for both the firms' and for government resources. Managers, especially those of Small to Medium-Sized Enterprises (SMEs), handle scarce financial and human resources, and must decide which option will bring about the highest profits, both on the short and long term, and has therefore priority: investing in R&D with the aim of developing new or better products/ processes; or prioritize opening new markets, and offering internationally their existing products. Governments and public administration in general, must also decide what will result in more public benefits such as employment and economic growth: either allocate public budget in order to foster companies' innovation, or use the resources to create export agencies and programs that help firms to grow internationally.

At the same time, innovation and internationalization are intrinsically related, and are therefore not only substitutable but complementary: when companies enter in a foreign country they are exposed to a different market context, which may help/ force them to innovate regarding their products or processes.

Another factor to consider is that internationalization is also a result of product innovation. The more innovative companies are more likely to be successful in the international markets. Furthermore, the investments firms carry out in R&D need to be justified by a large enough amount of sales. Thus, many firms may be motivated to start an internationalization process, out of their

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need to achieve economies of scale in their R&D budget; that is to say, with the goal to distribute innovation costs among more units.

There is abundant literature, often disconnected, on the relationship between innovation and internationalization. There is the need to synthesize the different approaches and results, because from the comparative analysis it is possible to extract useful conclusions.
In parallel, different studies have been carried out on the effects of the assistance from government to help companies to grow in the international markets (export promotion programs), and to foster their innovation (innovation promotion programs). It is necessary to integrate these into the analysis, and use the knowledge in both fields in order to improve public programs. There are several important motivations for developing a comprehensive analysis in this field. The first one is the need to help export and innovation promotion organizations to improve program design, adapt programs to company requirements and create better implementation procedures. The second motivation is the importance of increasing the programs' credibility in the eyes both of public opinion and of governments, which ultimately finance them. Finally it is necessary to give company managers information about the role programs can play in their organizations, and how to make the most of them.

This article is structured in the following way: first, we refer to the firms' internationalization process; second, we define and describe the export promotion programs and then the innovation promotion programs; third, we review the previous literature on the relationship between innovation and internationalization; finally, we extract some conclusions and some implications for the design and implementation of programs and for managers.

1. LITERATURE REVIEW

1.1. The Company's Internationalization Process

The firms' process of expansion in the international markets is characterized by several key decisions. These start with the motivations to start exporting (why), continue with the selection of the target market (where), the entry mode choice (how), and end with the adaptation of the company to the international environment (Prashantham, 2005).

However, it is necessary to emphasize that this is not a static but a dynamic process. That is to say, companies periodically change the reasons to be present in the international markets (for instance from reactive motivations to proactive ones), their target markets (normally from the markets that are closer culturally and geographically, to more distant ones), and their entry modes (from the most simple ones, such as agents and distributors, to more complex such as branch offices or subsidiaries).

In fact, in line with the Uppsala theory (Johanson & Vahlne, 1977), we can see that firms go through different stages in their internationalization process, gradually increasing their involvement with the foreign markets. There have been different attempts to define how many stages the company goes through in this process. For example, Johanson & Wiedersheim-Paul (1975) distinguished 4 stages, going from reactive exporters to multinational company. Barret & Wilkinson (1986), introduced a new stage, differentiating between companies that have never exported from those that did it in the past –even though now they are not doing it anymore, as more advanced; besides, they also consider those companies that have established production subsidiaries abroad as

more advanced in the internationalization process. Cavusgil (1980) also proposed a 5 stages model, going from the non-exporting company, to the one with a high export commitment[8].

In Freixanet (2012) these approaches are synthesized in a 5 stage model. Companies are classified into one or other stage depending on four variables, which complement each other in determining the level of involvement and skills regarding internationalization, the two main attributes that determine the evolution through the different stages:

- Export volume: the amount of sales in foreign markets is one of the main indicators of the level of a company's international involvement. To achieve these sales companies must invest in production infrastructure, personnel, inventory, marketing, etc. Therefore, the level of exports is related to the importance of the commitment of resources for the international markets; also, more skills will usually be needed to achieve and maintain these international sales.

- Size of the export or international expansion department: this classification variable relates to the previous one. A higher number of employees working in international business implies a higher commitment of resources for the export department (increase in salaries, travelling expenses, office space, etc.). As suggested by different authors (Cavusgil, 1983; Gray, 1997; Reid, 1984), skills will also increase with more professionals contributing their knowledge, experience and efforts to internationalization.

- Creation of permanent establishments abroad (branch offices or sales subsidiaries): this variable implies a further step in a company's internationalization, since it entails investing in personnel, legal formalities, renting or buying the business premises… It also raises exit barriers, making it more difficult giving up internationalization. Furthermore, it implies the company will have to develop a set of skills (international management, adaptation to different legal environments. . .), which is wider than the one from exporters which have not created permanent establishments.

- Creation of a production subsidiary: all the factors of international involvement related to sales establishments are enhanced when a production subsidiary is created. The firm must invest not only in the sales area but also in the rest of the departments (technicians, managers, production employees, machinery, inventory, etc.). Significant exit barriers are thus created, and consequently, producing abroad is a decisive step in the company's internationalization. Moreover, using this entry form implies that extensive information is needed on topics such as the tax or labor legal system, the law regarding foreign investment, logistics inside the country and with the company's country, etc. The firm will, therefore, develop a set of more advanced skills than those of companies in the previous stages (Barret & Wilkinson, 1986).

According to these criteria, companies could be classified into 5 stages, as shown in Table 1.

Table 1 **Classification criteria by internationalization stage, based on the level of involvement with foreign markets**

STAGE	Exports (€ m)	Permanent Establish-ments	Employees Export Department	Internationalization Involvement / Skills
1. Starting/ passive Exporter	1-299	NO		Low
2. Regular Exporter with little structure	> 300	NO	<= 3	Low – Medium

[8] See appendix for a synthesis of all the main stages models.

3. Regular Exporter with complete structure	> 300	NO	> 3	Medium
4. Consolidated Exporter with permanent sales or logistic establishments	> 2500	YES	> 3	High
5. Industrial Multinational with production subsidiaries abroad	> 2500	YES	> 3	Very high

1.2. Export Promotion Programs (EPPs)

In many countries, public and private institutions have created a whole set of services, with the aim of helping companies to overcome export obstacles. That is to say, barriers that prevent firms from making the most from foreign markets, and that may be classified in three types: lacking the motivation or willingness to export, not having enough export capabilities/ skills for it, and finally, not possessing the required human or financial resources.

Thus, the purpose of EPPs is to help firms advance through the different stages of the internationalization process. First from being merely passive exporters, to developing regular exports; then, by increasing international sales, to create a complete export department; finally, EPPs help companies to create branch offices or subsidiaries abroad, thus reaching stages 4 or 5 in the internationalization process[9].

Ultimately, government export promotion agencies and programs are established with the underlying belief that export activities contribute substantially to the economic and social development of the country (Czinkota & Kotabe, 1992; Lederman *et al*., 2010; Seringhaus & Botschen, 1991).

The services they offer depend on the country's level of economic development. In many developing economies, the most frequent programs are specialized in helping companies access the necessary financial resources to export, such as loans, or to technology (Alvarez, 2004; Naidu et al., 1997). Instead, in more developed countries, the most popular programs usually include the following:

- Trade missions: visits organized for groups of managers with a view to allow them a first contact with a foreign market.

- Sponsored foreign trade shows: they enable companies to participate in an exhibition abroad with a partly or totally sponsored cost.

- Foreign trade offices: branches of the export promotion agency abroad, with a view to help companies make local contacts, get market information, etc.

- Information and Training programs: including seminars, courses, specialized publications, market surveys…

Examples of export promotion agencies can be found at the state or national level, such as the Spanish ICEX (España Exportación e Inversiones), ACCIO from Catalonia Autonomous

[9] For example, the ICEX, main Export Promotion Organization in Spain, segments its programs depending on these stages. They divide them in programs for starting exporters, regular exporters, and programs for companies who intend to establish foreign subsidiaries. For these latter, they provide different services such as specific information and financing.

Community, the Canadian Trade Commissioner Service (TCS), CzechTrade from the Czech Republic, or UBIFRANCE –national agency from France, among many others.

1.3. Innovation Promotion Programs

Innovation promotion programs and agencies are also present in most countries. They are created in order to foster the development of new products, processes or services in companies. Governments' budget is allocated to such programs with the final goal of making firms more competitive and efficient, so that they may develop and in consequence result in the growth of GDP and the creation of employment. The main programs consist of different measures such as:

- Access to loans or to grants for innovative projects or companies.
- Innovation training: giving the company some knowledge and tools on how to innovate, through courses or publications with such topics as design thinking, innovation strategies, change management, project management, creativity…
- Technology transfer from Universities and Research Centers.
- Technological Consultancy: advice on how to develop innovative products or processes.
- Assistance in networking and the search of partners: technological, financial…

Examples of agencies offering all or part of these services are the Spanish CDTI (Centro para el Desarrollo Tecnológico Industrial), the French ANR (Agency Nationale de la Recherche), Industry Canada, or the AIE (Association of Innovative Entrepreneurship) from the Czech Republic.

The reciprocal effects between Innovation and Internationalization have been broadly described in preceding research. The different studies may be classified in five different types depending on their conclusions. They are summarized in Table 2 at the end of this section and described next.

1.3.1. Studies concluding a reciprocal relationship between Innovation and internationalization

Many previous studies have concluded that a virtuous circle takes place between the two concepts, one reinforcing the other. Esteve-Pérez & Rodríguez (2013) using a sample of Spanish manufacturing SMEs, determined the existence of a strong interdependence between export and R&D activities. According to their results, engaging in export (R&D) activities will increase a firm's chances of also engaging in R&D (export) activities. This, in turn, increases firms' chances of succeeding in export (R&D) activities.

Also, Filippetti *et al.* (2011) examined the relationship between countries' international profile and their innovation performance using data for 32 European countries. Using empirical correlations between innovation and several indicators of internationalization, they also established this double association: innovative firms are more successful in competing internationally and the exposure to alternative business and innovation contexts leads to innovation.

In the same vein, Halilem *et al.* (2013) stated that "these two major sources of growth are linked by different sets of relations, from the investment in product and process innovation to outward internationalization in a closer market, or from inward and outward internationalization in farther markets to the investment in product innovation."

1.3.2. Studies concluding a reciprocal relationship between Innovation and internationalization

Pittiglio *et al.* (2009) analyzed the impact of international activities on knowledge output. For this purpose, they employed a dataset containing qualitative information about a sample of Italian manufacturing SMEs. Using a probit model they found that firms active in international markets generate more knowledge than their counterparts which sell in the national market only.

In turn, Aw *et al.* (2009) linked export market participation, investments in R&D and worker training, and firm productivity, and quantified the relationships using firm level data for the Taiwanese electronics producers. They found that "for the electronics industry export market participation is more than just the self-selection of more efficient firms into the export market. We find evidence consistent with the learning-by-exporting hypothesis whereby firms that export have significantly higher productivity growth than those that do not export. The robustness of the relationship between exports and future productivity suggests that the export activity is an important mechanism for technology transfer in this industry." (p. 103). Thus, this study supports the effects of the internationalization process on innovation for this particular industry (electronics) and country (Taiwan).

How may internationalization have an impact in innovation? According to Kiriyama (2012) there are three channels through which these effects may take place: first, by imports, foreign direct investment (FDI) and trade in technology as means of technology diffusion; second, imports, FDI and technology transfer which intensify competition and thus increase incentives to innovate; and third, exports which offer learning opportunities and provide incentives for innovation.

1.3.3. Studies that question the learning by exporting effect

However, the "learning by exporting" effect is put into question by several authors. Bratti and Felice (2012) point out that "relatively few studies show that export fosters innovation".

Also, several studies by Hobday, 1995; Westphal, 2002[10] using various methodologies and data sets, point out that econometric analyses of firm or plant-level data provide little evidence of any learning-by-exporting. They concluded that the higher productivity generally exhibited by exporting firms can be better explained by the self-selection of more efficient firms into the export market rather than by any learning-by-exporting.

A good argument regarding the different points of view is provided by Altamonte *et al.* (2013). They maintain that there is some support for the 'learning by exporting' channel typically for countries-industries behind the best practice frontier, as it may be seen in Van Biesebroeck (2005), or in De Loecker (2007). In these cases it would be clear that companies obtain from the contact with foreign markets and competitors the knowledge they need in order to improve their products. They may innovate and in consequence become more competitive, both for the international and domestic markets. This may well be the case of the study from Aw *et al.* (2009) in the electronics industry in Taiwan.

1.3.4. Studies that conclude that innovation favors internationalization

The opinion about an overall relationship in the sense of innovation favoring internationalization seems to be unanimous. The more innovative companies may develop better or more adapted products, and this in turn result in more opportunities to commercialize the products around the world.

[10] Cited in Aw *et al.* (2009).

For example, Lamotte & Colovic (2010) investigated the relationship between innovation and internationalization in young entrepreneurial firms. Based on data from the Global Entrepreneurship Monitor and the World Bank for 64 countries during the 2001-2008 period, they demonstrated that young entrepreneurial firms involved in product and/or process innovation are more likely to be internationalized. Moreover, their results revealed that the impact of innovation is greater for product innovation than for process innovation.

In turn, Rios-Morales and Brennan (2009) demonstrated that continual policy innovation on the part of government can mean a relevant contribution to firms' process of internationalization. They measured governments' influence on FDI in Ireland and concluded that innovation is one of the keys to the success of the Irish model of internationalization.

Basile (2001), by using a sample of Italian manufacturing firms, found that innovation capabilities are very important competitive factors and help explain heterogeneity in export behavior among companies. He concluded that the export intensity of innovating firms is systematically higher than that of non-innovating firms.

Becker & Egger (2009) provided an empirical analysis of the effects of new product versus process innovations on export propensity at the firm level. They concluded that product innovation is a key factor for successful market entry. Process innovation, in turn, helps securing a firm's market position given the characteristics of its product supply. According to the authors, both modes of innovation are expected to raise a firm's propensity to export, but product innovation is relatively more important in that regard.

According to Kafouros *et al*. (2008), the degree of internationalization is a central mediator of the relationship between innovation and performance. By being present in international markets, firms can better exploit their R&D investments.

In turn, Bannò *et al.* (2013), took Italian regions as a unit of analysis, and examined the interrelationships between public grants, level of innovation and internationalization and economic performance. Their main findings were that the impact of pro-innovation policies on economic output (measured by regional GDP) is higher in internationalized regions. As they point out, their findings suggest re-thinking industrial policy-making. However, they do not propose any specific measures on how to do this.

It is also noteworthy to mention Amaral *et al.* (2014), who investigated the internationalization success factors of service SMEs. They focused on the managers' entrepreneurial orientation (EO), measuring it through 5 dimensions: risk taking, aggressiveness, autonomy, proactivity and innovation. The results pointed out to innovation[11], together with proactivity, as the fundamental elements for international success. The findings also coincide with Becker & Egger (2009) regarding the importance of "product innovation": successful companies have emphasized changes enabling the adaptation of their services to their clients, while unsuccessful ones have mainly implemented changes within their organizations (process innovation).

Interestingly, the study also identified a complementary resource, networking, which may be a mediating variable regarding the effects of innovation on export performance. This would work in the sense that, having a large and strong network of partners in the foreign markets, would help the company to obtain the information it needs in order to develop a more effective and efficient

[11] Innovation in this context referred to the creative capacity, and the necessary flexibility and knowledge, to adapt to new markets and to personalize the offered solutions.

innovation. Reciprocally, the most innovative companies would attract the best partners, thus establishing a virtuous circle between networking and innovation.

Another interesting element to bear in mind regarding the reciprocal relationship between the investment in R&D and internationalization, is that it's characterized by inter-temporal linkages (Roberts & Tybout, 1997; Bernard & Jensen, 1999, 2004; Geroski *et al.*, 1997). That is to say, the effect of one in the other is felt only after a period of time. This places SMEs with less financial resources at a disadvantage, since they may lack the financial muscle necessary to face an investment that they will only recover after a considerable amount of time (Wright *et al.*, 2007). This is more so given that in most cases obtaining revenues internationally requires more time than in the domestic markets[12].

1.3.5. Studies that conclude that innovation favors internationalization through the moderating effects of the variable "productivity"

This line of research studies how the innovation efforts from companies may have an impact in firms' productivity, and consequently, enable them to achieve export performance.

In this vein, Cassiman & Golovko (2011) showed, by using a sample of Spanish manufacturing firms, that product innovation, through its effect on firm productivity, increases the likelihood of the firm entering the export market. They argued that the strong positive association found between firm productivity and exports in the literature relates to the company's earlier innovation decisions, and that, when controlling for product innovation, the relationship between productivity and exports vanishes for these innovating firms.

Similarly, Lileeva & Trefler (2010), in a study carried out in Canada, concluded that the decisions to venture in the international markets and to invest in increasing the productivity are positively related, and may be complementary for productivity growth.

Thus, as Hopenhayn (1992) pointed out, companies which have been able to become more productive and efficient survive and grow in the market, while inefficient ones, are not successful and tend to decline.

Also, according to Cassiman & Martinez-Ros (2007). export decisions have been related to better performing firms, where causality seems to run from good performance to entering export markets. Their results suggest that product innovation rather than process innovation affects firm productivity, which in turn enables firms to enter into the international markets.

In the same sense of reasoning as we did before, some authors suggest the opposite effects direction may be true. Salomon & Shaver (2005), indicate that exporters may learn from their foreign contacts, adopting new production technologies and thereby increasing their productivity and performance. However, the most unanimous conclusion is that exporters have higher productivity than non-exporters before starting the internationalization process, and no significant productivity advantages are observed among continuous exporters or non-exporting firms respectively over time (Aw, Chen, & Roberts, 2001; Bernard & Jensen, 1999; Damijan & Kostevc, 2006; Delgado et al., 2002; Fafchamps, El Hamine, & Zeufack, 2007; Greenaway & Kneller, 2007)[13]. Therefore, again, the unanimous direction of causality is not that internationalization brings about an increase in

[12] The transaction costs and time involved in international sales increase because companies need to find the market information they do not yet possess, promote a brand usually still unknown in the target country, develop the distribution networks, and so on.

[13] Cited in Cassiman and Golovko (2011).

productivity, but the contrary: the more productive firms, are more competitive and therefore may sell better their products in the international markets.

In summary, as shown in Figure 1, the results point out unanimously to the positive impact of innovation in firms' internationalization, with some research including "productivity" as a moderating variable. The effects on the other direction (from internationalization into productivity, or directly into innovation) have been argued in some studies, although they seem only clear in some specific cases and economic contexts.

Figure 1 **Model of relationship between Innovation and Export Performance**

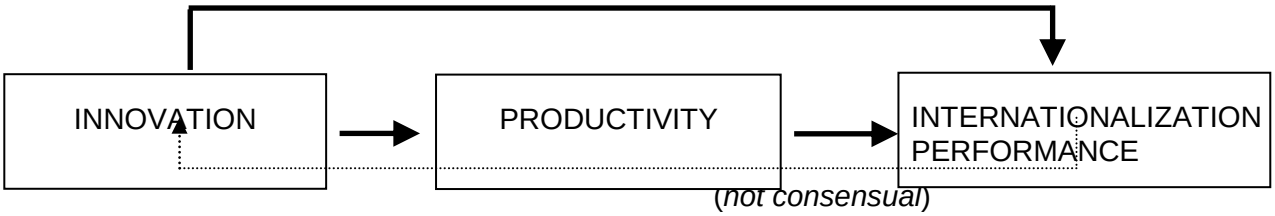

Table 2 **Summary of the different models and conclusions**

Title	Author	Location	Description/ Findings
a. Studies concluding a reciprocal relationship between Innovation and internationalization			
The dynamics of exports and R&D in SMEs	Esteve-Pérez & Rodríguez (2013)	Spain	Engaging in export (R&D) activities will increase a firm's chances of also engaging in R&D (export) activities. This increases firms' chances of succeeding in export (R&D) activities.
Are Innovation and Internationalization Related? An Analysis of European Countries	Filippetti *et al.* (2011)	Europe	Innovative firms are more successful in competing internationally and the exposure to alternative business and innovation contexts leads to innovation.
Exploring relationship between innovation and internationaliz. of SMEs: A nonrecursive S.E.M..	Halilem *et al.* (2013)	Canada	Different relations, from the investment in innovation to internationalization in a closer market, or from internationalization in farther markets to the investment in product innovation.

Title	Author	Location	Description/ Findings
b. Studies concluding an effect of internationalization in innovation			
Innovation and Internationalization: The Case of Italy	Pittiglio *et al.* (2009)	Italy	Firms active in international markets generate more knowledge than their counterparts which sell in the national market only.
R&D investment, exporting, and productivity dynamics	Aw *et al.* (2009)	Taiwan	Firms that export have significantly higher productivity growth than those that do not export. Export activity is an important mechanism for technology transfer in electronics industry.
Trade and innovation: synthesis report	Kiriyama (2012)	Global	Internationalization may increase innovation: 1. by imports, FDI and trade in technology as means of technology diffusion; 2.Competition that increases incentives to innovate; and 3. Learning-by-exporting
Various articles	Altamonte *et al.* (2013). Van Biesebroeck (2005), De Loecker (2007)	Several countries	There is some support for the 'learning by exporting' channel typically for countries-industries behind the best practice frontier.
c. Studies that question the learning by exporting effect			
Are Exporters More Likely to Introduce Product Innovations?	Bratti and Felice (2012)	Italy	Relatively few studies show that export fosters innovation.
Various articles	Hobday (1995) Westphal (2002)		Econometric analyses of firm or plant-level data provide little evidence of any learning-by-exporting.
d. Studies that conclude that innovation favors internationalization			
Innovation and Internationalization in Young Entrepren. Firms	Lamotte & Colovic (2010)	64 countries	Young entrepreneurial firms involved in product and/or process innovation are more likely to be internationalized
Ireland's innovative governmental policies promoting internationalization	Rios-Morales and Brennan (2009)	Ireland	Continual policy innovation on the part of government can mean a relevant contribution to firms' process of internationalization
Export behavior of Italian firms over the 90's. The role of innovation	Basile (2001)	Italy	The export intensity of innovating firms is systematically higher than that of non-innovating firms
Endogenous product vs process innovation and a firm's propensity to export	Becker & Egger (2009)	Germany	Innovation raises a firm's propensity to export, but product innovation is relatively more important in that regard.
The role of internation. in explain. innovation performance	Kafouros *et al.* (2008)	United Kingdom	By being present in international markets, firms can better exploit their R&D investments
Public Policy for innovation and internationalization: are they worth it?	Bannò *et al.* (2013)	Italy	The impact of pro-innovation policies on economic output is higher in internationalized regions.
Entrepreneurship orientation in service SMEs: key resource for internationalization	Amaral *et al.* (2014)	Spain	Innovation and proactivity are the fundamental elements for international success. Networking is a mediating variable of innovation in export performance.
Various articles	Roberts & Tybout, (1997); Bernard & Jensen, (1999), 2004; Geroski *et al.*, (1997)	Different Countries	The reciprocal relationship between the investment in R&D and internationalization, is that it's characterized by inter-temporal linkages.

e. Studies that conclude that innovation favors internationalization through the moderating effects of the variable "productivity"			
Innovation and internationalization through exports.	Cassiman & Golovko (2011)	Spain	Innovation, through its effect on firm productivity, increases the likelihood of the firm entering the export market.
Access to foreign markets raises plant-level productivity... for some plants	Lileeva & Trefler (2010)	Canada	Internationalization and investing in increasing productivity may be complementary for productivity growth.
Product innovation & exports: Evidence from Spanish manufacturing	Cassiman & Martinez-Ros (2007)	Spain	Product innovation rather than process innovation affects firm productivity, which in turn enables firms' internationalization.
Learning-by-exports: New insights from examining firm innovation.	Salomon & Shaver (2005)	Spain	Exporters may learn from their foreign contacts, adopting new technologies and thereby increasing their productivity and performance.
Various articles	Aw et al. (2001); Bernard & Jensen (1999); Damijan & Kostevc (2006); Delgado et al., (2002); Fafchamps et al. (2007); Greenaway & Kneller, 2007)	Diffe-rent Coun-tries	Exporters have higher productivity than non-exporters before starting the internationalization process, and no significant productivity advantages are observed among continuous exporters or non-exporting firms respectively over time

2. CONCLUSIONS AND DISCUSSION

Companies go through different stages in their internationalization process, gradually increasing the involvement with the foreign markets, as well as their export skills.

In many countries governments have created some programs to help firms advance in this process, and others to foster their innovation achievements.

Governments, the same as companies, face a strategic dilemma. They should decide whether to prioritize the allocation of resources to foster innovation, with the hope that businesses will develop better and more internationally successful products; or they should mostly use their budget to help companies sell their existing products abroad.

We may link both fields of research in order to deduct interesting conclusions regarding public policy and business management: one that relates innovation to export performance, and the other one associating export promotion programs to export success.

The previous studies reviewed above have given clear evidence on the positive effects of innovation on the firms' internationalization performance. This would point out to the need to prioritize innovation programs, with the aim of enhancing firms' competitiveness.

What about export promotion programs (EPPs)? Can we also deduct a direct influence on firms' internationalization performance? Different studies have measured the effects of export assistance on firms' international activity. Gençtürk and Kotabe (2001) concluded that EPPs bring about results primarily in export diversification and profitability, rather than in export sales. Francis and Collins-Dodd (2004) also found a positive relationship between program use, and impact measures related to company objectives, strategies and competencies, but not with economic measures. Fayos

(2003) concluded that companies receive only indirect benefits from promotion (improvement in managers skills and sales leads), but not direct benefits (economic results). Seringhaus (1984) did not find a relationship between the use of a program (trade missions) and two performance outcomes (export intensity and number of orders), but it did with other indirect indicators, such as the number of export contacts. Finally, in Freixanet (2012), the global EPP impact analysis showed a relationship between use of programs and some marketing improvements; for instance, companies that used the programs developed more their sales networks, and had better promotion activities. However, the results showed no relationship with an increase in the firm's international sales.

Thus, the results from this group of studies provides evidence that EPPs help companies to develop some aspects which will make them more competitive, but their use is not related with an increase in exports. These findings are consistent with the objectives of EPPs: they are expected to help companies to better compete internationally, but the final achievement of exports depends on other variables beyond program control. Studies on innovation have established this is one of these key elements.

Besides, the results of the studies on EPPs impact seem to go in the same sense as the first group of studies we analyzed, supporting the learning-by-exporting thesis. Companies that use more EPPs enter in contact with the foreign markets, and thereafter they may become more innovative (and other dimensions of competitiveness such as improvements in their marketing, building sales networks…).

Furthermore, the analysis by type of program in Freixanet (2012) showed that the use of Direct Promotion Programs (such as trade missions and sponsored foreign trade shows), and the use of Information EPPs[14] results in the creation of stronger and larger networks of foreign partners. This is one of the elements that we have argued previously will have an impact in the firm's innovation capabilities (and consequently in its export performance).

These results point out to some implications regarding the way Export and Innovation Promotion Programs are designed and managed, and their relationship[15].

Implications for Public Policy

The findings described above have implications on the program selection (which is the mix of services that should be prioritized), in their design (how they should be structured), their organization, and their segmentation (which kinds of companies should be preferably targeted):

- Studies in EPPs impact show that these, *per se*, are unlikeable to result in internationalization performance. Other elements, especially innovation, are required. In consequence:

  - Export promotion agencies should prioritize companies that have developed innovative products or processes, when selecting those that will benefit from the scarce government funds dedicated to export assistance.
  - Alternatively, companies with the potential to transform the information gathered through EPPs into innovation and then into exports, should also be considered first. Several indicators may be used in order to know the companies' innovation and exports potential. Among these we can suggest the managers' entrepreneurial orientation, reflected in such dimensions as risk-taking

[14] Includes information on markets, programs or export know-how, and use of foreign trade offices.

[15] A table with a summary of the findings and their implications for public policy and for managers is included at the end of this section.

and proactivity (Covin and Slevin, 1989). The more entrepreneurial managers are the ones more likely to turn the assistance into international sales.

Additionally, given the necessary investment in both time and financial resources involved in collecting the information and in transforming it into marketable products (the "inter-temporal linkages" mentioned in previous section), another item to consider should be the possession of enough financial resources (or the capability to obtain them from financial institutions). The soundness of the balance sheet, the evolution of profits and turnover, may provide suitable measures for this factor.

- In line with Altamonte *et al.* (2013), we also recommend the coordination and integration of internationalization and innovation policies "under one roof"[16]. In any case, these policies and programs should be further coordinated. For example, personnel of Export Promotion Organizations in contact with user companies, should be aware of Innovation programs and be willing to inform about them those interested in exporting.

  Further measures could include making it easier for companies that have successfully participated in innovation programs, to use export services. For instance by granting them discounts on the possible EPPs fares, or by giving them preference over other companies.

- Governments should also make fostering business innovation one of their industrial policy priorities. Making available to companies a wide range of effective and well-designed Innovation Promotion Programs would be a necessary step. The complementary step should go in the sense of creating the conditions in order to make innovation easier, with measures that could include, among others: R&D tax incentives such as credits or deductions; protection of intellectual property together with a favorable royalty payments tax regime; a swift-secure functioning of the markets, which attract investors and encourages risk-taking; the creation of dynamic higher and technical learning institutions; or the development of instruments of technology transfer from universities to companies (PWC, 2010).

- Research in the field of Export Promotion has shown that some EPPs (specifically Information and Direct Promotion Programs), help companies to create partner networks. Studies in the area of Innovation have found that it has a two-way relationship with networking. The linkage of both fields of research results in recommending that governments foster specially these specific programs, as a way to finally increase exports.

- The issues above address the topic of who will have more chances to transform the information coming from international markets into innovation and thereafter succeed in exporting. Complementarily, we should address the issue of for which companies export assistance can make more a difference. That is to say, which kind of companies would not be as successful if they didn't access export assistance; or looking on the other way, which firms do not need so much export assistance. Taking this into consideration, EPPs should be targeted as a priority to two types of companies, segmented according to their size and to their internationalization stage:

  a) SMEs: in comparison to large firms, SMEs are more constrained by limited resources and capabilities for acquiring information and then transforming it into innovative products and

[16] The integration of Export and Innovation assistance is a process that, for example, already took place in the Autonomous Community of Catalonia (Spain). In Catalonia, the Export Promotion Agency (named COPCA), merged with the Innovation Promotion Agency (named CIDEM), and they created a common agency named ACCIO10. This process enabled the sharing of information, saving time for companies when asking for information, as well as economies of scope in administrative personnel and premises.

processes. This makes them less likely to innovate and venture into exporting without government support. In fact, EPPs impact is typically higher among SMEs than larger firms (Zia, 2008; Freixanet, 2012).

b) Starting exporters: companies which are beginning their internationalization process need more support in order to develop their exports, training and information in order to become more competitive, and help in order to identify contacts and opportunities. This argumentation is supported by previous research, which found that firms in more advanced internationalization stages are the ones that perceive or experience less usefulness in EPPs (Freixanet, 2012; Francis & Collins-Dodd, 2004; Czinkota, 1982; Seringhaus & Rosson, 1990).

Implications for Firms' Managers

The combination of findings described above have also some consequences on the business strategies:

- Companies should make innovation one of their most prevalent priorities. Firms that innovate obtain better products, are more productive, and thus achieve a higher export performance. These efforts may be complemented with actions to commercialize the products internationally (for example, prospection trips, participation in trade exhibitions, or contacts with distributors), but companies should not forget to give priority to innovation, since it is the basis of the future acceptance of their products in the international markets.

- Managers participating in EPPs should be conscious about the need to gather the information necessary for the improvement of their products and processes. They should come with a check-list of basic data to be obtained when establishing contact with the foreign markets, and that may bring about innovation, specially product improvement, which we have seen affects stronger internationalization than process innovation.

- Results show that SMEs and companies starting to export can become more competitive by using most available EPPs. Therefore, managers in companies from this segment should be especially active in gathering information about the programs and increasing their participation therein.

- Finally, managers must be aware that this is a long process. Gathering the information, transforming it into innovative products and systems takes time and requires a considerable amount of patience and an investment to be foreseen.

Table 3 **Summary of findings and implications**

Findings	**Implications**	
	For Public Policy	**For Managers**
EPPs, *per se*, are unlikeable to result in export performance. Other elements, especially innovation, are required	Prioritization of innovative companies in EPPs, or with potential (for instance with entrepreneurial managers).	Creation of a check-list of basic data to be obtained when participating in EPPs, and that may result in product innovation.
	Coordination and integration of internationalization and innovation policies "under one roof".	
	Facilitate the exchanges between innovation and export promotion programs.	

	Priority in fostering innovation -> innovation promotion programs + create conditions to make innovation easier	
Innovation results in a higher productivity, and then in more exports.		Making innovation one of the most prevalent priorities.
Findings	**Implications**	
	For Public Policy	**For Managers**
Inter-temporal linkages between innovation and internationalization	Pre-selection of firms with enough financial resources for EPPs.	Taking into consideration the time and investment required for the process.
Information and Direct Promotion Programs help companies create partner networks	Foster especially Information and Direct Promotion Programs in order to finally increase exports.	Participating especially in those specific EPPs
Innovation has a two-way relationship with networking		
EPPs impact is typically higher among SMEs and starting exporters	EPPs should target, mainly, SMEs and starting exporters.	Managers in SMEs and starting exporters should be especially active in gathering information about EPPs and increasing their participation therein.

4. SUGGESTIONS FOR FURTHER RESEARCH

Previous studies have described the interactions between innovation and internationalization mainly for SMEs. An interesting contribution could be made by measuring how company size affects the impact. Specifically, it would be relevant to measure the effects for large multinationals. Contrary to SMEs, all these companies carry out R&D activities, and therefore the marginal contribution of innovation may be expected to be less than for smaller organizations.

Additionally, an analysis by industry could provide most significant results, since the effects of innovation may be expected to be more decisive for some industries (for instance, technological industries, or those subject to an intense-global competition) than for others.

Finally, as shown in Table 2, the great majority of studies have been carried out in developed countries. Further research could be made as to the interactions between the two variables in emerging economies. It is expectable that the "learning-by-exporting" effects will be clearer for this category of countries.

Appendix. Stages in the internationalization process

	Freixanet (2012)	Francis & Collins-Dodd (2004)	Mendoza *et al.* (2002)	Naidu & Rao (1992)	Barret & Wilkinson (1986)	Czinkota (1982)	Reid (1981)	Cavusgil (1980)	Wiedersheim-Paul (1978)	Khan (1978)	Bilkey & Tesar (1977)	Johansson & Wiedersheim-Paul (1975)
Stage 1	Starting exporters	Pre-exporters	Reactive Exporter	No Exporter and not interested	Not Exporter and does not plan it	Not interested in exporting	Exporting attitude, with problems to find opportunities	National Market	Domestic Orientation	New Exporters	Not interested in exporting	Not regular Exports
Stage 2	Regular Exporter with little structure	Sporadic exporters	Regular Exporter without subsidiaries	No Exporter but interested	Not Exporter, but plans it	Some interest in exporting	Intent Exporter: Favorable Attitude	Pre-exporter: search and evaluate export possibilities	Passive Exports	Initiated Exporters	Only not actively searched orders	Exports by independent sales agents
Stage 3	Regular Exporter with complete structure	Active exporters	Exporter with sales or logistics subsidiaries	Sporadic Exporter	No Exporter but with previous experiences	Exploring export possibilities	Export tests to acquire personal experience	Export test to psychologicall y close markets.	Active Exports	Regular Exports without Planning	Search for Active exports	Establishment of a sales subsidiary
Stage 4	Consolidated Exporter with sales establishments	Majority exporters	Company with production subsidiaries	Regular Exporter	Currently Exporter	Sporadic Exports	Evaluation of export results	Relevant active export intensity		Planned Exports	Export tests to psychologicall y close markets	Production abroad
Stage 5	Industrial Multinational with Product. Subsidiaries				Exporter & with FDI	Discouraged Exporter	Decision on whether to export or not	Committed participation in new and varied markets.		Experienced Exporters	Experience Exporter	
Stage 6						Exporter with temporary sales reduction				Exports through sales subsidiaries	Exports targeting psychologicall y distant markets	
Stage 7						Small experienced exporters				Exports to communist countries		
Stage 8						Large experienced exporters						

Source: Self-elaborated

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