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FOREIGN AID AND ECONOMIC GROWTH: LESSONS FOR PAKISTAN

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Abstract

Even after more than sixty years of foreign aid flows of US\$ 88325 million from various countries aimed to boost economic growth, still every third Pakistani lives below the poverty line. This study used the Error Correction Model (ECM) to revisit whether foreign aid contributed to economic growth in Pakistan over the period 1972 through 2012. Empirical results support the existence of a significant negative relationship between foreign aid and economic growth. The study makes a valuable addition to the body of literature on the impact of foreign aid on economic growth. The results are expected to guide policymakers with regards to the impact of foreign aid flows on Pakistan economic growth and development.

Keywords: foreign aid, trade, poverty, economic growth, Pakistan.

JEL Classification: C32, F35, I30, O19, O40

1. Introduction

The inflow of foreign aid to developing countries¹ is a subject of hot debate among economists and politicians. The term foreign aid² suggests that it be given on humanitarian ground to give relief to people suffering from famines or other natural disasters (i.e., earthquakes, floods and other natural calamities). It is also used to expanding access to basic education and health care, reducing poverty, limiting weapons proliferation, curtailing drug production and strengthening allies in order to boost economic growth and development.

The proponents of foreign aid affirm that inflow of foreign capital is vital for economic growth and development in developing countries. They believe that foreign aid complements domestic resources as well as supplements domestic savings to fill the saving-investment and foreign exchange gaps by the provision of extra financial resources to developing countries. Apart from filling these gaps, it also provides access to modern technology, managerial skills and global markets (Chenery & Strout, 1966; Papanek, 1973; Hjertholm *et al.*, 1998). According to Azam *et al.* (1999) grants and concessional loans represent an important source of finance for low-income developing countries. In the traditional macroeconomic view, these inflows contribute to long-run development by releasing bottlenecks associated with low incomes.

Foreign aid provides additional financing. Morrissey (2001) has identified that there are many mechanisms through which aid can contribute to growth i.e., it increases investment in physical and human capital, it also enhances the capacity to import capital goods or technology. In addition, foreign aid does not have indirect effects that reduce investment or savings rates, and it is linked with technology transfer that increases the productivity of capital and encourages endogenous technical change. Aid remains a key tool for enhancing the development prospects of poor countries (Arndt *et al.*, 2010). Mustafa and Razak (2012) asserted that foreign aid is considered to be necessary and beneficial to developing countries, particularly in the areas of encouraging growth, poverty-reduction, increasing investment, human capital development and supporting good governance.

On the other hand, the opponents of foreign aid suggest that it has no effect on economic growth at best it makes the process of economic growth sluggish in the recipient countries. Further, Boone (1996) explicitly described that aid does not promote economic development because poverty is not caused by capital shortage and it is not optimal for politicians to adjust distortionary policies when they receive aid flows. The poison of aid has led to economic distortion and dependency. Aid corrupted even good men such as Zambia's Kenneth Kaunda. Aid to Africa increased from 5 percent to 17 percent of Gross Domestic Product (GDP) in the late 1990s, while, GDP growth actually decreased from 2 to zero percent or negative growth. It shows that aid does not contribute to economic growth (Jenkins, 2002). A former United States (US) aid official William S. Gaud (1968) expressed that: "The biggest single misconception about the foreign aid program is that we send money abroad.

We don't. Foreign aid consists of American equipment, raw materials, expert services and food - all provided for specific development projects which we ourselves review and approve. Ninety three percent of aid (US ODA program) funds are spent directly in the U.S. to pay for these things. Just last year some 4000 American firms in 50 states received US\$ 1.3 billion in aid funds for products supplied as part of the foreign aid program.”

International capital flows are growing rapidly. Overall, the official development assistance (ODA)³ has increased from around US\$ 40 billion a year in the 1960s to over US\$125.5 billion in 2011. Afghanistan accounted for 7 percent of all ODA over the period from 2009-2011; six other countries such as Democratic Republic of Congo, Ethiopia, Vietnam, Pakistan, India, Tanzania, and West Bank & Gaza Strip each received more than 2 percent of flows. China, once a significant recipient, has fallen from the top rankings since 2006, whereas, India was the sixth largest recipient of ODA over the period from 2009-2011. Global poverty figures show that currently almost 870 million people in the world do not have enough to eat. The vast majority of hungry people that is around 98 percent live in developing countries, where almost 15 percent of the population is under-nourished⁴. Asia and the Pacific have the largest share of the world's hungry people that are around 563 million (World Food Program, 2013).

During the past 60 years, donors invested more than US\$2.3 trillion in foreign aid but apart from this gigantic investment, 3 billion people still live on less than US\$ 2 a day; 840 million are hungry; 10 million children die from preventable diseases; and 1 billion adults are illiterate. In poor countries about one quarter of children does not finish primary school education⁵. Regarding the impact of foreign aid, Herman Chinery-Hesse⁶ says: “I don't know of any country in the world where a bunch of foreigners came and developed the country. I don't know one: Japan? Korea? No! No country did that. I know about countries that developed on trade and innovation and business.” Bauer (1972) reported that all countries were once poor, and the rich countries did not become rich through foreign aid but by having the rule of law and the proper incentives. He added that all too often foreign aid simply turned out to be “transferring money from poor people in rich countries to rich people in poor countries”.

It has been expounded by Rashid (2004) in his book “Rotting from the Head: Donors and Less Developed Countries (LDCs) Corruption”. The general arguments may suggest tendencies toward donor misbehavior, but one needs specific examples to give force to claims of actual misbehavior. Rashid (2005) summarized that it is sadly ironic that the very poverty that induces aid to come to an LDC is an important reason why the aid can turn fruitless. The bureaucracy in the LDCs can be made porous and amenable to foreign directives; the press can be persuaded to avert its eyes; and the agents of civil society, such as the non-government organizations can be made to see that it is in their self-interest to acquiesce to such informal colonialism. Therefore, it is indispensable to understand whether the prime objective of foreign aid provision is to alleviate poverty, or it is provided as common international loan of arms, ammunition, military support, political support and other non-developmental affairs that merely serve to maintain relationship among donors and the recipient countries.

Desirable level of economic growth is imperative to improve social welfare. Pakistan economy is categorized a low middle income country. Like other developing countries, Pakistan's economy also face several administrative, economic, socio and political problems due to mismanagement, shortage of energy, low investment, inflation, terrorism, social unrest, unemployment and consequently sluggish economic growth. As the result of all these perpetuated problems per capita income levels are low and ultimately living standards undesirable at all. In this regard, the Government of Pakistan receiving foreign aid from other countries aimed to promote economic growth. The objectives of the policy makers are usually to fine tune economy persistently to minimize any economic disturbance, however.

This study seeks to verify whether or not foreign aid contributes to economic growth of Pakistan. The findings will certainly help in devising improved policies about foreign aid in the context of Pakistan economy. The main purpose of this study is to revisit the role played by foreign aid in the economic growth of Pakistan. Basically, this study intends to examine the impact of inflows of foreign aid on economic growth in Pakistan quantitatively using time series data covering the period from 1972-2012. Other sources of economic growth such as exports and workers remittances impacts on economic growth will also be considered in this study. The layout of the remaining study

is as follows. Section II discusses previous empirical studies in general and literature on foreign aid with reference to Pakistan in particular. Section III presents theoretical frameworks underpinning the research, data sources, methodology, and estimation and results. Finally, section IV summarizes the findings of the study.

1.1 History of foreign aid flows to Pakistan: Some historical facts

Almost all developing countries including Pakistan have been constantly involved in receiving foreign aid⁷ in various forms i.e., grants and loans from developed countries with the prime objective to augment the process of national economic development. The foreign aid supporters believe that it is highly beneficial as it expedites the pace of economic growth through building infrastructure, mitigates balance of payment distortions, supports productive sectors such as manufacturing and bring new ideas, managerial skills and advanced technologies; encourages education, health, environment sectors and improves social welfare and is used to support subsistence consumption of food and helps to stabilize the economy(see Javid & Qayyum, 2011). Though, initially, the Government of Pakistan negated three times the American assistance to Pakistan in 1950s (Mohey-ud-Din, 2005). Eventually, Pakistan received first time Common Wealth Aid under the Colombo Plan during 1950's. During 1951-1952 (Pre Plan) total disbursed aid including project aid and non-project aid (i.e. non-food, food, balance of payment (BOP) and relief) to Pakistan was estimated at US\$ 337 million. However, foreign aid increased drastically from 1979-1980 onward and the highest was recorded at US\$ 4687 million in 2009-2010⁸. Inflow of foreign aid to Pakistan was recorded at US\$ 1660 million in July-March 2011-2012.

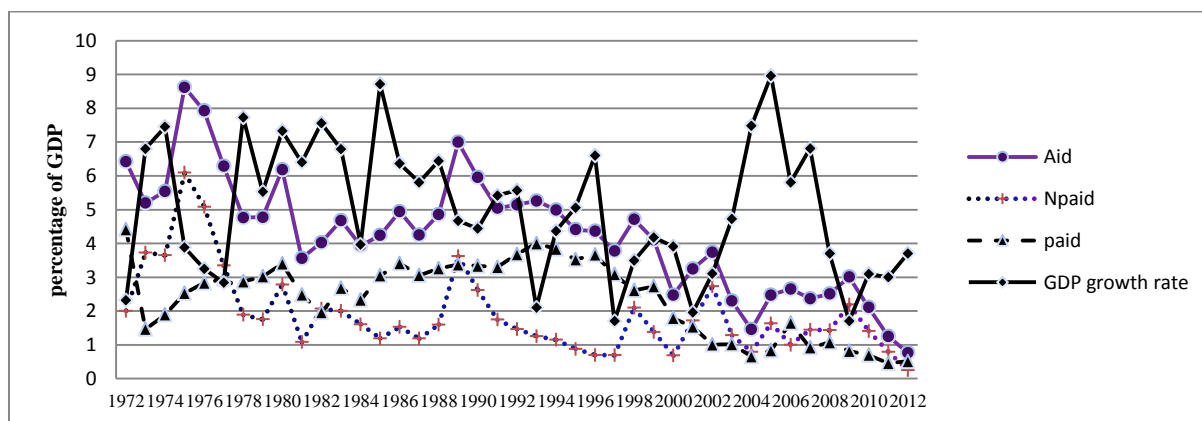
Not with standing, that inflows of American assistance to Pakistan has vacillated considerably over the last 60 years⁹, with the emergence of 9/11 event, aid to Pakistan increased considerably as both the Mr. Bush and Mr. Obama administrations characterized Pakistan as a vital US partner in efforts to combat terrorism and to promote stability in both Afghanistan and South Asia. Since 1950s, the US has pledged more than US\$30 billion in direct aid, about half of it for military assistance (Epstein & Kronstadt, 2012). Recently in April 2013, the US Secretary of State, John Kerry requested 1.3 billion dollars that includes 860 million dollars as non-military assistance and about 300 million dollars as military assistance in 2014 to fund civil and military assistance along with supporting the existing diplomatic platform for Pakistan¹⁰. Pakistan is the third largest beneficiary of US aid after Afghanistan and Israel, and is also the third largest recipient of British aid after India and Ethiopia. British parliamentary committee in 2013 urged that rise in British aid to Pakistan should be conditional, that Pakistan's government should collect more tax commendably¹¹. Apparently, the government of Pakistan does not yet perform its due role for which it has taken the aid. Pakistan economy does not seem to grow economy like neighboring economies such as Bangladesh and India. It has also been observed that in Pakistan, the rich people become richer and poor become poorer continually.

If Pakistan does not really need foreign aid, then why do Western governments provide it? Foreign aid is generally driven by political interests and the desire to influence policies in the recipient countries by bankrolling the projects for the government (Javed, 2012). Perceptibly, the major motives of aid donors are not to boost efficiency and growth, rather, a primary motive is to promote the political, diplomatic, industrial and commercial interests of the country offering foreign assistance. In practice, foreign aid is doing minimal to eradicate poverty and to foster growth in the third world (Sadeq, 2002). However, Islam (1972) concluded that Pakistan received a significant amount of foreign economic assistance, which helped the country achieve a higher rate of savings and investment than would otherwise have been possible; whereas, at the same time consumption expenditures have also increased. In Pakistan, foreign aid was an important influence in strengthening the machinery and process of planning, in initiating the policy of import liberalization during 1963-1964 as well as in the relaxation of controls over food grain prices and distribution in the early sixties.

During 1951-2012, the donors' had provided foreign aid to Pakistan estimated at USD 88,325 million. Seemingly, Pakistan's statistics on economic and social indicators demonstrate that during 2011-2012, GDP per capita estimated at US\$ 1,372, GDP growth rate almost 3.7 percent, inflation rate 13.8 percent, literacy rate around 57 percent¹², health expenditure 0.27¹³ percent of GDP, total investment 12.5 percent of GDP, national savings rate 10.7 percent of GDP, fiscal deficit recorded at 5.0 percent, external debt and liabilities stock recorded at US\$ 60.3 billion, unemployment rate around

6.0 percent and worker's remittances has been increased to US\$ 10876.99 million (Economic Survey of Pakistan, 2011-12). Regarding poverty in Pakistan, every third Pakistani is living his life below the poverty line and therefore, around 58.7 million out of 180 million are living below the poverty line¹⁴. People living below the poverty line are 52, 33, 32 and 19% in Balochistan, Sindh, KPK and Punjab, respectively¹⁵.

The UNDP's Human Development Report (2013) shows that living conditions of the average Pakistani remain unchanged and stands 146 out of 186 countries measured using the Human Development Index. The UNDP officials believe that the Pakistani policy makers need to focus on fundamental sectors such as health and education in order to move towards development. At the moment, Pakistan falls in the "low human development" category. Pakistan's expenditure on social sectors is lower than some of the poorest African countries such as the Democratic Republic of Congo, which spends 1.2 percent of GDP on health and 6.2 percent on education, versus Pakistan's 0.8¹⁶ percent on health and 1.8 percent on education. Even Bangladesh, India and Sri Lanka also spend relatively higher amounts on both sectors than Pakistan. As per the HDI group ranking, Pakistan is the only country which has the lowest rank in four countries in the region, alongside, Bangladesh, Afghanistan and Nepal (UNDP, 2013). A comparison of trend analysis of foreign aid and its component as percentage of GDP along with economic growth can be read from Figure 1.



Source: Data gleaned from Economic Survey of Pakistan (various issues) Aid= foreign aid in aggregate as percentage of GDP, Npaid = non-project aid as percentage age of GDP, paid = project aid as percentage of GDP

Figure 1: GDP growth rate, total aid and non-project aid to Pakistan

Conclusions

This study investigated the contribution of foreign aid to the economic growth of Pakistan. Based on the error correction model for the period 1972 through 2012, empirical analysis demonstrates that foreign aid and its decomposed component (non-project aid) have significantly negative effects on real GDP per capita, whereas results pertaining to the effects of exports on economic growth are significantly positive. The analysis also demonstrates that inappropriate utilization of foreign aid erodes overall macroeconomic incentives in Pakistan; most of the foreign aid goes to non-developmental heads and is largely consumed. Thus we can argue that foreign aid deters economic growth whereas exports earnings have positive impacts.

The policy implications of these findings are that management authorities need not rely on foreign aid because it does not seem to be an appropriate channel through which the country can attain desirable level of economic growth and development but concentrate upon indigenous resources. The volume of exports needs to be enlarged in order to strengthen trade which is a relatively good option for economic development of Pakistan. Appropriate mechanism needs to be adopted for export led growth strategy in order to bolster economic growth. The Government of Pakistan needs to invest in the energy sector, roads, and telecommunication because such kind of physical infrastructure will strengthen the volume of exports. Foreign remittances should also be enhanced. Lastly, the

government should only accept non-refundable/repayable foreign assistance in the form of grants and refrain from foreign aid with hard conditions to sustain economic growth and development.

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IS DISCRETIONARY FISCAL POLICY EFFECTIVE? THE CARIBBEAN EXPERIENCE

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Abstract

Governments' recourse to fiscal policy to mitigate the effects of the 2008-2009 global economic crisis renewed interest on the role of fiscal policy on influencing economic activity. Consequently, vast empirical research emerged in developed countries, while little remains known in developing economies which implemented similar fiscal stimulus packages. Accordingly, this paper analyzes the economic growth effects of discretionary fiscal policy in small open developing economies with application to the Caribbean. Using structural vector autoregressive methods, results reveal new evidence of expansionary fiscal contractions in Barbados. Government expansionary policies temporarily stimulate Trinidad and Tobago's economy but have no effect on Jamaica's.

Keywords: fiscal policy shocks, structural VAR, impulse response functions, small island developing states, Caribbean

JEL Classification: E62, C32

1. Introduction

The 2008-2009 “Great Recession” wreaked havoc across the world. In response, most governments resorted to using fiscal policy in an effort to mitigate its effects. Such prevalence of fiscal policy interventions reflect revealed optimism regarding the potential effectiveness of activist fiscal policy (Auerbach *et al.*, 2010). Yet economic theory is not conclusive on whether discretionary fiscal policy (increases in government spending and/or decreases in tax revenue) is effective. The classical models argue that the market system automatically adjusts to booms and busts. Therefore, they presume no role for fiscal policy indicating its ineffectiveness. The neoclassical models and neo-Keynesian models, on the other hand, imply positive effect of government spending on output; albeit with different dynamics. The neoclassical models (see for example Baxter and King, 1993) typically predict a negative effect on private consumption, while neo-Keynesian models predict the opposite sign.

The empirical literature also offers no consensus on the size of the effects of fiscal shocks on output. The evidence is largely based on two approaches: the “dummy variable” approach and the “structural vector autoregressive” (SVAR) models. Studies on the dummy variable approach typically report negative private consumption and positive output response to government spending; see for example Ramey and Shapiro (1998). The approach relies on the narrative record and news about fiscal build-ups to identify shocks to government spending. Although the approach identifies shocks postulated as truly exogenous to the system, it is subject to the researcher's ability to accurately identify the dates such exogenous shocks occurred. Thus, several studies (for example Ilzetzi *et al.*, 2013; Bénétrix and Lane 2013; 2010; Beetsma *et al.*, 2010) use the SVAR approach pioneered by Blanchard and Perotti (2002). It involves identifying fiscal policy “shocks” using SVARs and simulating the dynamic impact of these shocks on GDP and other variables of interest. The SVAR studies typically find a larger effect of government spending on GDP and in some cases crowding-in of consumption (e.g. Blanchard and Perotti, 2002, and Galí *et al.*, 2007). Other SVAR studies find crowding-out of consumption and a smaller but positive effect on GDP (see Perotti, 2007). Mountford and Uhlig (2009) use less restrictive sign-restrictions to identify fiscal shocks and find much smaller deficit-spending multipliers.

The extant research is enormous in developed countries yet there is dearth of research in developing countries. This paper attempts to fill this gap in order to shed light on the relative merits of alternative modeling approaches as well as provide wider empirical evidence. Through extending the aforementioned literature, we investigate the output and debt effects of discretionary fiscal shocks – changes in government spending and taxes – on small island developing states. The small island developing economies of Caribbean countries provide a natural experiment on analyzing the

discretionary fiscal policy effects given the region's adverse effects from the global economic crisis. The Caribbean output contracted by 2.8% compared to the global average of 0.6% in 2009 (IMF, 2010). Across the region, however, there were diverse effects on output. Barbados' output fell by 0.2% in 2008 and slumped by a further 4.4% in 2009. Jamaica recorded economic downturns of 0.9% and 2.7% in 2008 and 2009 respectively. Trinidad and Tobago's economic growth decelerated in 2008 and declined by 3.2% in 2009. Similar to OECD countries, the small island developing economies in the Caribbean responded by injecting large discretionary fiscal stimulus packages in 2009 to dampen recessionary pressures and stimulate their economies. While Jamaica's fiscal expansion focused on both expanding government spending and tax cuts, Barbados and Trinidad and Tobago responded through increasing government expenditure.

The study focuses on three largest Anglo-Caribbean countries by GDP size – Trinidad and Tobago, Jamaica and Barbados. Barbados operates a fixed exchange rate system for about 40 years. Trinidad and Tobago has a crawling peg (quasi-fixed exchange regime) while Jamaica operates a flexible exchange rate since 1991. All three countries are open economies, though Jamaica and Barbados are more indebted than Trinidad and Tobago. As of 2009, Jamaica's central government debt to GDP ratio stood at 113%, Barbados at 92% and Trinidad and Tobago at 21%.

Using structural vector autoregressive approach (VAR) over the period 1971-2012, while controlling for the debt burden – a major challenge in the region (see e.g. Greenidge *et al.*, 2010) – our results show that expansionary government spending has a transitory positive impact on GDP in Trinidad and Tobago due to availability of fiscal space. In the case of Jamaica government spending is not effective in jump-starting the economy. In Barbados we find new evidence of contractionary fiscal expansions. This is a novelty in empirical literature, posing challenges to the practice of fiscal policy in small island developing economies. Further, this result contradicts existing theories and calls for more encompassing theories of fiscal policy.

The next section briefly reviews the evolution of fiscal policy influential in decision-making on the fiscal front. Section 3 discusses the econometric approach, while section 4 presents the data and the estimation results. Finally, section five concludes.

Conclusion

This paper contributes to previous literature analyzing the effects of fiscal policy on economic activity. It assesses the effectiveness of fiscal policy in small open developing economies which rely heavily on fiscal policy for stabilization purposes. Applying structural VAR models to three Caribbean countries from 1971-2012, new results emerge. They indicate that injection of government funds is ineffective in triggering economic activity in the case of Barbados and Jamaica partly due to their high debt levels, small economic size and openness. Indeed in the Barbados case, positive government expenditure shocks have negative effects on GDP growth. This may suggest a crowding-out effect on private expenditure necessary for growth or agents' loss of confidence in government's finances (in anticipation of compensating with higher future taxes), which inhibits private investment and growth. The overriding conclusion is that, in Barbados, any attempt to stimulate growth through government spending to stave off recessions may actually exacerbate their devastating effects. This calls for new theories encompassing the possible negative effects of discretionary fiscal policy.

In Trinidad and Tobago, government spending has transitory positive effect on economic activity. The positive effect is partially attributed to the countries low debt and possibly the existence of oil revenues which provide significant fiscal policy buffers during recessions. Hence, when faced with economic recessions, the neo-Keynesian prescription is relatively more appropriate for Trinidad and Tobago but inadequate for Barbados and Jamaica. However, the low impact raises questions as to the usefulness of discretionary fiscal policy for short-run stabilization purposes in Trinidad and Tobago.

In line with Keynesian theory, tax shocks are negatively related to GDP for Barbados. This result points to the effectiveness of tax reductions in stimulating the economy during recessions. As for Jamaica and Trinidad and Tobago, tax shocks have no statistical significance suggesting that any attempt to stimulate these two Caribbean economies with tax cuts may not yield desirable results. These findings are very informative to policymakers for containing recessionary effects and stimulating the economy.

The paper revealed that the effectiveness of neo-Keynesian fiscal policies may be tied to their funding. In other words, they are more effective in countries with fiscal space. Clearly, Jamaica and Barbados has very limited fiscal space, while we cannot argue the same for Trinidad & Tobago. Consequently, the results provide valuable lessons for the effectiveness of stabilization policies in small island developing nations with restricted fiscal space.

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FORECASTING TURKEY'S ENERGY DEMAND USING ARTIFICIAL NEURAL NETWORKS: FUTURE PROJECTION BASED ON AN ENERGY DEFICIT

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Abstract:

As Turkey has limited energy resources and satisfies a large part of its energy needs using foreign resources, this study evaluates Turkey's current energy conditions and presents a set of energy projections to contribute to the country's future plans, programmes and policies. Based on the widespread view that the energy deficit is one of the most important constraints on Turkey's sustainable growth, this study presents a set of predictions covering Turkey's energy production and consumption for the nine-year period between 2012 and 2020. Based on the results, this study also proposes a set of solutions.

In this study, a projection of Turkey's energy production is made by considering the energy production targets of existing plants and the new energy plants that are planned to be completed in the projected future. In addition, the energy demand is forecasted by using a type of artificial intelligence model known as an artificial neural network.

Keywords: energy demand, energy deficit, forecasting, artificial neural networks.

JEL Classification: C45, Q41, Q47

1. Introduction

Historical analyses of social development reveal that all efforts are intended to improve social welfare. Social welfare can be enhanced by increasing the amount of goods and services available to society. Today, the level of economic development is used as an important criterion for designating a given country's level of development. In parallel, one of the most important factors for designating the level of economic development is the level of production. A country's level of development is based on its level of production with respect to information, technology, goods and services as well as its ability to convert these four elements into economic and social utility. Hence, the literature on economics emphasises the significance of examining and comprehending the factors that facilitate growth, especially sustainable growth. Ensuring production and economic growth requires a series of basic inputs, one of the most important being energy.

As an input required at all stages of production and an element required for increasing a society's standard of living, energy is one of the most significant components of economic and social growth. Due to this great significance, energy cannot be viewed simply as a matter of input for production. Instead, energy is interpreted as an issue that shapes the world economy and world politics, a strategic commodity that constitutes the essential element of international relations and a determinant of the economic, social and geographical order of the world. States' desires for the possession, control and dominance of energy resources reflect the indispensable nature of energy in not only the realm of economics but also that of politics.

For any state, reaching a particular level of economic growth is possible only with a supply of uninterrupted, high-quality, safe energy. Producing goods and services, providing these goods and services to consumers and keeping this process sustainable are not possible without the use of energy. Therefore, any problem concerning the procurement of energy or meeting increasing energy needs with suitable costs creates a production bottleneck for the economy.

If local energy resources are insufficient, the continuous and affordable procurement of energy may not be possible under given market conditions. The method of energy procurement, the problems faced during this procurement and the impact of energy on national and international competition, countries' production structure, budgetary equilibrium and external deficit make energy a significant item on states' agendas.

Turkey's energy needs are increasing in parallel with the country's growing economy and changing socioeconomic structure. The disparity between the sharply increasing need for energy and the lesser increase in energy production creates an energy deficit, which is highly problematic. Under these conditions, Turkey must either consent to a low rate of development based on available resources or attempt to increase its level of production by compensating for its energy needs using foreign energy resources in addition to available domestic resources. Turkey primarily relies on its domestic resources when striving to achieve the required level of production. Nevertheless, because Turkey does not possess enough energy resources to provide the demanded energy, it acquires the rest of its energy needs from foreign resources. This obligation increases the rate of energy product import, thereby increasing the country's current account deficit and the amount of money paid in each bill by society. Moreover, in addition to the high cost of these imported energy resources, their control by only a few states creates the possibility of an energy crisis if the diplomatic relations between these countries worsen or cease. Such uncertainties regarding energy procurement in Turkey lead to inconsistent growth and reduce the level of welfare.

Turkey satisfies more than 70% of its energy needs from foreign resources, and this rate is constantly increasing. Thus, the energy deficit is a very important problem that begs a solution. In this regard, the procurement of the energy needed for sustainable growth and reducing the need for foreign resources depend, first and foremost, on the planning of investments in energy. Planning requires an accurate designation of energy needs and resources as well as the balancing of production and consumption. Energy needs must be predicted based on macroeconomic goals and energy investments and agreements must be made accordingly. Such energy planning has to consider the middle- and long-term economic growth inclinations of Turkey, correlate its population growth rate and social needs with its energy needs and ultimately produce a realistic plan that reflects the needs of the country. That is, the demand predictions must be accurate to create plans based on energy needs.

These energy consumption predictions are needed for both determining future capacity- and investment-related needs and ensuring that energy agreements meet these needs. By contrast, if no predictions are made or if these predictions are not made accurately, then the dissemination of resources is suboptimal and resources are wasted. In this regard, for Turkey to ensure consistent economic development, it has to meet the increasing demand for energy, which is one of the most important inputs for production. In turn, meeting this demand requires an accurate prediction of energy needs and demand.

The aim of this study is to provide predictions of Turkey's energy demand to facilitate the safe and reliable procurement of energy in the near future. Additionally, this study aims to provide guidance to decision-makers and market shareholders for the timing of the establishment of new facilities; the quantity, composition and purchase of energy resources; and the features of possible new energy agreements. An accurate prediction of energy demand is a prerequisite for designating the amount that should be invested in the middle and long term, the level of future capacity increases and the features of possible energy-related agreements. Thus, such predictions are very important for balancing energy supply and demand. The more accurate and reliable the predictions are, the more valid the plans will be.

In this study, we will evaluate the energy deficit and energy production predictions for Turkey for the next nine years (2012-2020) using the artificial neural networks method. We have chosen this prediction method due to the success of artificial neural networks, especially in non-linear time series (Tang *et al.*, 1991; Zhang *et al.*, 1998). Next, Turkey's energy production capacity projection based on the energy production facilities that are already built, under construction or licensed for construction in the future will be evaluated along with the prediction results of the artificial neural networks. The acquired data will be used to determine the physical and financial extent of the energy deficit. Based on these results, a set of resolution strategies will ultimately be offered.

Conclusion and evaluation

Viewing energy deficit as one of the largest constraints of Turkey's sustainable growth, this study has presented the development and current level of energy deficit in Turkey and projected the energy deficit and energy consumption for the coming nine years. Projections of Turkey's energy production have been made based on the energy production facilities that are already built, under construction or licensed for construction in the future. Additionally, energy consumption projections

have been made based on projection modelling using artificial neural networks. In this framework, the projections of the energy demand for the years 2012-2020 are based on variables for the period 1960-2011. Based on the energy production and consumption projections made using the given data, the general energy demand is expected to increase at an annual rate of 3.2%, reaching 152.492 thousand TOE in 2020. Energy production is expected to increase at an annual rate of 8.6% and reach 65,704 thousand TOE in the year 2020. Due to a sharp increase in the demand for energy, which has far exceeded the actual production capacity, Turkey's primary energy deficit was 82.251 thousand TOE in the year 2011. Under the assumptions that the designed remediation works are realised and nuclear energy plants are completed on the projected dates, Turkey's energy deficit is expected to reach 86,788 thousand TOE in the year 2020. During this period, the 72% foreign dependency rate for energy for the year 2011 is expected to decrease to 57% in 2020. That is, export goods in energy consumption are expected to decrease over the following decade. Moreover, the 56.9 billion dollar cost of total energy exported in the year 2011 is expected to decrease to 60 million dollars in the year 2020. After the completion of the already designed remediation projects and nuclear power plants on the planned dates, the local energy production is expected to meet the energy demand at an increasing rate. However, a 57% dependency on foreign energy resources is still comparatively high. Therefore, to reach energy equilibrium without increasing the current account deficit and without making any sacrifices in the growth rate, the first priority should be developing and utilising currently available energy resources. Other significant steps that can be made toward this end are the diversification of energy resources and the efficient use of available resources.

It is not possible for Turkey to improve its energy supplies completely independently, nor is it possible for Turkey to secure a stable energy supply by itself and decrease its dependency on foreign resources. Although developing the energy supply might be of significance, reducing the demand for energy and spreading energy savings to all layers, thereby transforming the Turkish economy into one that uses energy efficiently, is an equally important part of the solution to Turkey's energy problem. Turkey's current account deficit resulting from an inefficient use of energy in both production and consumption hinders the procurement of energy and makes Turkey more sensitive to energy-related foreign shocks. Therefore, austerity measures are required at all levels of energy consumption. Losses in the transmission and distribution of energy must be remedied via necessary infrastructural work, the implementation of modern transportation systems and renovation. Therefore, securing energy supplies, diversifying energy resources, as well as the regions from which energy is procured, and increasing the efficiency of the available energy resources should be the priorities in reducing Turkey's foreign dependency on energy.

The results of the energy demand estimations found by us are compared with the official estimations of the MENR. A comparison of the results shows that the values provided by the Ministry are strikingly higher than those presented in this study. When the predictions of the MAED model are closely evaluated, significant proportional differences between the predicted energy demand values and the present actual values are observed. Thus, the MAED model does not provide reliable results for middle- and long-term predictions. In future energy planning and decision-making process, it is suggested to take other academic studies, methodologies and their findings into consideration.

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THE ACCOUNTING TREATMENT OF TOURISM SERVICES CASE STUDY OF ROMANIA

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Abstract:

Business success depends, primarily, on the path a travel agency is about to choose that can be a mediator, a reliable partner and an opportunist. A name in tourism is made with patience, constant effort and quality services, which imply a very good preparation in the field. The trust inspired by the travel agent to the client and the previous experiences he had with other agencies is also of utmost significance. Beyond the theoretical parts travel manuals offer, travel agency-tourist has to be seen as a relationship of trust between those who provide travel services and the recipients. Online travel packages purchasing registered a very significant growth, tourism tending to become virtually biggest industry on the internet. With this in mind, we found it necessary to treat the accounts of travel companies in Romania, which are not prepared to make a financial effort to make their online advertising the main way to promote. The central role of agencies will maintain or decrease depending on several variables: the relationships between companies, consumer habits, laws which protect the consumer, the relationship between the various tourist services etc.

Keywords: accounting, tourism product, tourism services, prepayments, discount, travel expense

JEL Classification: M2, M4

1. Introduction

Tourism, as an economic activity, must connect to the concept of sustainable development, being an industry that is dependent on natural resources and the cultural heritage of each companies that sell these resources (processed or not) as part of the "products" and at the same time, shares some resources with other users, including local communities.

The success-life of a travel agency depends on how it manages to develop tourist products to satisfy at a greater extent the needs of different customer segments, to differentiate from the competition.

The central role of agencies will maintain or decrease depending on several variables: the relationships between companies, consumer habits, laws which protect the consumer, the relationship between the various tourist services etc.

A travel agency is a company with limited resources that can achieve significant economic effects, but it depends on how it is managed and it's professionalism but also how it operates in all company departments. A multiple specialization of the employee provides company functionality with good results, without the need for a bushy and therefore expensive organizational chart.

Conclusion

A good accounting instrumentation of the activity of a travel agency means efficiency both in terms of business activity, but also by reducing the risk of fines which may be subject to firm as a result of law enforcement for non-compliance tax accounting treatment required by legislation.

Starting from the idea that the accounting information has a basic role in decision making in the management of tourism companies, we sought to gather out in this paper basic notions and concepts of accounting, working methods and techniques, both theoretically and in terms of practical applicability in tourism.

Treating tourism services only from an accounting perspective could not have be understood if it had not been addressed and exposed with notions related to the concept of tourism, the legislative framework in which it develops, if a short classification of enterprises tourism had not been done - the case of the agencies - the main link in the marketing of the tourism product.

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IMPROVING COMPETITIVENESS AND TRADE BALANCE OF GREEK ECONOMY: A COOPETITIVE STRATEGY MODEL

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Abstract:

In this work, we propose a coopetitive model applied to the Greek crisis, aimed both at improving the competitiveness of the Greek productive system and rebalancing the current account balance of the country.

Our model of coopetition (based on normal form game theory) is conceived at a macro level, wherein there are two players: Greece and SNC (the Surplus Northern Countries of the euro area). We suggest a model that looks for a win-win solution. The win-win solution entails a cooperative bi-strategy in which SNC should contribute to re-balance its trade surplus with respect to Greece and, in addition, SNC should provide a certain amount of foreign direct investment (FDI) to improve the competitiveness and the growth in Greece. Thus we find a transferable utility and properly coopetitive solution, convenient for all the players.

Keywords: Games and economics; coopetition, cooperation, competitiveness; trade balance; foreign direct investment; Greek economy.

JEL Classification: C71, C72, C78, F2, F23, F42, O24

1. Introduction

How can we help Greece to find solutions to overcome or, at least, improve its economy, which is still suffering from a deep crisis since 2010? Which policy actions can be taken within the euro system to make the Greek economy more competitive and steer the country towards a path of sustainable economic growth? The austerity measures imposed by the European authorities and the IMF to Greece revealed their limits, determining a long and deep recession and making the recovery very problematic, as Mussa (2010) had already foreseen. In this work we devise a coopetitive model aimed both at rebalancing the current account balance of Greece and make its productive system more competitive. So, we propose a model that looks for a win-win solution. This model, based on normal form game theory and conceived at a macro level, aims at suggesting feasible solutions in a coopetitive perspective for the divergent interests, which drive the economic policies of the countries in the euro area.

In the model we consider only two players: Greece and the Northern Countries of the euro area in surplus (SNC), namely: Germany, Austria, France, Finland, Netherlands and Luxembourg. In fact, since 2008, these latter countries have become much more competitive than the Southern countries of the euro area (Greece, Portugal, Spain and Italy), thus these Northern countries have obtained large current account surpluses. In our model the win-win solution entails that SNC should contribute to re-balance its trade surplus with respect to Greece.

In addition, SNC should provide a certain amount of foreign direct investment (FDI) that can improve the competitiveness of Greek economy, FDI may also become an important part of a new strategy of growth in Greece because of its spillover effects. This economic policy strategy based on coopetition pursued by SNC and Greece is convenient for both since it will help to make the euro area a financially stable region; in addition the improved competitiveness of Greece will favor its growth and this will benefit SNC as well. We are indeed aware that this model is built on some special assumptions, though not unrealistic, so our analytical framework of coopetition represents a partial and possible way out of the economic crisis that hits the Greek economy.

Conclusion

From our model we can draw some concluding remarks. First, the coopetitive game, provided in our contribution, is essentially a normative model. Second, our example of coopetition has pointed out a win-win strategy, in a transferable utility and properly coopetitive perspective, for Greece and

SNC. Third, we propose a framework characterized by a cooperative bi-strategy based on two shared variables: export from Greece to *SNC* and FDI from *SNC* to Greece.

Thus, in our model we provide:

- properly cooperative solutions (not convenient for *SNC*): Kalai-Smorodinsky bargaining solution on the cooperative Nash path, set of all possible Nash equilibria of the cooperative interaction.
- one transferable utility and properly cooperative solution, convenient also for *SNC* and also rebalancing for the Euro area.
- an extended Kalai-Smorodinsky method, appropriate to determine rebalancing partitions on the transferable utility Pareto boundary of the cooperative game.

Finally, the solutions offered in our cooperative model aim at enlarging the “pie” and sharing it fairly.

In addition, they show win-win and rebalancing outcomes, for the two countries, within a cooperative game path. These solutions allow us to find “fair” amounts of Greek exports which *SNC* must cooperatively import, as well as the optimal amount of FDI that is necessary to improve the Greek economy, contributing to the growth and to the stability of both the Greek and *SNC* economies.

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APPLICATION OF MULTIPLE CRITERIA METHOD OF ANALYTIC HIERARCHY PROCESS AND SENSITIVITY ANALYSIS IN FINANCIAL SERVICES IN THE CZECH REPUBLIC

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Abstract:

The paper presents multiple criteria decision making, namely analytic hierarchy process, application of criteria weights sensitivity analysis, eliciting change of the order of variants. Assessments are focused on financial products (total 132 of financial leasing and loans alternatives) using four financial and four non-financial criteria. The aim of this paper is to consider a set of alternatives of financial products (financial leasing and bank loan) by the method of AHP and a weighted sum followed by selection of the optimal alternative and implement a sensitivity analysis. By applying these methods, it was found that the most appropriate type of financing is bank loan borrowed with a maximum amount equal to the market price. Sensitivity analysis showed that the most sensitive criteria have the smallest degree of significance.

Keywords: analytic hierarchy process, Saaty's method, sensitivity analysis, financial products.

JEL Classification: C44, G30

1. Introduction

One of the key business activities are investment decisions, which focuses primarily on the renovation and expansion of the property (Fotr, Souček, 2011). Since the most costly alternative of financing are own resources, more businesses use the possibility of financing through external sources. The most common forms of procurement are bank loans and finance leases. At first glance, it is not possible to determine which of these products is clearly preferable. At present, although there are many lease and loan calculators, through which it is possible to compare different variants as leasing and credit. Such a comparison takes into account the non-financial (cash) criteria. It does not take into account such factors as the ownership of the object of acquisition, method and intensity of reporting, the distance between providers and users. To address these shortcomings multiple criteria decision-making methods can be used. The actual decision maker (or a group of decision makers) may define the key (critical) the criteria to be considered in this decision (Šoltés, Gavurová, 2013). The aim of this paper is to consider a set of variants of two types of financial products (financial leasing and bank loan) by the method of analytic hierarchy process (AHP) based on pair-wise comparisons (Saaty, Thomas, 1977) with the objective to select the best alternative and implement a sensitivity analysis. The paper is structured into two main parts. The first part deals the description of the applied methods. The content of the second part is an application of this method in assessing different alternatives of financial leasing and loan according to established criteria.

Conclusion

Investment decisions are crucial business activities. Its consequences are long-term and cost considerable funds. For these reasons, it must always be considered when deciding a number of criteria, which may have a conflicting nature. To address such problems, it is possible to use methods of multiple criteria decision making. The most comprehensive method of multiple criteria decision is the decomposition method of analytic hierarchy process (AHP) because it is this method that allows analyzing the problem to lower levels, thus ensuring detailed solution to the problem.

The aim was to assess the contribution of a set of variants of two types of financial products (financial leasing and bank loan) by the method of AHP and a weighted sum followed by choosing the optimal alternative and implement a sensitivity analysis of alternatives. Given the extensive initial set of 132 alternatives a two-stage assessment of these variants was utilized. Financing options were assessed according to four financial and four non-financial criteria.

In the first stage groups were created (by type of financial product, according to the provider and the period of repayment of the product that is, the time commitment). This comparison was selected from each group of variants with the highest utility function. Subsequently, in the second stage of decision-making 15 variants were assessed of which were in the best alternatives selected. The best alternative seems to be a_{46} . This is a loan provided by KB (namely ESSOX). The most preferred criterion is the amount owed by the decision maker to the provider of the financial product; its significance is the characteristic value of 0,397 (39.7 %). The order of the first five variants of funding (three bank loans and two financial leases) reaches the maximum desired value i.e. the cost of the asset. It follows that in these cases the decision maker does not have to spend own resources.

The result of the analysis process is a sequence alternatives, where the first three options for assets financing (based on comprehensive criteria) are bank loans with different variations of individual criteria values. Following fourth and fifth option to acquire an asset are basically financial leasing.

After assessment of selected variants and determination of their order the sensitivity analysis was carried out. From this analysis, it can be considered that the most sensitive criteria preferences. Specifically these are the criterion of administrative costs and the decision maker criterion of distance from the nearest branch provider.

It was conducted based on the application of clear definition of the criteria, their values and determination the level of interest criteria affects the selection of optimal financing options of a property.

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ALLOCATION OF PUBLIC FUNDS FOR RESEARCH AND DEVELOPMENT IN A SMALL COUNTRY: THE CASE OF MOLDOVA

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Abstract:

Public funding for research and development is an important instrument of state innovation policy, particularly in countries with modest private investment in research. Allocation of public funds must take into account both the need to ensure the sustainability of R&D activities and the promotion of excellence research and ensuring economic and social impact. Small countries face additional problems in the process, especially related to the objective evaluation of projects' proposals. The paper examines the case of Moldova, focusing on the allocation of public funds, on specific problems and possible ways to improve this process. There has been a reduction of their competitive financing, poor compliance with the principles of peer-review and insufficient involvement of experts from abroad, the lack of clear criteria for the allocation of institutional funding. However, the current way of public funding does not stimulate R&D and industry cooperation. The findings suggest the need to strike a balance between different modes and tools of public funding for R&D in Moldova.

Keywords: public R&D funding, allocation policy, institutional funding, project funding, research governance.

JEL Classification: H59, O31, O38

1. Introduction

It is now widely recognized that knowledge is the currency of the new economy, and research and innovation capacity, created on a solid public scientific base, is essential to a sustainable economic recovery. Public funding for research and development (R&D) is one of the principal means of state intervention in the processes of innovation and the pursuit of research and innovation policies. To achieve the objectives, an efficient utilization of public funds for R&D is required. In this respect, countries restructure and adapt their research funding mechanisms (ERAWATCH 2014). In turn, the European Union promotes the increase of competitive funding and the improvement of public funds distribution assessment (EC 2012).

In the small states, there are particular challenges in developing an effective and efficient framework for funding R&D (see ALLEA 2002; Fabri 2013). In this context, we aimed to analyze the distribution of public funds for research and development in Moldova, focusing on their allocation, specific problems and on finding possible ways to improve this process.

Conclusions

The mode of R&D funding is a major tool in the reforms undertaken by governments of the countries that are advanced, from a scientific point of view, oriented towards enhancing the national scientific capacity and increasing the contribution of publicly funded research to meet the society's needs. The funding proportion allocated by project competitions is increasing in comparison to the institutional funding in the public sector. Institutional funding is increasingly more often allocated based on performance evaluation, a process involving all stakeholders in the society.

In Moldova there is a reverse trend of reducing competitive financing projects in the context of stagnation (in absolute terms) and decrease (relative values) of public funding for research and development. Institutional projects, even if they meet the formal requirements for competitive funding, cannot be considered a truly competitive instrument in the distribution of public funding because of the particularities of the process.

The lack of an appropriate infrastructure for research, as well as non-attractive working conditions because of chronic underfunding, are limiting factors for achieving excellence in research, but also for increasing the share of public funds allocated through competition. However, the biggest

problem in the distribution of competitive finance is a non-objective assessment of project proposals due to the small size of the scientific community and the lack of an evaluation culture. It requires a gradual inclusion of foreign experts in the evaluation of proposals within the competitive funding programs, firstly of experts from Romania and from diaspora (due to the language factor). We find it useful as well the prioritization of internationally recognized scientific results in the evaluation process.

The existing mechanisms for evaluation of institutions, primarily the assessment and accreditation by the NCAA, are not used in the distribution of institutional funding. The score and qualifications awarded to the institutions in this process ought to form an important element of the distribution algorithm of institutional public funding.

The analysis of the distribution of public funding for R&D on other criteria (thematic, territorial, sectoral, etc.) highlights certain imbalances with a negative potential for the development of national research and development. Thus, the "bottom-top" approach for the distribution of public funds contributes to the poor integration of research and development in the national innovation system. The unequal access to public funds is another limiting factor in developing an effective innovation system.

All the evidence suggests the need to strike a balance between different modes and tools of finance in Moldova that will ensure, on the one hand, an efficient use of funds, and on the other hand, the autonomy of the R&D activities. In the process of reconfiguring the allocation mechanism, it should be taken into account the need to increase the proportion of project finance allocated through competitions, the use of organizations assessment as a basic element of the allocation of institutional funding and the effective implementation of the core principles of international evaluation.

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THE ANALYSIS OF ECONOMIC PERFORMANCES USING RETURN ON INVESTMENT

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Abstract:

Having in mind the importance of the investments for the sustainable increase of the company value we propose a model of analyzing the return on investment (ROI) with biannual data from the 2004-2011 period for five companies listed at the Bucharest Stock Exchange. Using the model proposed in the present work we have intended to analyze the relationship between several economical and financial measures and the efficiency of past investments. We have obtained results somehow different to a similar study proposed by Höbarth (2006,) as we operated with a lesser amount of observations, which affected both the number of variables and the relations between the dependent variable and the regressors. After several runs of the model with the STATA program we found that 64% the evolution of ROI was explained by the influence exerted by the determinants of the cash conversion cycle, return on assets and by the relative modification of the sales turnover.

Keywords: economic performances, return on investment, return on assets, balanced panel data, fixed effects, robust errors

JEL Classification: G11, G14, G32, G39

1. Introduction

The importance of the investments for the sustainable increase in the company value is undisputed in the economic business and academic environment. In the same time, the issue of having an efficient follow-up of the investment activities is also essential for the investors and company managers.

In order to describe the efficiency of past investments we can employ a series of measures, which are usually based on the financial accounting data. In this sense, we can mention traditional measures such as return on assets (ROA), return on investments (ROI), return on equity (ROE) or modern measures, such as cash flow return on investment (CFROI), cash value added (CVA), economic value added (EVA), market value added (MVA).

The efficiency of the capital invested is usually attested should the level of the aforementioned measures is higher than a specific benchmark. In case of the ratio-type measures such as ROI, ROA or ROE, the benchmark is usually represented by the average interest rate, cost of equity or weighted average capital cost. For the measures expressed in absolute values (such as CVA, EVA or MVA), efficiency is obtained if the level of the effect measures is higher than the corresponding level of the effort measures. For instance, in case of EVA the net operating profit after taxes – NOPAT – should be higher than the cost of capital, expressed in absolute figures and not as percentage.

Our analysis' model was inspired by the Höbarth's study (2006), which analyzed the relationship between several economic and financial measures and the company performances. Höbarth supposed there are several general factors, instrumental for the evaluation of each company's success. The Höbarth's study was performed in three different directions, resulting into three different econometric models: the first, referring to the return on invested capital (ROI), the second dealing with cash flow and a third one concerning market value (Firth, Malatesta, Xin, Xu, 2012).

The results obtained from the Höbarth's study confirmed his initial hypothesis, attesting the existence of a clear-cut relationship between a company's profitability and a series of economic and financial measures.

In our study we have analyzed the evolution of return on investment for five Bucharest Stock Exchange (BSE) listed companies: ALRO, AEROSTAR, ARTEGO, PETROM and TRANSELECTRICA, using an econometric model, with biannual data for the 2004-2011 period. We have looked to select various, yet significant companies from different sectors in order to get a representative sample.

In the second section of the paper we have realized a literature review concerning the approach of ROI in reference articles and books during the last 15 years; the third section is dedicated to the specific analysis of ROI for the sample of five Romanian companies, whereas the final section deals with the concluding remarks and possibilities for improving the analysis.

Concluding remarks

The analysis of the economic performances based on regression models reveals interesting facts about the causality relations between ROI and significant variables generated by the operating and investing cycles of the companies.

We have started with nine explanatory variables and after subsequent successive works done with STATA we have reached the final model with three variables and one time dummy variable. These variables explained about 62% of the evolution of ROI. Further we managed to enhance the significance of the model to 64% by taking into account the components of the cash conversion cycle: the inventories conversion period, the receivables conversion period and the payables deferral period.

Our analysis can be improved if we manage to increase the number of companies involved and the number of years, which will also allow identifying more factors of influence and a more complex causality.

One variation of the analysis can be achieved when using the measure specific investment, respectively the level of the assets needed for generating 1000 lei of net operating profit after taxes. This measure offers the advantage of having a financial approach toward the efficiency of the investments.

In the same time, in order to increase the accuracy of the data we could use cash flow measures (operating cash flow, free cash flow to the firm), and value based measures. For example, we could replace ROI with CFROI (cash flow return on investments) or with economic profit (also known as EVA – economic value added). However a problem with value based measures is that they are more difficult to calculate and the benefits from increased accuracy compared to the more traditional measures are not always significant enough to justify their use.

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REPRESENTATION OF EQUIVALENT ELEMENTARY STRUCTURED ELEMENTS

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Abstract:

The concept of structured elements in labeled graphs was introduced in ([1]). In the present paper we will extend the terms of structured element and elementary structured element by introducing the notion of equivalent elementary structured element. Also, we will define some equivalence relations and the term of equivalence class designated by an element.

Keywords: frontier tracing, equivalence relation, equivalence class

1. Introduction

An important concept in the field of Artificial Intelligence was named Knowledge Representation and Reasoning System (KRRS). Such a system is a collection of components cooperating between them and the whole system is able to reason in order to give the answer of an interrogation (Wagner, 1994). Each knowledge base uses a knowledge representation method. The knowledge representation can be classified in two main categories: the logical representation and the graph-based representation of knowledge. In a graph-based representation an entity is given by a pair of nodes and a link between them. The semantics is given by specifying the concrete meaning of this notational convention. In this category belongs the method of labeled stratified graphs (Țăndăreanu, 2003), (Țăndăreanu, 2004), (Țăndăreanu, 2004). A labeled graph is a tuple $G = (S, L_0, T_0, f_0)$, where S is a finite set of nodes (each node is represented by a rectangle), L_0 is a set of elements named labels, T_0 is a set of binary relations on S and $f_0: L_0 \rightarrow T_0$ is a surjective function. The graphical representation of G shows that from node x_i to node x_{i+1} we draw an oriented arc, labeled by the symbol a_i . Because two nodes can be connected by multiple arcs, a path is regarded as a pair $d = ((x_1, \dots, x_{n+1}), [a_1, \dots, a_n])$, where $x_1, \dots, x_n \in S$ and $a_1, \dots, a_n \in L_0$ for all $i \in \{1, \dots, n\}$. We denote by $Path(G)$ the set of all paths of G .

In (Țăndăreanu, Dincă. 2012) we define the set $STR(G) = \bigcup_{d \in Path(G)} STR(d)$. Each element of this set is named *structured path* of G .

If $d = ((x_1, \dots, x_{n+1}), [a_1, \dots, a_n])$ is a path in G , for $1 \leq i < j \leq n+1$, the length of path $([x_i, \dots, x_j], [a_i, \dots, a_j])$ is denote by $length(x_i, x_j) = j - i$. For every node x of d the successor of order k is denote by $succ^{(k)}(x)$. Frequently we shall use the shorter notation $succ(x)$ instead of $succ^{(1)}(x)$.

Conclusion

In conclusion, for a path d each element $((x, succ(x)), [s])$ which belongs to a accepted set $X(d)$ we can associate an equivalence class denote by $[x, s]_{\sim}$ designed by this element.

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EMPIRICAL STUDY ON EFFICIENT MARKET HYPOTHESIS – A CASE STUDY ON INDIAN AND PAKISTAN STOCK MARKET

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ABSTRACT

Investment in stock market is generally considered as risky but at the same time it will give very heavy return to investors. Fundamental and technical factors play a vital role in determining share price movement. In his research article 1970 Fama has brought an important concept called Efficient Market Hypothesis. In the weak form it is stated that there will be a free flow of information price will adjust quickly and past cannot be taken as base for predicting the future price movement. In random walk hypothesis past price cannot be taken as a base for predicting the future. For the purpose of evaluating efficient market hypothesis with reference to BSE SENSEX and Karachi stock market run test, KS test and KPSS test were applied. It was found that random walk hypothesis is not applicable for Indian stock market whereas it holds good for Pakistani stock market.

Key words: Efficient Market Hypothesis, run test, KS test, KPSS test.

JEL Classification: G14

1. Introduction

Stock market plays a vital role in the development of Indian economy. Stock market provides an opportunity for buying and selling of securities which are listed in the stock exchanges. Share price movements are regularly monitored if there is any abnormality regulatory takes necessary steps to arrest the volatility. It is generally stated that risk is very heavy in such investments and at the same time a return is also very heavy. Fundamental analysis and technical analysis are made before buying and selling of securities. Generally share prices move upwards and downwards depending upon positive and negative flow of information. Market may react quickly and ultimately demand and supply is the deciding factor for share price movement factor. In the year 1970 Fama developed a new concept called Efficient Market Hypothesis. As per this concept share prices move in a random manner and past price cannot be taken as a base for predicting the future price movement. As a result no single individual can make any abnormal profit. The major stock exchanges in India are the Bombay stock Exchange and National Stock Exchange and are regulated by SEBI. As regards as Pakistan there are three stock exchanges namely Karachi Stock Exchange, Islamabad Stock Exchange and Lahore Stock Exchange.

Conclusion

The researcher made an attempt to find out to what extent Indian stock market as well as Pakistani stock market is able to fit into that concept of efficient market hypothesis. The findings really show that stock prices are not moving in a random manner in India whereas it moves in a random manner in Pakistan. As a result investors can make abnormal profit in India by entering into the stock market in the appropriate time whereas it may not be possible for Pakistani investors.

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PRACTICAL APPLICATION OF THE ANALYTIC HIERARCHY PROCESS ON SUPPLIER SELECTION PROBLEM

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Abstract:

This article deals with multi-criteria decision making. The first part of the article consists of the theoretical familiarization with the decision of supplier selection. Following this is a description of the mathematical definition of the Analytic Hierarchy Process (AHP) method. The article focuses on supplier selection based on assessment criteria using the AHP method. The AHP has been applied to the problem of selecting a particular supplier for a windows glazing company. Criteria have been determined and match paired by using Saaty's scoring scale. The values determined for pairwise comparisons have subsequently been imported into a software tool for the multi-criteria decision making method AHP - Make It Rational. The weights of individual criteria have been detected by this software tool. The actual values of each criterion have been normalized using the Euclidean metric. The output is the final selection of the optimal supplier according to specified criteria.

Key words: Analytic hierarchy process, supplier selection, multi-criteria decision making problem, criterion.

JEL Classification: C440, M110

1. Introduction and objective of the article

This article focuses on supplier selection based on requirements, which is a typical multi-criteria decision-making problem. This topic is still highly relevant. Entrepreneurial subjects, especially small and medium-sized companies, often do not use any specific methods of multi-criteria decision making in the selection and evaluation of suppliers. Supplier selection is subjective, based on previous experience or long-term relationships or the entrepreneur bases his decision on only a single criterion, which is usually the price. Entrepreneurial subjects should be familiarized with relatively simple and software-supported decision-making methods that can be used for supplier selection and evaluation.

There are various appropriate methods for their solution to different decision problems. Therefore, the correct formulation of a problem is absolutely necessary. Simply said, the decision on the supplier or suppliers of the organization develops at two stages – two decision making problems. The first stage is deciding on the number of suppliers of the materials, products, etc. The company determines whether to use only one, two or more suppliers for the necessary components. In certain cases it may consider other options, such as insourcing, etc. The second stage, which will be the content of this article, consists of deciding on the actual supplier or group of suppliers, on the basis of predetermined criteria.

This article focuses on supplier selection based on assessment criteria according to the AHP method. The definition of the issue of supplier choice and mathematical principles of the Analytic Hierarchy Process (AHP) will be determined in the first part of this article. In the following part the specific decision making problem, criteria selection and subsequently its solution will be described.

Conclusions

The AHP is a powerful and flexible tool for solving complex multi-criteria decision making problems that involve both quantitative and qualitative aspects. It can be applied in a wide variety of situations, such as supplier selection, technology selection, planning and design, risk modelling, selection of warehouse, logistics service provider, etc.

Although the mathematical description of the method of AHP is complicated, with the use of appropriate software tools that are designed for this method, it is an effective, simple and fast tool for the assessment of criteria and selection of the optimal variant.

Although the pairwise comparisons of criteria are somewhat subjective, the requirements for consistency of decision matrices provide a relatively high transitivity. Another limitation of this method is the requirement for a set of criteria, where each criterion should not interfere with another,

none should be purposely overestimated and their list should be full, but not too broad, all of which may be sometimes difficult in practice.

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A STUDY ON SAVINGS AND INVESTMENT PATTERN AMONG SALARIED PERSONS IN TRICHY CITY

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Abstract

Savings play a vital role for protecting an individual and for the development of an economy. Savings may be invested in the form of fixed deposits, gold/silver, real estate, stock market & insurance policies. After government withdrawal of the scheme of provident fund for their employees the need for savings for government employees has increased manifold. Central Government has established new pension scheme in which public can contribute and fund gives a guaranteed return to the subscriber. The researcher has analysed the attitude of the employees towards savings and their preference towards various types of investment. For the purpose of analysis statistical tools such as correlation and factor analysis are used. The finding of the study shows that majority of the people save nearly 20% of their income and their first investment option is bank deposit and less preference is given for shares and real estate.

Key words: savings, attitude, investment, factor analysis.

JEL Classification: D14, E21

1. Introduction:

Savings plays a vital role for the economic development of any nation. As per the statistics released by Reserve bank of India house hold savings had increased from 18,329.01 INR Billion to 20,037.20 INR Billion, but at the same time saving as percentage of GDP had come down from 36.8 to 30.1. Savings must be invested in a proper form otherwise investors may lose capital and return may not be adequate to meet the inflation. It is generally stated that risk and return moves in the same direction, but at the same time highly risky asset may reward a negative return also. Investor must be highly careful while choosing their portfolio. Their investment pattern depends upon certain key factors such as risk, liquidity etc. for salaried employees their income level is fixed they can plan their income and expenditure pattern and they can save accordingly. Salaried person can channelize their savings in different types of investments such as fixed deposits, post office savings, real estate, insurance policies, stock market securities, gold and silver.

Conclusion

Bank deposit is considered as a safe form of investment by the employees working in both private sector and public sector. Banker should concentrate on mobilizing savings so that it can be utilized for nation building activities. The study also reveals that the risk appetite is very low and the investors are more conservative. Debt instruments can be popularized so that fixed rate return is guaranteed to investors. Insurance companies can also launch innovative policies with guaranteed return.

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ANALYSIS OF TAX SYSTEMS IN SLOVAKIA, HUNGARY AND CZECH REPUBLIC AND THE TAX HARMONIZATION IN EUROPEAN UNION

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Abstract:

In the article we would like to point out the similarity respectively the diversity of tax systems in selected countries of Central Europe. We analyzed the structure and amounts of collected taxes in Slovakia, Hungary and Czech Republic. This analysis should be the starting point for considering the possibility of direct tax harmonization in the EU. The article also deals with the nature, conditions and future of direct tax harmonization in European Union. The objective was to assess the feasibility of full direct tax harmonization in the EU. We used the cluster analysis method to outline possible options for implementing this process in Member countries. The article also includes the opinions of experts and stakeholders on this issue.

Keywords: personal income tax, corporate tax, VAT, excise taxes, tax harmonization, cluster analysis.

JEL Classification: H2, H71, C88

1. Introduction

State tax policy takes into account the process of convergence and unification of Europe. In connection with efforts to create a single market, there is a tax coordination of EU countries, i.e. the effort to create a certain treaty base, which serves as a basis for synchronization of individual tasks and activities in the field of taxation.

The greater coherence of European Union allows taxpayers transfer their activities to countries with lower taxes. Therefore there is reflected an effort to tax approximation and tax harmonization of tax systems in the European Community. This process is not easy; it requires application of certain tax tolerance and adaptation.

For fiscal theory and practice are known different definitions of tax. In general, tax can be characterized as mandatory, legally established, non-equivalent, usually recurring payment paid by taxpayers to the state in a specified amount and on time. From an economic point of view, tax is an instrument for redistribution of national income through public funds (state budget, budgets of Higher Territorial Units, and budgets of municipalities) (Schultzová 2011, 30)

Conclusion

Due to the growing debt crisis in euro area harmonization of direct taxation becomes subject of much debate. Major European politicians and experts are calling for greater integration in the EU, because it is a kind of prevention against future economic problems. Harmonization of direct taxes would probably mean a gradual process of convergence of national laws. But this is not a cure for the current economic problems. There is already some cooperation in the field of direct taxation between Germany and France. The question is whether harmonization is concerned only Eurozone countries or all 28 Member States.

Harmonization of direct taxes has many flat-rate benefits, but also individual economic consequences for some countries. States with low tax burden would lose one of their comparative advantages to increase the attractiveness of business environment. The advantage of direct tax harmonization is particularly the removal of legal and administrative barriers in international investment flows, which would result in increased competition in the economy and would increase living standards of EU citizens.

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In the field of direct taxation, the European Commission's activities focus mainly on corporate income tax. Considering four possible harmonization models:

- *HST (Home State Taxation)* – businesses would use for pan-European activities rules that are valid under the tax system of the country where the parent company has its registered office or place of management. The system would be voluntary for Member states and also for groups of companies.
- *HETS (Harmonized European Tax System)* – corporate income tax would be fully harmonized except tax rates.
- *EUCIT (European Union Company Income Tax)* – this system would introduce a common consolidated tax base only for large multinational companies. European corporate income tax rate should be uniform and managed by the European Community.
- *CCCTB (Common Consolidated Tax Base)* – system would be voluntary for member states and corporations. The countries involved in this system would agree with the definition of taxable income, the definition of the consolidated group, cross-border losses and the formula for the proportionate distribution of profits.

According to the results of cluster analysis, it is possible, in theory, to outline the procedure in the field of direct taxes harmonization. The process would not run in all countries at the same time, but in groups of the Member States whose tax systems are highly similar.

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EMPLOYEE ABSENTEEISM - AN EXPLORATORY FACTOR ANALYSIS

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Abstract:

Employees absent themselves from work due to a variety of factors which include personal, family and health problems, social and family obligations and work related issues like stress, relationship with co-workers and the superiors. Another important reason for absence is the sheer entitlement for leave as per organizational policy. Absenteeism, whether scheduled or unscheduled, causes productivity loss and hurts the general morale of the work place, resulting in the increase of operating expenses. It may be difficult to straight away find a cure for solving the issue of absenteeism, but the key is in identifying the nature and relationship that exists among the various factors causing absenteeism and to take a holistic approach to the problem. This article analyses the factors affecting absenteeism based on a survey conducted with the help of a structured questionnaire containing 13 variables related to the absenteeism of the employee. Data relating to 198 employees working in a manufacturing plant in Chennai, India was analyzed. A theoretical exploratory factor analysis model was built using the three factors identified by the Factor Analysis. Based on the feedback revealed by the modification indices, a revised model has been designed and tested for model fit.

Key words: absenteeism model, SEM, exploratory factor analysis.

JEL Classification: M12

1. Introduction

Absenteeism has been researched extensively received (Harrison and Martocchio, 1998). Absenteeism occurs when an employee does not report for work, with advance information or not. An employee absents for various reasons. The reasons for the absence can be deliberate or not at the control of the employee. Huczynski & Fitzpatrick (1989) found that genuine sickness was the major reasons for absence. The employee may take leave from the work place due to job dissatisfaction, chronic medical problems, vacation, temporary illness, personal issues or responsibilities, poor work environment, non-motivated co-workers, job dissatisfaction, job stress, difficulties in transportation, lack of commitment to the organization, financial worries, responsibilities related to children, accidents, adverse weather conditions, festival holidays, national and public holidays, eligible leave as per leave policy etc. Hayday (1998) stated that the reasons for absenteeism could be grouped under, attitude and stress, health and lifestyle, work place and domestic factors. Jinhee Kim and E. Thomas Garman (2003) estimated that the single most important reason for absence was sickness, but the other reasons accounted for about 67%. Leave entitlement mentality accounted for 10% out of the reasons other than health. This article analyses the major factors causing employee absenteeism, giving more emphasize to the fact that the workers are tempted to be absent just because of their leave entitlement and, the nature of the relationship among the factors causing absenteeism. Many questions have been included in the questionnaire on leave policy and leave entitlement to ascertain their importance. Brooke and Price (1989) included health and organizational constructs related factors in their causal model. The present study attempts an exploratory factor analysis model for the reasons of absenteeism and the relationship among them using structural equation modeling method. Many models are found in the literature on absenteeism. Steers and Rhodes model (1978) has been one of the important models cited in the previous literature on absenteeism. Absenteeism causes the firm to incur additional costs which would ultimately affect the financial performance of the company. Absence causes overtime to the other employees, under-utilization of the plant capacity, productivity losses, dissatisfied customers and loss of business and bad employee morale. To illustrate how changing life style can cause absenteeism from the work place, we can cite that due to improvements in technology, commuting to the work place using two wheelers and four wheelers has become the norm. As a result

there is congestion in traffic during peak office hours. Added to this, in most of the cities, children also have to commute to their schools and colleges during the same peak hours. In developing countries like India, children are dropped at schools by their parents. This domestic responsibility adds to the delay of the workers to their work place. Also, due to economic growth and urbanization, the majority of city dwellers are those who have migrated from their native villages. These workers visit their villages regularly during month ends and for festivals. The workers absent themselves from their work places during month ends and festival times in most of the cases. The management has to consider the absence of employees as a serious issue and take suitable remedial steps. The reasons for the absence of an employee, as seen above, can arise because of the problems originating from the employee or from the organization. The organization shall strive to provide a right work environment so that it is not responsible for the employee absenteeism. At the same time, the organization shall understand and analyze the reasons originating from the employees for the absence of the employees, understand the nature of the factors causing such absence and design a suitable policy to manage the employee absenteeism. As stated above, the present study attempts an exploratory factor analysis model for absenteeism using structural equation modeling method and for this purpose SPSS AMOS has been employed.

Conclusion

A review of the factors show that the reasons for the employees absence can be broadly categorized into Health reasons, reasons related to Social necessities and reasons related to Personal and domestic requirements. The results of the study may be useful for identifying the factors which cause absenteeism and will complement researches on social, personal and health reasons that encroach on employee absenteeism, such as job satisfaction (Goldberg and Waldman, 2000), job involvement (Baba and Jamal, 2002), and job stress . It is observed that the common thread running through all these factors is the entitlement to leave from the organization, an organizational construct. Hence it can be inferred that the employees avail their leave keeping in mind their eligible holidays, without there being any necessity or need for the absence. The underlying rationale for the absence again is not any one of the factors taken alone but a combined one. The structural equation modeling shows that the three factors of absenteeism namely, Health, Personal and Social are inter-related. Employees take leave of absence under one pretext or the other, that is, for example, if they have exhausted their eligible sick leave, they would take casual leave etc. The management of the organization shall consider any absenteeism control measure appreciating the inter-related nature of the factors causing the absenteeism and not tackle the issue considering only one of the factors at a time. Most of the companies have executed wellness programmes and self interventions to lessen the health based absenteeism issues among employees. Training programmes to develop self-confidence and awareness of the business problems may help the employees to balance their social and personal needs at work place. Thus, the model depicts that to design a suitable absenteeism control scheme, the management shall take into consideration factors relating to the workplace, social setting of the employees, benefits offered by the organization related to the health and family benefits, statutory and other holidays allowed. Future research is warranted in the study of the role of organizational constructs, besides personal, social and health related reasons, in absenteeism.

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THE PROFESSIONAL PERFORMANCES ANALYSIS AND THE IMPROVEMENT MODALITIES OF THESE AT THE LEVEL OF THE FINANCIAL INSTITUTIONS

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Abstract:

The human resources management is the field which manages one of the most valuable organizational goods – the people. The theory and practice development in the field of human resources management, firstly supposes the knowledge and the understanding of role and human resources within an organization.

The performance management is a component of the human resources management and it is based on the theory when people know and understand what is expected from them and they are able to participate at the formulation of these expectations, they can and act to achieve them. The performance management requires the continuous improvement of the employees' activity, their professional performance growth, in order to achieve the organizational goals. The advantageous use of the performance management presupposes the existence of a system of performances assessment, of a system of the employees' boost and of a reward results system.

Keywords: management, human resources, assessment, professional performances, employees, financial institutions

JEL classification: M 54, M53

1. Introduction

In the work which is entitled The Analysis on professional performances and the improvement ways of these at the level of the financial institutions, we will try to capture the aspects concerning the human resources management and its importance within the organization, the issue of performance management as a component of the strategic management of the human resources, as well as the importance of the professional performance assessment of the staff, highlighting the characteristics, the main categories of evaluators and assessment methods, especially to the level of the financial institutions.

The scientific approach of the study corresponds with the actuality of the subject and the specialists' interest in the organizational practice, seeking the development and the strengthening of the durable systems of the employees' motivation, the remuneration in terms of results and not of the worked time.

The research theme is justified from the point of view of the role which belongs to the human resources and to the professional performances of these in the favorable performance of any activity.

We shall start from the reality that performance, success and competitiveness of the organizations depend in large part on the quality and content of the human resources management. When we talk about the management, firstly you have to define the human resources, whereas, in all the organizations, the people are an essential resource, on which survival, evolution and competitive success of these depend. We shall strive to realize the primordial aspects of the human resources management and of the assessment of their performances, which must be relevant to the professional training actions in the human resources field.

The performance management as a component of the human resources management represents a way to obtain the better individual, group and organizational results, through the understanding and the performance management within an accepted framework of the set goals and of the requirements regarding the standards and the skills.

Conclusions

Starting from the role that the human resources have in any organization, in the present paper we surprised the main aspects of the human resources management and of the performances assessment of these. The development of theory and practice in the human resources management

requires the perfect knowledge and understanding of the role and of the human resources specificities within the organization.

For this purpose I presented the two orientations which are developed by authors Bratton J. and J. Gold, referring to the relationship between human resources management strategy and the organization strategy, namely: proactive orientation and reactive orientation.

Further I defined the concept of performance management, whose appearance happened at the end of the year 1980, I illustrated the process model of the performance management, developed by Grote in 1996 and I described the activities which are comprised by the concept framework of the performance management. The professional training and the continuous development of it become a priority both for the company and for the employee in order to achieve the performance.

Knowledge, skills, attitudes, motivation, employees' individual features are those that provide to the organizations the foundation for achieving the efficiency.

The changes at economic, social, demographic, technological level generate a dynamic external environment and sometimes it is difficult to predict this environment for the contemporary organizations.

In the final part of the paper I deal with the concept of professional performance at the financial institutions level, pointing the distinctive features of the professional performances assessment, the categories of assessors and the methods and techniques of the professional performances assessment.

The practical side centered on DGFP Dolj employees' professional performances assessment, these having their own system of professional performances assessment.

For this purpose, I described the public servants' activities, the classification of the public functions, the assessors categories and their main tasks, and the employees' assessment methods of the institution in question.

I presented the criteria underlying the jobs assessment in the field of public finances and the performance standards which are determined before the beginning of the required activities of the job, so that those who are involved must know the achievement requirements of the proposed goals. One who achieves the assessment must establish the content of performance indicators for each of the goals.

The assessment procedure requires an open dialogue between the assessor and the assessed, and it involves the assignment of a share to each assessment criterion of the individual performance, this share expressing the importance of the respective criterion in the employee's activity situation.

For example I drew a model of assessment form of an employee's professional performances, this employee being from DGFP Dolj and having the function of Expert Title I A.

The assessment form contains: assessment criteria, share criteria given in percentages, the grades provided by the directly head, colleague, manager and the grade which is awarded by the employee himself, finally determining the criterion score by multiplying the share which is accorded to the criteria in percentages with the grade which is awarded by the directly head and all is divided at one hundred.

The assessment result denotes that the employee who is studied, through the obtained grade (4.4) received the mark of "good" and he fits between the limits which are reported by the job score, which means that this corresponds to the occupied job.

At the end I presented the public servants' professional perfection forms, pointing the fact that within the DGFP Dolj the public servants' professional training is achieved with the help of the School of Public Finances and Customs (SFPV), through three ways: classical training, e-learning, training at the job.

There also were made the proposals for improving the activity through: the optimization of the informational subsystem ONIX-SGDB ORACLE PERSONNEL for the efficient use of the computer programs and the reduction of the papers execution using the information from the staff database.

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