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Public Sector Performance in West African Countries: A Comparative Analysis

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Abstract: This paper evaluates and compares the performance of public sectors in West African countries for two periods- 2007 and 2012. The evaluation is conducted based on the assumption that the state is faced with the responsibility of redistributing its revenue to achieve certain social and economic objectives. In this study, we compute PSP indicators, covering seven sub-indicators and a composite, for 16 countries within West Africa. These indicators are administrative, the public infrastructure quality, health and education outcomes, which are known as "opportunity" indicators. Three remaining indicators are the conventional "Musgravian" roles of a government which are stabilisation, distribution, and allocation. The analysis shows significant distinctions among West Africa countries' public sector performance and welfare enhancing public spending is desirable.

Keywords: Public expenditure, Efficiency, Performance
JEL Classification: H11, H21, H50

1. Introduction

After decades of holding importance to the role of the state in the development of West Africa countries, there is now a paradigm shift and a rekindling of the importance of the state in the process of socio-economic development, as the need for a more proficient public sector has been revived. Undeniably, there is a renewed motivation for the creation of an effective public sector in African countries at both the continental and national levels (UNECA, 2004).

African governments have embraced public sector reforms since independence, and with the assistance of foreign donor agencies, many African countries had aggressively tried varied reform strategies. These involved the qualitative and quantitative policy designs of the Washington Consensus (WC) era in the 1980s and 1990s, and service delivery policy designs of the post-WC (World Bank, 2003). Also, there were sets of public sector reform policies which were based on a model employed in the Organization for Economic Cooperation and Development (OECD)

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economies and tried to use principles of market to public sector administration. Despite these reforms, the public sector in many African countries still remains inefficient and incapable of performing basic functions (Mutahaba & Kiragu, 2002).

Macroeconomic performance in the ECOWAS Member States showed a negative GDP growth between 1981 and 1984. It increased to 6.4 percent in 1984 before changing to negative growth rates in 1986 and 1987. GDP growth for the region was then positive but declining since then till 1999. ECOWAS region experienced its highest GDP growth rate of 22.8 percent in 2004, before falling drastically to 3.8 percent in 2005. Regional GDP has been on the decline due to unfavourable structural and economic factors, which include deterioration in the terms of trade, the political instability and poor public sector performance in the region. However, West Africa remained a region of striking contrasts. In spite of the generally displeasing situations, some of them achieved remarkable economic growth, even when compared with the rest of the World (ECOWAS, 2012).

The increasing trend in public sector spending in many West African countries since the 1990s triggers the needs for evaluating the performance of such spending. In order to clamour for public sector efficiency and transparency, the availability of an indicator of public sector performance, which allows for international comparisons, would be useful. This will also facilitate ranking of countries based on the output of their public spending (Schuknecht & Tanzi, 2003).

In West Africa, the measurement of PSP and PSE is still at its nascent. In this paper, effort is made to measure and assess public sector performance in this sub-region. The rest of this study is organised as thus: Section 2 exposes the theoretical and conceptual framework and review of the related empirical literature; Section 3 elaborates the methodology while 4 shows and analyses the result of the study and section 5 concludes the paper.

2. Conceptual and Theoretical Framework

The effectiveness of the public sector of a country is crucial to the success of its social and economic development. The public sector remains the massive employer and spender in almost all developing countries and it determines the policy environ for the rest of the economy. Policies, such as fiscal and monetary, perform a vital role in determining the growth and competitiveness of an economy. Owing to the size of economic activity, efficiency and effectiveness of the sector remain, unarguably, one of the most important determinants of macroeconomic performance. The importance is also vested in the public benefit from the policies which tends to improve human life and the quality of life.

Public sector performance (PSP) is described as the outcome of public sector undertakings while Public sector efficiency (PSE) is defined as the ratio of public spending and performance indicator. It is the end result compared to the resources used. According to Marieta *et al.,* (2010), efficiency is provided by the relationship between the effect of output and effort of input. It is the ability of yielding the targeted result with a minimum of energy, money materials, time, or other costly resources. It is also the measure of the accuracy and speed of completing work. Abidian and Bigg (1998) define efficiency as the optimal allocation and employment of inputs over time. Mester (2003) sees efficiency as a measuring standard of the deviation between desired performance and actual performance.

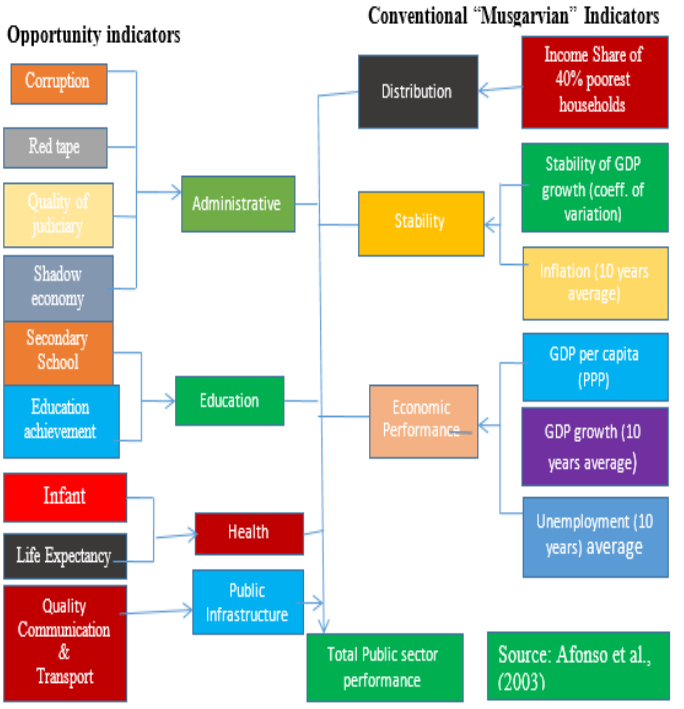
The theoretical links between government spending and performance of public sector show that PSP is captured by the quality of socioeconomic indicators such as health, education, economic growth, administration and public infrastructure (Afonso *et al.,* 2003). It is further stressed that positive effect of government expenditure on any of the indicators reveals an expected improvement in the public-sector performance indicators. Accordingly, changes that might occur in the social and economic indicators over some periods could be seen as changes in PSP.

The socioeconomic indicators used by Afonso *et al.,* (2003) were grouped into two; opportunity and Musgravian indicators. The opportunity indicators were sub-grouped into four; administrative which is composed

of 4 sub-indicators: corruption, quality of the judiciary, the shadow economy, and red tape. Education consists of 2 sub-indicators: education achievement and secondary school enrolment. The health indicator comprises 2 sub-indicators: life expectancy at birth and infant mortality. Public infrastructure contains transport infrastructure quality and quality communication. These four sub-indicators were termed opportunity indicators.

The Musgravian indicators are distribution measured by the income share of the poorest 40 percent of the households. Economic stability, proxied by average inflation (10-year average) and the stability of output growth (coefficient of variation), and economic performance consist of unemployment (10-year average), GDP growth rate (10-year average), and per-capita GDP.

Figure 1: Public Sector Performance (PSP)



3. Literature Review

One of the most crucial dimensions of the government sector that have attracted attentions is its impacts on the economic growth of both developed and developing countries. As a result, the discussion about the function of the public-sector performance has shifted, in recent years, towards empirical assessment of the usefulness and efficiency of public sector activities.

Afonso *et al.,* (2003) evaluated the efficiency and performance of public sector for 23 developed countries by computing seven sub-indicators and a composite of the performance indicator. The estimated performance indicators include health, administration, education, and infrastructure. Their study revealed differences in the PSP index across developed economies with small government sector countries reporting the best performance while big public sector countries display higher equitable distribution of income. The study further showed that smaller the public sector is, the higher the public-sector efficiency across the observed countries. The implication of this finding is that public spending is governed by diminishing marginal products.

Social and Cultural Planning Office (SCP/CERP (2004)) improved on the works of Afonso *et al.,* (2003) by assessing public-sector performance in European Union countries. The country clusters results for public sector efficiency and performance was very similar to Afonso *et al.,* (2003) findings. Southern European countries were discovered to have low educational and general performance; Eastern New EU member's states showed high educational but low general performance. Northern European and Anglo-Saxon countries had high scores in both general and educational performance.

The efficiency indicators in the aforementioned research are based on the quantitative measure of PSE. In contrast, Maroto *et al.,* (2007) focused on the evidence-based assessment of the usefulness and efficiency of public sector activities using both quantitative and qualitative measure of PSE. The result of their study supports the economic theory that research and development (R&D) and concretely innovation promote higher economic development at the macro level. They concluded that the more R&D in a

country, the better the public-sector performance. Private sector R&D and gross R&D were reported to have a profound impact on the PSP.

Mihau *et al.,* (2010) also tried to quantify and present the real situation of public sector performance for EU countries. Their study focused on the comparative analysis of the effectiveness, efficiency and performance of the private and public sector. The study concluded that a package of bold measure is needed for more efficient public sector activity and performance.

4. Methodology

The method of assessing the performance of public sector in this paper is adapted from the work of Afonso *et al.,* (2003). This method is descriptive analysis in which certain socioeconomic indicators are examined at a point in time and used to evaluate and compare the PSP across nations. The study compiled data on these social and economic indicators for 16 West African countries. The comparative studies were conducted for data of 2007 and 2012.

Afonso *et al.,* (2003) did not describe how the four "opportunity" indicators were measured. In this study, however, corruption is proxied by corruption perception index. Red tape is represented by the burden of government regulation; quality of judiciary is measured by a composite average of judicial independence and efficiency of the legal framework. Shadow economy is omitted due to lack of data. Also, Afonso *et al.,* (2003) measured public infrastructure as communication and transport infrastructure quality. However, in this study, wider measure of public infrastructure is used. This is represented by a composite of all infrastructures including communication, transport, energy, etc. All other indicators are used as measured by Afonso *et al.,* (2003).

Data for the study are retrieved mainly from three sources. Corruption perception index was sourced from Transparency International (2007 and 2012). GDP per capital, unemployment, inflation rate and output growth, life expectancy at birth, infant mortality, secondary school enrolment, literacy rate, and income share of the poorest 20 percent were sourced

from World Bank database (2012). Judicial independence, efficiency of legal framework, strength of investor protection, and quality of public infrastructure were all sourced from Global Competitive Index Report (2012).

4.1 Data Analysis

Public sector performance indicators were computed from the different indicators with the same weight given to each of them. For instance, corruption, efficiency of the judiciary and red tape, each contributes approximately 33 percent to the administrative performance indicator. For indicators where higher numbers are more unfavourable (e.g., inflation, infant mortality), the inverse of the original values were used. In order to enhance the computation, the values of all indices were normalised and their average was set to 1. Therefore, values for each economy were then recomputed relative to the average. As a result, the overall public-sector performance for each country constitutes an average of all the seven indicators.

Table 1 shows public-sector performance indicator results for the year 2007 of 16 West African Countries. The mean of PSP for the 16 West African countries is normalised to 1.0 and the maximum value is 1.311. The highest value of the score function was obtained by Cape Verde (1.311), followed by Liberia and Gambia with 1.083 and 1.069, respectively; these states are the top 3 in terms of overall public sector performance. Contrarily, the least score of 0.857 was obtained by Niger, followed by Guinea with a score of 0.893, and Cote d'Ivoire with a score of 0.904.

The public-sector performance indicators across 16 West African countries are presented in table 1. Economies with the largest values for sub-indicators include Mauritania (1.977), Guinea (1.105) followed by Guinea-Bissau (1.091) under the administration performance. In the education Performance, Cape Verde obtained the best rank with the score of 2.354 followed by Gambia and Ghana with 1.481 and 1.270 respectively. Cape Verde has the best rank in health with a score of 1.181 followed by Senegal (1.066) and Mauritania (1.048) in 2007. Gambia followed by Cote d'Ivore and Ghana obtained the best rank for Public

Infrastructure. However, there are missing data for some countries under this indicator.

The income distribution score shows that Togo is the best with 1.191 followed by Guinea-Bissau and Sierra Leone with the score of 1.177 and 1.125 respectively. Senegal followed by Cape Verde and Burkina Faso topped the economic stability indicator with the score of 1.032, 1.030, and 1.029 respectively. Under the economic performance indicator, Cape Verde obtained the best score followed by Liberia and Nigeria. The best overall performance belongs to Cape Verde but she did not do well in administration and income distribution.

Table 1: Public Sector Performance (PSP) indicators (2007)

YEAR 2007								
Country	**Administration**	**Education**	**Health**	**Public Infrastructure**	**Income Distribution**	**Economic Stability**	**Economic Performance**	**General Performance**
Benin	0.892	1.001	1.022	0.94	1.017	1.026	0.979	0.983
Burkina Faso	0.835	0.643	0.989	0.873	1.106	1.029	1.078	0.936
Cape Verde	0.696	2.354	1.181	n/a	0.855	1.03	1.751	1.311
Cote d' Ivoire	0.821	0.702	0.923	1.175	0.88	1.016	0.808	0.904
Gambia	0.878	1.481	1.021	1.377	0.791	1.004	0.997	1.079
Ghana	0.854	1.27	1.047	1.142	0.846	0.969	0.96	1.013
Guinea	1.105	0.49	0.981	n/a	1.025	0.983	0.772	0.893
Guinea Bissau	1.091	0.953	0.965	n/a	1.177	0.907	0.569	0.943
Liberia	1.078	1.065	1.011	n/a	1.039	0.985	1.653	1.138
Mali	0.86	0.866	0.956	0.873	1.085	1.028	0.882	0.936
Mauritania	1.977	0.679	1.048	0.705	0.988	1.004	0.999	1.057
Niger	1.009	0.308	0.991	n/a	1.109	1.028	0.695	0.857
Nigeria	0.904	1.023	0.938	0.806	0.768	0.975	1.176	0.941
Senegal	0.793	1.01	1.066	1.108	1.001	1.032	0.858	0.981
Sierra Leone	1.078	0.757	0.864	n/a	1.125	0.964	1.077	0.977
Togo	1.05	1.233	0.996	n/a	1.191	1.02	0.744	1.039

Table 2 shows the results for the public-sector performance indicators for the year 2012 of 16 West African Countries. The mean of PSP for the 16 West African countries is normalised to 1.0 and the maximum value is 1.22. The highest value of the score function was obtained by Cape Verde (1.220), followed by Gambia and Ghana with 1.083 and 1.069, respectively; these States are the top 3 in terms of public sector performance. On the opposite side was Guinea with a score of 0.88, Guinea (0.906) and Mauritania (0.920).

The indicators, as shown in Table 2, show difference level of public-sector performance across 16 West African countries. Economies with the largest values for sub-indicators include Guinea-Bissau followed by Gambia (administration), Cape Verde followed by Gambia(education), Cape Verde followed by Senegal (Health), Gambia followed by Liberia (Public Infrastructure) Niger and Mali (distribution), Gambia and Mali (economic stability) and Guinea Bissau and Mauritania (economic performance). Countries such as Cape Verde, Gambia, Ghana, Liberia, Mali and Benin report high total PSP indicators. The best overall performance belongs to Cape Verde but she did not do well in administration and income distribution.

Table 2: Public sector performance (PSP) indicators (2012)

YEAR 2012								
Country	**Administration**	**Education**	**Health**	**Public Infrastructure**	**Income Distribution**	**Economic Stability**	**Economic Performance**	**General Performance**
Benin	1.004	1.1	1.019	0.945	1.136	1.059	0.936	1.028
Burkina Faso	0.957	0.725	0.98	0.798	1.004	1.055	1.129	0.95
Cape Verde	0.925	1.647	1.171	1.093	0.956	1.044	1.707	1.22
Cote d' Ivoire	0.954	0.812	0.931	1.064	0.956	0.936	0.807	0.923
Gambia	1.096	1.355	1.015	1.329	0.861	0.978	0.946	1.083
Ghana	1.006	1.245	1.042	1.152	0.852	0.992	1.196	1.069
Guinea	0.961	0.859	0.989	0.62	1.016	0.997	0.737	0.883
Guinea Bissau	1.212	0.752	0.963	n/a	1.179	0.893	0.67	0.945
Liberia	1.022	1.126	1.029	1.241	1.027	0.921	0.93	1.042
Mali	1.012	1.027	0.964	1.123	1.227	1.043	0.809	1.029
Maurita-nnia	0.97	0.66	1.033	0.827	0.903	1.003	1.047	0.92
Niger	0.988	0.368	0.999	n/a	1.26	1.035	0.788	0.906
Nigeria	1.069	1.084	0.947	0.945	0.659	0.975	1.362	1.006
Senegal	0.964	1.019	1.061	1.004	0.904	1.053	0.985	0.999
Sierra Leone	0.976	0.771	0.865	0.857	1.167	0.976	1.181	0.97
Togo	1.063	1.264	0.991	n/a	0.895	1.04	0.772	1.004

4.2 Comparison of Public Sector Performance: 2007 and 2012

To examine how PSP has changed over time, a comparison between PSP 2007 and 2012 was performed and the results are presented in figure 1. The figure shows that some countries such as Benin, Burkina Faso, Ghana, Niger, and Nigeria shows relative improvement in PSP, some other country such as Cape Verde, Liberia, Mauritania and Togo showed a decrease in their PSP, while some country such as Gambia, Guinea, Guinea-Bissau and Sierra Leone maintained their formal PSP. The figure also shows that for both years Cape Verde has the highest PSP score, while Niger and Guinea obtained the worst PSP score in 2007 and 2012, respectively.

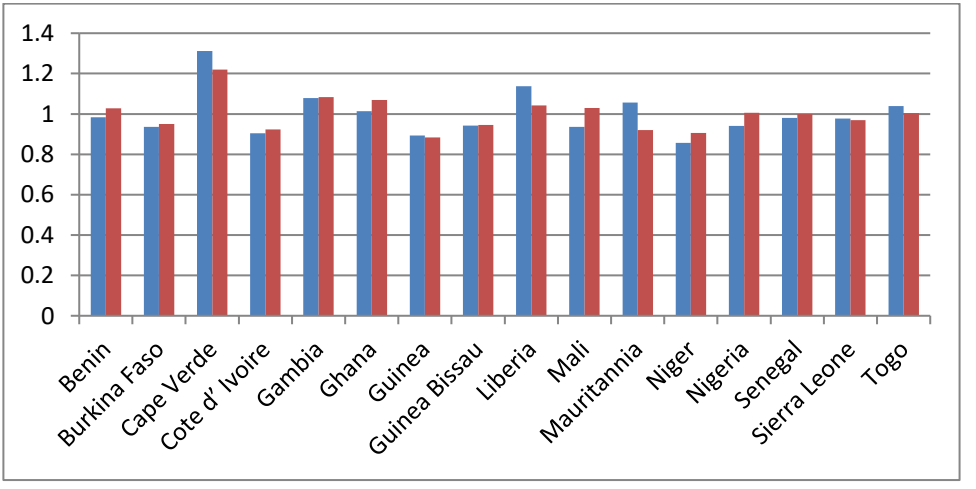
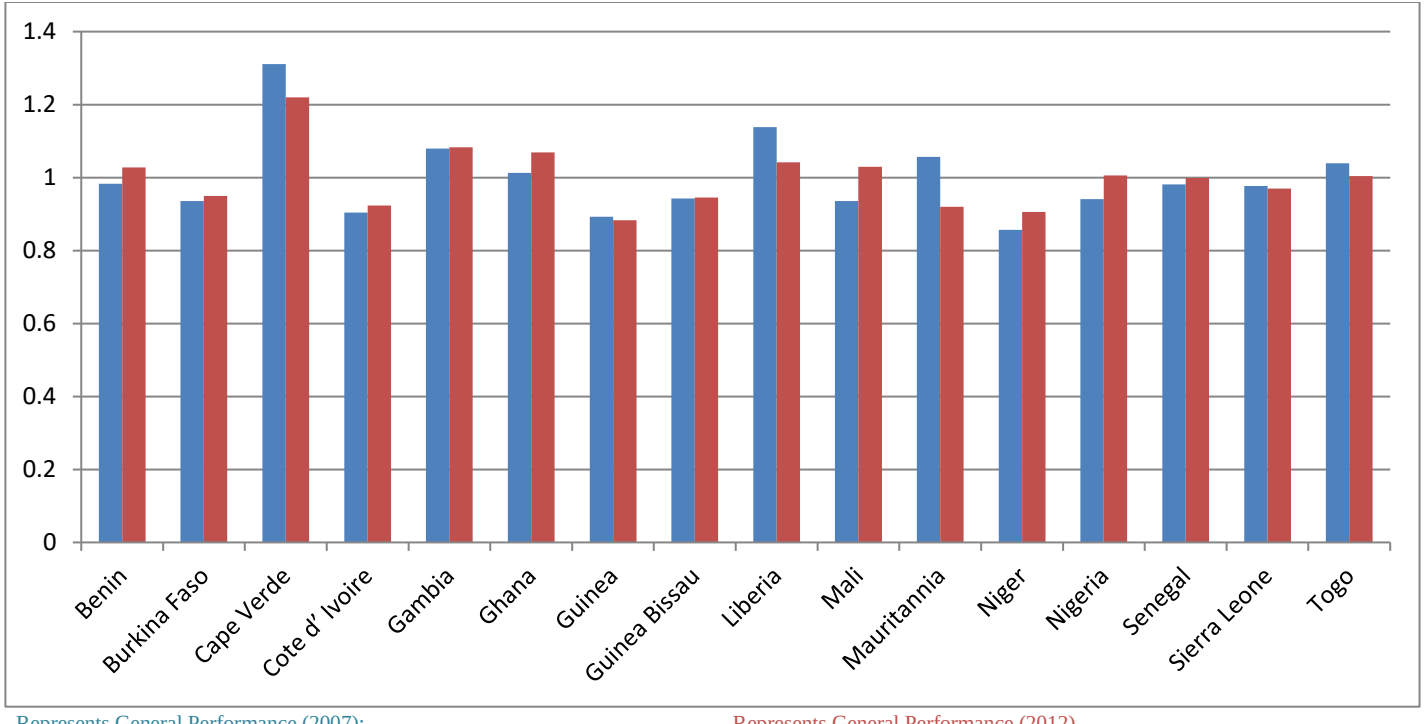


Figure 1: Public Sector Performance (2007 and 2012)



. Represents General Performance (2007); . Represents General Performance (2012)

Source: Transparency International (2007 and 2012); World Bank Database (2012); Global Competitive Index Report (2012)

5. Summary and Conclusion

This paper appraised public sector performance for countries within West Africa through a number of socio-economic indicators. The study also assessed how PSP has changed over time between 2007 and 2012. Moderate differences in the PSP across West Africa economies were found. The results show that some countries such as Benin, Burkina Faso, Ghana, Niger, and Nigeria showed relative improvement in PSP, some other country such as Cape Verde, Liberia, Mauritania and Togo showed a decrease in their PSP, while some country such as Gambia, Guinea, Guinea-Bissau and Sierra Leone maintained their formal PSP. The evaluation also reveals that for both years Cape Verde has the highest PSP score, while Niger and Guinea obtained the worst PSP score in 2007 and 2012, respectively, although, the improvement in Nigeria's PSP does not justify the wealth of the nation. Finally, the optimal dimensioning of public sector's management is the starting point of obtaining real performances that have an impact on the entire economy.

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Foreign Capital Inflow and Economic Growth: A Dual Gap model for Pakistan Economy

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Abstract: The purpose of the study is to explore the relationship between 'Foreign capital inflow' and the economic growth in the framework of Dual gap approach. For this, ARDL bounds Co-integration approach is applied as econometric methodology to examine the short run dynamics into the long run equilibrium. Two models are established in which GDP growth is a dependent variable while Gross domestic saving, Foreign direct investment, Exports, Imports, CPI and Telephone lines as physical infrastructure, are taken as independent variables for the time period of 1976 to 2011. The results suggest that Foreign private inflow in the form of FDI has been supplementing the Domestic Savings in a good macroeconomic environment represented by positive impact of Inflation on growth rate. The inclusion of Export sector in the model has Replaced the 'Foreign private investment' and impact of FDI has become negative on GDP growth in the existence of poor macroeconomic condition represented by negative association between Inflation and GDP growth.

Keywords: FDI, Dual Gap model, Economic growth
JEL Classification: F21, F13, O40

1. Introduction

Since from independence, Pakistan is highly dependent on the external resources for the growth. History is evident that Pakistan's most successful 'Five-year Plan' absorbed huge amount of foreign aid for the development, and growth rate approached to 7.6 %. During 1960s and 1970s, foreign assistance was a major source of capital inflow in Pakistan. Foreign aid was 42.55% of the total investment in 1960, which rose to 53.3% of total investment in 1970. Foreign Private investment was not impressive till 1980. The post 1988 period is important for the process of liberalization and privatization, which has helped in accelerating the inflow of foreign investment from US$ 185.6 million in 1988 to US$ 939 million in 1996, but after within two years it was seemed to be declined at US$500 million in 1998.

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There are several reasons of this decline in FDI after 1997; the economic sanctions made on Pakistan after the nuclear test, freezing the foreign currency accounts and Independent power producers (IPP) controversy (Le & Ali, 2002). Further, the Asian crises had deteriorated the confidence of foreign investors. A number of policy measures were taken to restore the foreign investors' confidence like 'New Investment policy 1997' and 'corrupt business practice ordinance 1998'.

Thus, the trend has seemed to change after 1999 and the Foreign Direct Investment from 322 million dollar in 2000-01 rose to 3.52 billion dollars in 2009. Despite this considerable rise in the amount of FDI during the last decade, Pakistan's FDI inflow remained meager as compare to other developing countries. In 2007, the average capital inflow to each developing country is 7.5 per cent of GDP but in the case of Pakistan this share was only 4 per cent.

This 2000s decade is led by different problems for Pakistan. Pakistan's involvement in the so-called 'War against terrorism' has destroyed all previous policies to attract the foreign investors. MNCs are feared to engage in long run commitments in Pakistan due to uncertain and risky business environment.

Foreign capital inflow is regarded as a potential source of economic growth for capital deficient economies. Pakistan has to depend on 'Foreign capital inflow', because manufacturing productive capacity is constrained by modern technology and capital intensify goods, which leads to develop I-S gap. That's why; exports are limited to only primary goods rather than exporting manufacturing goods. Manufacturing goods have more income elastic demand than the Primary goods. This has become a reason of poor 'Terms of trade' (TOT) of Pakistan in world market, and has developed a huge 'Foreign exchange gap'. So, Pakistan needs to develop 'Import substitution industry' and fiscal incentives should be given to the foreign investors to attract FDI. Foreign Direct Investment is highly conducive to economic growth as it is a major source of transferring foreign technology and skills to the host country. Thus,

present study is undertaken to examine the effectiveness of external inflow of capital, and to analyze the savings pattern affected by the inflows of foreign resource, in the framework of 'Two gap model'.

2. Theoretical Framework

FCI (Foreign Capital Inflow) has been claimed to influence the growth process by bridging the Dual gap, transferring modern technology, skills and innovation and increasing the productivity in the host (recipient) country. The components of FCI are highly responsive to some factors of the host country, which include; the country's market size, investment environment, level of education, institutions, tax laws, trade liberalization policy, and overall macroeconomic and political scenario. (Aurangzeb & Ul Haq, 2012). Besides, the favourable impacts of FCIs, there are some side effects in the form of accumulation of huge foreign debt in the case of misallocation of foreign resources and poor macroeconomic policy frame work. Further, high dependency on external funds may lead to economic and political interference of foreign country. Usually, in poor economies, foreign capital inflows tend to liberalize the consumption behaviour and reduce the domestic savings rather than supplementing it.

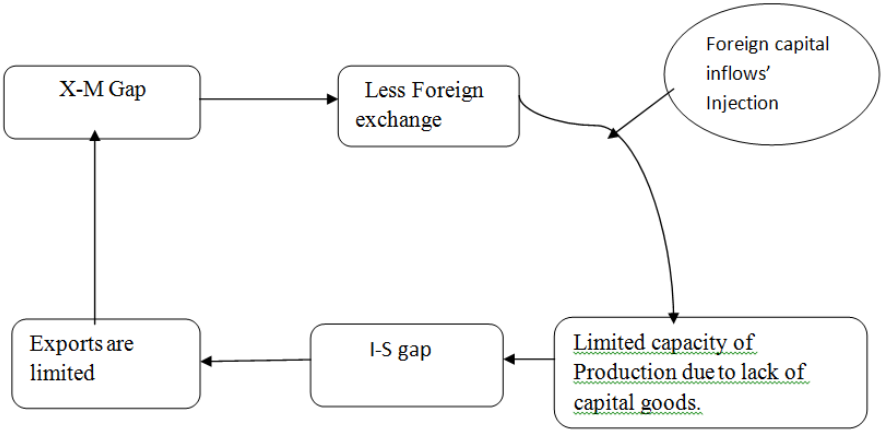
Underdeveloped country like Pakistan, in where most of foreign Aid and remittances are utilized in the form of consumption expenditures rather than going for Investment. Only FDI is seemed to be a significant source of Investment, but it is controversial in the sense that it 'gives less and takes more for its home country'. There are several dimensions to interpret the dual gap model. Dual gap refers that exports are limited because of limited production capacity that exist due to lack of technology and capital intensive goods. So, FCI tends to increase the productive capacity and fill the I-S gap in the economy, which leads to boast up the export sector and would ultimately eliminate the Import-Export gap.

In other words, Dual gap model means that Foreign Capital Inflow is necessary to import capital goods to bridge the I-S gap, because developing countries do not have enough foreign exchange to import capital goods from abroad, because they already lie in trade deficit. So,

here foreign resource inflow will bridge Saving-Investment gap by providing capital goods and indirectly supplement the Trade gap.

Most developing countries face either shortage of domestic saving to match with the required investments or shortage of Foreign exchange to finance the imports of capital and intermediate goods. Different empirical studies have shown that one of the two constraints is 'binding' or 'dominant' for a specific period in LDC. As, one of the pioneering study by Chenery and Bruno (1962) analysed that countries tend to face a dominant saving constraint in earlier stages of growth and development and a dominant foreign exchange constraint at later stages of development. In the case of developing country like Pakistan where 'Foreign exchange gap' is a binding constraint, there is a need of Capital goods, machineries and technology to be imported to establish manufacturing industries but 'foreign exchange' is not enough to purchase the capital goods for industry. Thus, in this scenario, external finance plays a vital role to overcome the foreign exchange gap and growth would be called as 'Exogenous', since it relies on foreign resources.

Figure 1: Foreign Exchange Gap and Growth



Source: Author's own formulation

3. Literature Review

These studies were motivated by the Chenery and Strout (1966) who had laid the foundation of Dual gap model in 1966. Ahmad (1990) showed a positive relation between foreign capital inflow and economic growth, but there seems to be an inverse relationship between domestic saving and foreign inflow of capital, after regressing the simultaneous equation model for Bangladesh economy for a time period 1960/61 to 1979/80. Further, estimated results showed a "positive" relation between primary share and foreign capital inflow as a proportion of GDP, and a "negative" relation between manufacturing share and foreign capital inflow as proportion of GDP. Overall, it had concluded a "positive" contribution of foreign inflow of capital to the GDP growth, but it had led the Bangladesh government to relax saving efforts.

Le and Ataullah (2002) study was mainly focused on the trends of capital inflows in 1970s, 1980s, 1990s and comparatively analysed the patterns of growth with other countries. It has been observed that the volume of foreign aid to Pakistan is decreasing because donor countries and aid agencies have acquired the position of dictating the policies to government of Pakistan. Beside this, there is unimpressive growth in foreign private investment due to political instability, poor economic infrastructure and unsuccessful policies of attracting foreign investors.

Hye *et al.,* (2010) in their article highlighted one of the major functions of foreign capital inflows is to finance the domestic saving gap and trade gap, and suggested that FDI is an effective inflow for Pakistan economy in the short run as well as long run. They have used the methodology of "co-integration technique" in ARDL model the results depicted that FDI is positively contributing to economic growth in short run as well as in long run. While foreign aid (ODA) is seemed to be effective for Pakistan economy only in long run, but not in the short run, foreign aid is becoming a hurdle in the way of economic growth. Since FDI is relative more effective, so, policies should be focused on such growth strategy which is led by FDI, and attention must be given to create such incentives which would attract foreign investors.

Ahmed and Wahab (2011) found a negative relation between foreign assistance and real per capital GDP, which has been justified on the basis of poor macroeconomic condition, wrong allocation of resources, political instability, and frequent changes in policies and inefficiency of institution which resulted in debt stock. Beside this, there seemed a positive impact of national savings on economic growth of Pakistan. It has used "Dickey Fuller" to check the stationary, and Engle- Granger co-integration technique and Johansen's maximum likelihood procedures are applied for analysis, considering the time period of 1972 to 2010. The authors are in great favour of improving the tax base and domestic resource mobilization ensuring macroeconomic stability and reducing dependency on foreign assistance.

Aurangzeb and Ul Haq (2012) have disaggregated the foreign inflow of capital into various components to analyze the impact of foreign capital inflows on economic growth of Pakistan focusing the time period of 1981 – 2010. The significance of various factors are identified by the technique of multiple regression analysis. The results have revealed that the three independent variables; FDI, remittances and external debt are positively related with GDP growth and there exists a significant relationship. It has been also noted that the "Granger – causality test" has shown a bidirectional relationship between external debt and remittances, GDP and external debt, FDI and external debt, FDI and remittances. Further, empirical results also depict a unidirectional relationship from GDP to FDI.

The study of Nkoro and Furo (2012) has also decomposed foreign capital into foreign aid, remittances, foreign direct investment and external debt and these are taken as independent variables against the GDP, as dependent variable. Using the technique of "co-integration, variance decomposition, impulse response analysis and block erogeneity tests", the findings support the foreign capital has led economic growth in the Nigeria. Analysing the "Error correlation model", there is seemed to be a positive relation of FDI and foreign aid with real GDP, while, remittances and external debt are negatively correlated with economic growth.

Shaheen *et al.,* (2013) attempted to explore the contribution of foreign capital inflows to meet the gap between domestic saving and investment.

For this purpose, co-integration technique and ECM methods are used on time series data for the period of 1980 to 2010 to observe the long run relation between the variables for Pakistan. For this analysis, five variables are used. “Gross domestic saving” is used as dependent while FDI, remittance, trade openness and GDP per capital are taken as explanatory variables. The results depict that there is a positive and significant relationship between FDI and “grows domestic savings”. Trade openness also plays a positive role in contributing in “Gross domestic savings”, but remittances are negatively associated with the “Gross domestic saving”. This study establishes a long run with the order of integration 1.

Umoru (2013) has empirically analysed the relative impact of capital outflows on the GDP growth of Nigeria. It has estimated three simultaneous equation model based on three approaches of measurement of capital outflows, that are, “Balance of payment” approach, “Residual approach”, and “Bank deposit approach”. GMM method of estimation has been applied to estimate simultaneous equation model for the time period of 1980 – 2010. Co-integration test has shown that any short run perturbation in the variables is settled at an equilibrium level. The focal result of the study is that capital flight has adversely affected the GDP growth. Capital control is analysed to be insignificant contributing in the GDP, public expenditure has significant positive impact on growth, but domestic investment is analysed to be insignificant. Further, exchange rate instability, which is measured in terms of overvaluation and undervaluation, leads to restrain the implementation of investment plans due to uncertain domestic climate.

The working paper of Qayyum and Mahmood (2013) tends to explore the inter-linkage between foreign trade and Foreign Direct Investment (FDI) in case of Pakistan, taking the time period of 1985 to 2010. It considers eight major trading partners that are; Canada, France, Germany, Hong Kong, Japan, Saudi Arabia, UK and USA to analyze whether foreign trade or FDI are complements or substitute of each other. The empirical results reveal that FDI prompts foreign trade. It means increase in FDI promotes imports from the country of FDI origin, and vice versa. But FDI is not significantly enhancing the exports, while exports are seemed to attract more FDI inflow to Pakistan, which is highly significant. The study also

explores the reason why FDI tends to raise the imports. The reason is that usually FDI is tied to imports of plants, machinery and other capital good from (home) parent country. Such tied imports are the major reason of increasing burden on country's import bill.

4. Data and Methodology

It includes the data description, sources, specification of model and methodology for analysis.

4.1 Data Sources and Description

The data is gathered from secondary sources that includes IMF data base; WEO, and WDI from World Data Bank for the period of 1976 to 2011.

GDP is taken as dependent variable. While FDI, Domestic savings, Telephone lines, Consumer price index, Exports and Imports are taken as independent variables. Telephone lines variable is used as a proxy for 'Physical infrastructure', and CPI is a proxy for 'Macroeconomic condition' and FDI as a proxy for 'Foreign capital inflow'. All the data are gathered for the time period 1976-2011 in the form of Time series, and regressed after taking Log to ensure the linearity of parameters.

4.2 Methodology and Model Specification

ARDL method to co-integration is used as methodology because it eliminates the problem of absent variable bias and problem of autocorrelation and estimates both short run and long run elasticities of the model. Order of integration does not matter as this approach can be used to a combination of I (0), I (1) variables and integrated of same order at I (1), but cannot be used to I (2) or higher orders.

Moreover, a dynamic Error-Correction Model (ECM) is the symbol of this model which integrates the short run dynamics into the long run equilibrium whereas stabilizing the long run information. This test eliminates the uncertainty related with the testing of order of integration of variables.

4.2.1 ARDL bounds Co-integration

The limits testing technique involves two stages.

In this stage we find long run relationship between the variables. When this relationship is confirmed, then in the second stage we assess short run and long run parameters. This technique evaluates unrestricted error correction for bounds test taking each of the variables as dependent variable, one after another.

4.2.2 Parameter stability and Diagnostic checks

With the object of testing the reliability of the error correction model, various diagnostic checks, for example tests of autocorrelation, normality and heteroscedasticity in the error term, of stability and correctness of parameters are functional.

For bounds testing technique, ordinary least square (OLS) is implemented to determine the long run association among the variables. F-test is accomplished for the combined significance of the parameters of the lagged variables. Further, If the F and Y computed value is greater than the critical value, the null hypothesis for no co-integration is rejected. If the F-static is below the lower bound, the alternate hypothesis (H_1) cannot be rejected and long run relation does not exist there. If the F-value falls between the upper and lower bound there is no conclusion found.

The variables have been used in log terms and given the nature of data, the following models are specified.

4.2.2.1 Model 1

$$LGDP = \alpha_0 + \alpha_1 (LTEL) + \alpha_2 (LFDI) + \alpha_3 (LSAV) + \alpha_4 (LCPI) + \mu_t \ldots (1)$$

4.2.2.2 Model 2

$$LGDP = \beta_0 + \beta_1 (LFDI) + \beta_2 (LCPI) + \beta_3 (LEX) + \beta_4 (LIM) + \mu_t \ldots..(2)$$

Where:

LGDP = Log of GDP in million $

LTEL = Log of Telephone lines as physical infrastructure in million $

LFDI = Log of Foreign Direct Investment; proxy of foreign private investment in million $

LSAV = Log of 'gross domestic savings' in million $

LEX = Log of Exports of goods and services in million $

LIM = Log of Imports of goods and services in million $

LCPI = Log of 'Consumer price index' measuring for inflation.

4.2.3 Equation of ECM

The short run dynamics of the coefficients is found by VECM (vector error correction model) after the estimation of ARDL.

4.2.3.1 Model 1

$$dLGDP = \alpha_0 + \alpha_1 (dLTEL) + \alpha_2 (dLFDI) + \alpha_3 (dLSAV) + \alpha_4 (dLCPI) + ECM(-1) + \mu_t \text{ ……..(3)}$$

4.2.3.2 Model 2

$$dLGDP = \beta_0 + \beta_1 (dLFDI) + \beta_2 (dLCPI) + \beta_3 (dLEX) + \beta_4 (dLIM) + ECM(-1) + \mu_t \text{ ……(4)}$$

5. Results and Discussion

Now, the results of Model 1 and Model 2 are to be interpreted. Table 1 presents the unit root test, to check the stationarity. The results indicate that the LGDP and LSAV are integrated of order 1.

Table1: Unit Root Tests

Variables	Results
LGDP(1)	3.573***
LTEL	6.131***
LFDI	1.193***
LSAV(1)	2.193**
LCPI	13.799***
LEX	4.120***
LIM	3.520***

Note: *** 1% significance level**,** ** 5% significance level; (1)=first difference

Table 2: F-statistics for bounds co-integration

Significance Level	I(0)	I(1)
10%	3.02	3.51
5%	3.62	4.16
1%	4.94	5.58

Table 2 shows F-statistics (OLS) results for cointegration.

Table 3: F- Statistics for the Long run relationship

Model	F- Value	Results
1	6.043352	Co-integration
2	5.465132	Co-integration

Table 3 illustrates that there exists a long run relationship because F-statistic of all the models are greater than the upper bound as theory mentions.

Table 4: Estimated Long Run Coefficients using the ARDL Approach

Variables	Model 1 (1,0,0,0,0)	Model 2 (1,0,1,0,0)
Log (Telephone lines)	-0.67664 (0.000)***	---
Log (FDI)	0.094479 (0.003)***	-0.065316 (0.014)**
Log (savings)	0.20654 (0.037)**	---
Log (CPI)	0.71414 (0.004)***	-0.044745 (0.766)*
Log (Exports)	---	0.17428 (0.050)**
Log (Imports)	---	0.55444 (0.000)***
Constant	24.0576 (0.000)***	8.9602 (0.000)***

Note: *** 1% significance level**,** ** 5% significance level, *10% significance level

The results of model 1 suggest that foreign capital inflow in the form of FDI is positively contributing in the economic growth, but its influence is minor on the growth. While, domestic savings are seemed relative more influential to GDP growth. So, this result reveals that FDI has Supplemented the 'Domestic savings' rather than substituting. It means that foreign inflow has raised the impact of 'Domestic savings' on Economic growth. Hence, FDI is an effective to support the 'Dom. Saving constraint to growth. Moreover, Telephone lines as a proxy of 'Physical capital' is contributing negatively in GDP in the Long run. The reason might be that it was not so much developed sector in Pakistan even in late 20^{th} century. Thus, it is not a productive source of raising aggregate income. As after few years in 1980s and 1990s, it was replaced by modern technology (i.e. mobile phones, wireless service of internet etc.). That's why it is giving diminishing or negative returns in Long run. Beside this, inflationary pressure is positively contributing, means that intensive demand exists in the economy which has created incentive for producers to produce more and contributing in growth positively. Further, all the results of model 1 are significant at 1 %.

In model 2, the international trade of goods and services has been included. The results suggest that FDI is negatively contributing in growth. It shows that the inclusion of 'Export sector' in the model has replaced the 'Foreign Direct Investment'. Imports are positively contributing in economic growth by importing capital and intermediate goods for manufacturing sector, but It has increased the 'Import-Export' gap. Another reason of negative impact of FDI on growth is the poor macroeconomic indicator i.e. Inflation. High price level in the economy deteriorates the foreign funds and assets, and compels the foreign firm to divert its investment plan to other country. Hence, high CPI discourages FDI that would cause decline in growth rate.

Table 5: The Error correction representation for the Selected ARDL model

Variables	**Model 1 (1,0,0,0,0)**	**Model 2 (1,0,1,0,0)**
dLog (Telephone line)	-0.41597 (0.000)***	---
dLog (FDI)	0.058082 (0.009)***	-0.044116 (0.014)**
dLog (savings)	0.12697 (0.038)**	---
dLog (CPI)	0.43903 (0.016)**	-0.030222 (0.765)*
dLog (Exports)	---	-0.044777 (0.475)*
dLog (Imports)	---	0.37448 (0.000)***
ECM(-1)	-0.61476 (0.000)***	-0.67543 (0.000)***
dConstant	14.7897 (0.000)***	6.0520 (0.000)***
R-Square	0.50418	0.78493
SE of regression	0.055433	0.037155

Note: *** 1% significance level**,** ** 5% significance level, *10% significance level

All the short run estimates of model 1 are statistically significant. R-square of the model is 0.50418, which is acceptable by every standard. The F-statistic is also highly significant at 1% level. The model is not spurious because DW statistic is higher than R- square value, i.e.1.5016. Further, in short run, FDI is supporting 'Domestic Savings' rather than substituting it, and both are positively and significantly contributing in economic growth. The important thing in the discussion is the ECM, which shows the speed of adjustment from short run fluctuations to attain long run equilibrium path. The coefficient of ECM(-1) term has a negative sign that is (-0.61476), which explains the high level of convergence and adjustment to equilibrium by 61%.

The short run analysis for model 2 shows that the exports have inverse and statistically insignificant relation with growth because of poor and volatile inflationary fluctuations, but in long run it has been positively and significantly adjusted with economic growth. Imports have positive relation with growth even in short run.

Overall results are seemed significant as F-statistic is 17.0313. The model is not spurious because DW statistic is higher than R- square value that is 1.9, which is nearly equal to 2 means 'no autocorrelation'. Value of ECM (-1) is above 67%, which shows high speed of adjustment towards equilibrium after fluctuations in short run disequilibrium.

Table 6: The Diagnostic Stability Tests

Tests	Model 1	Model 2
Serial Correlation $\chi 2$ (1)	2.4112 [0.120]*	0.0048804 [0.944]*
Functional Form $\chi 2$ (1)	3.1688 [0.075]**	1.1866 [0.276]*
Normality $\chi 2$ (2)	1.6765 [0.432]*	1.5081 [0.470]*
Heteroscedasticity $\chi 2$ (1)	2.0288 [0.154]*	0.43625 [0.509]*
CUSUM	Stable	Stable
CUSUMQ	Stable	Stable

Note: *** 1% significance level**,** ** 5% significance level, *10% significance level

The diagnostic stability tests for the above models are provided in Table 6.

6. Conclusions and Policy Recommendations

It has been analysed in the Model 1 that foreign private inflow in the form of FDI has complemented the 'Domestic savings' in a good macroeconomic condition represented by positive impact of inflation on growth rate. Thus, FDI is an effective inflow which has raised the contribution of 'domestic savings' and provided support to finance the 'Domestic Saving gap' in the economy. The value of ECM (-1) is 61% which shows a high level of adjustment towards equilibrium after a short run fluctuations.

While model 2 is based on the 'Foreign sector' including Import- exports. It has been analysed that inclusion of Export sector has replaced the Private inflows in the economy, in the poor macroeconomic situation, i.e. high inflation and its negative impact on the economic growth. Imports are contributing in the development process because they support manufacturing sector by importing capital goods from abroad, but they tend to increase the 'Import- Export gap' in the economy. 67% value of ECM (-1) indicates a high level of convergence towards equilibrium.

Thus, overall it can be concluded that 'saving-Investment' gap has been supplemented by 'Foreign private inflow', but 'Import-Export' gap tend to rise due to poor macroeconomic condition and huge imports of Capital goods from abroad to support the domestic manufacturing industry.

Some recommendations are discussed below:

- Relative huge Imports (than Exports) are contributing in growth process positively. As Imports of Capital & intermediate goods provide support to the domestic manufacturing industry to raise its productive capacity. It is 'Supplementing' the 'Saving-Investment' gap but is seemed to raising the 'Import-Export' gap. For this purpose, Pakistan needs to develop its 'Import Substitution Industry' (ISI), to minimize the dependence on imported Capital goods for its domestic industry. Further, for the encouragement of SMEs, easy loan facility on minimum interest rates is to be granted to local investors to boost up the domestic investment.

- This research has also analysed the 'Limited Absorption Capacity' for the inflows of Foreign capital in Pakistan due to underdeveloped Financial markets, which leads to depreciation of currency and increasing inflation. So, Stock market, bonds market, commercial banks and other financial institutions need to be well established and central bank should manage inflows through effective monetary policy and 'Sterilization technique'.

- Observing the overall trend of socio-economic indicators in Pakistan's history. Political instability, Poor infrastructure, Unsuccessful policies to attract the FDI, Insufficient Human capital, Terrorism and Risky market situations are the hurdles in the way of 'Foreign capital inflows' in Pakistan. So, good governance and good Law & order situation within a proper institutional framework is essentially required to restore the confidence of foreign investors.

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Determinants of Dividend Policy in Banking Sector of Pakistan: An Empirical Study

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Abstract: This paper explores the determinants of dividend policy of firms in the banking industry of Pakistan. Dividend decisions of a bank basically depend on its profitability, retained earnings, cash and cash equivalents, earnings per share, corporate taxes and leverage. Present study is an attempt to find out the key determinant predictors and their impact on cash dividend payout and Total Payout ratio and test the significance of financial theories on banking sector of Pakistan during the period between "2006-2010". We applied the Balanced Panel Data Regression with Fixed Effects Model to verify the Null hypothesis. Among all of the independent variables PAT, SLACK, EPS, CTA and TDA reported significant results and the determinants of dividend policy. We found the support of Profitability theory, Packing order theory, free Cash flow theory and Agency cost theory and we found no support of Tax effect in banking sector of Pakistan.

Keywords: Cash Payout, Stock Payout, Dividend Policy
JEL Classification: G00, G11, G18

1. Introduction

The Corporate Dividend Policy has a long history, as the Frankfurter and Wood (1997) observed that the dividend policy was bound up with the development of corporate finance itself.

In the earlier sixteenth century, in Great Britain and Holland, the captains of sailing ships on track started selling of financial claims to the investors. At the end of each voyage, the capital and the profits were distributed according to their investments. Each venture ensured the distribution of profit to the investors at the end of its life (Baskin, 1988).

That was the emergence of business as "going concern" and made a fundamental practice of the business to decide, what percentage of business profit should be distributed to the owners, produced the first

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dividend payment in the history and the ownership structure of the companies evolves into the joint stock companies type of business.

In the middle of seventeenth century, the success of this form of business opened the doors for other businesses. Importance placed by the investors on dividend policy gave birth to another issue in modern corporate finance and paying the regular and constant dividend remained the vital for the managers for the duration of the 19th century (Frankfurter & Wood, 1997).

In corporate finance, the finance managers in wide-ranging face two operational decisions in their organizations: the investment (capital budgeting firm long term investment plans) and the financing decisions (the financing of the long-term investment plans). A third decision is when the firm earns profit, should the firm distribute all profit or what portion of profit to the shareholders' as dividend or should it be ploughed back into the operations of the firm? By keeping in mind the goal of the firm, which is the shareholder's wealth maximization?

The paper is organized as fallows, the objective of the study have been described in Section 2, Section 3 contains the literature review on the present topic, Section 4 contains the methodology, Section 5 reports the results and summarizes, concludes and policy recommendation extract from our empirical analysis.

2. Literature Review

The literature about the dividend policy of banking sector is scarce; due the unique characteristics of banking system, the major part of dividend policy in banking sector empirically studies found had been excluded from the sample of financial sector (Lintner, 1956; Razeff, 1982; Alli *et al.,* 1993; Fenn & Liang, 2001). The prose of dynamics and drivers of dividend policy related to Lintner (1956), after that the work was advanced by Fama and Babiak (1968), The dividend policy addressed the decision of the finance managers about the distribution of the profits to the shareholders, or reinvestment in to the operations of the business (Allen & Micheally, 2002). MM theory, was given by Miller and Modigliani (1961), concluded that dividend policy was irrelevance in the perfect markets and does not affect the firm value as shareholders prefer capital gains to dividends. Gordon (1963) and Walter (1963) have given Bird in the Hand Theory. According to them, cash in hand was the major

determinant of dividend policy. Esteban and Perez (2001) explored the role of dividend policy in European banking sector, concluded that profitability, stability of the earning, growth rate, investment opportunities, financial, governing structure in the organization are also the drivers of dividend policy in European banking industry. Baker and Wurgler (2004) supported Catering Theory, in which they stressed that to cater the investor by paying smooth dividends. According to the Jensen and Meckling (1976), it was argued that the clash among the shareholders and management of the firm roofed Agency Theory.

Procianoy and Weber (2007), empirically investigated the drivers of dividend policy, and related with the dividend theories in Brazilian banking sector. They analysed the panel data of the bank's quarterly financial statements from 2001 to 2006, used "Multivariate Data" study on dependent variables included dividend or equity interest and independent variables included rate of return, financial slack, debt, taxes and growth rate. They argued that the sharing of profit was more or less one third of the balance sheets, 75% of the total payments represented equity interest payments for the banks. They also found the support from Signalling, Packing Order Theories also found positive relationship with the slack of capital and negative relationship among debt and profit distribution. Akpomi and Nnadi (2008) investigated the impact of taxes on dividend policy in banking sector of Nigeria. "Standard Multiple Regression" Model was applied. They argued the significant correlation between dividend policy and corporate taxes; profit was the major determinant of dividend decisions, and positive correlation between profits, corporate taxes and dividends payments in Nigeria. A.Husam *et al.,* (2010) reviewed the rationalization and main theories on dividend policy and in ending supported the statement given by Fisher Black "the harder we look at the dividends pitcher, the more it seem like a puzzle, with the pieces, that just do not fit together"(Black,1976) is still valid.

Chigozie (2010) they investigated the drivers of the dividend policy in Nigeria and applied "Factor Analytical Approach" and concluded three drivers together, earning with negative impact, current ratio and last year dividend have positive impact on dividend policy and these were significant. Broqi (2010), undertook an investigation on the relationship between capital adequacy and dividend policy in Italian banking sector,

concluded that the promotion of the capital conservation under the internationally agreed frame work proposed by the Basel committee had a significant negative effect on dividend policies of the European banks specially in the period of economic downtrend, when the capital decreased from the minimum capital requirement, retained earnings could be the primary source for maintaining the capital requirements for efficient and prudent banking system.

Hamid *et al.,* (2011) explored the impact of taxes on the dividend decisions, concluded that tax rate was the determinant of dividend policy in Pakistani banking industry. Agyei and Yiadom (2011) empirically examined the panel data period 1999-2003 within Fixed and Random Effect Method, and they concluded profitability, debt, changes in dividends, collateral capacity, growth and age were significant, and the determinants of dividend policy while cash had a negative and not significant factor in banks working in Ghana. They also concluded that Profitability Theory, Agency Theory and life Cycle Theory supported the dividend policy; they found no support from Free Cash Flow Theory in Ghana. Huda and Farah (2011) investigated the key determinants of dividend policy in Bangladesh by using "Simple and Multiple Regression Techniques" it was argued that the size, liquidity, retained earnings and profitability and had a significant relationship with stock payout and cash payout. Zaman and Sumaiya (2011) empirically estimated the relationship among the dividend policy and stock return by applying Co-relation and Regression Analysis. They argued that the dividend policy is not the determinant in order to increase the excess market return in Bangladesh banking sector. Haddad *et al.,* (2011) examined the dividend policy stability and dividend payout ratio of the banks listed in Amman Stock Exchange (ASE) throughout the period (2000-2006). They argued that the banks in Amman did not follow the stable dividend policies they have targeted payout ratios.

3. Research Methodology

The research methodology of this study is constructed around the dividend policy of banking sector in Pakistan. It includes the generation of research

hypothesis, research design, and definition of the variables, limitations and expected problems in research.

3.1 Data Collection Procedure

This study is based on the secondary data collected from the Banking Supervision Department of State Bank of Pakistan, the annual reports of the commercial banks and the Security and Exchange Commission of Pakistan.

3.2 Selection of Sample

We selected the time period between 2006 to 2010, in which no merger and bank closures activities were held. During the selection of our samples and period for our research, we found that the foreign banks and specialized banks in the banking sector of Pakistan did not pay dividends in the sample period and finally the banks were selected on the basis of dividend payments whether regular or irregular in order to guard against selection bias (Kim & Maddala, 1992 and Deshmukh, 2003). To conduct the study only twenty-one (21) banks were qualified for our research out of thirty-seven (37) banks working in Pakistan from 2006 to 2010.

The Balanced Panel Data Regression was used with Fixed Effects Model (the period fixed effects dummy variables) to verify the Null hypothesis. In all specifications, TAX, Profitability, Cash and cash equivalents, retained earnings, Earning per share and Leverage were divided by Total assets (TOTA) in order to account for differences in size among the institutions and control for heteroscedasticity. While Fixed Effects Model and Descriptive analyses were performed on the Panel data for our research.

3.3 Econometric Model

The common model for panel data, to investigate the relationship among the regressors and regressant is theoretically written as follows:

$$Y=\alpha + \beta 1X1_{it}+ \beta 2X2_{it} + \beta 3X3_{it}+ \beta 4X4_{it}+\ldots\ldots + \beta kXk_{it} + \varepsilon_{it}..... (1)$$

$$CP_{it} = \alpha + \beta_1 TAX_{it} + \beta_2 PAT_{it} + \beta_3 CTA_{it} + \beta_4 SLACK_{it} + \beta_5 EPS_{it} + \beta_6 TDA_{it} + \varepsilon_{it} \ldots \quad (2)$$

$$TP_{it} = \alpha + \beta_1 TAX_{it} + \beta_2 PAT_{it} + \beta_3 CTA_{it} + \beta_4 SLACK_{it} + \beta_5 EPS_{it} + \beta_6 TDA_{it} + \varepsilon_{it} \ldots\ldots \quad (3)$$

Where, Y= dependent variable (Cash dividend Payout and Total dividend Payout during period t), X_2 = independent variable PAT (Profit after Taxes to Total Asset for Bank *i* in time *t*), X_3 = independent variable CTA (Ratio of Cash and cash equivalent to Total Assets for Bank *i* in time *t*), X_4 = independent variable SLACK (Accumulated retained earnings to Total assets for Bank *i* in time *t*), X_5 = independent variable EPS (Earnings per share for Bank *i* in time *t*), X_6 = independent variable TDA (The ratio of Total Debt to Total Assets for Bank *i* in time *t*) and ε_{it} = disturbance term

The variable TAX is the amount of income taxes paid on annual basis by the banks working in Pakistan used as proxy for tax influence on the profit distribution to the shareholders of the banks. PAT is the profit size of the banks is the major determinant of the dividend policy according to the "Profitability Theory". The management of the banks recommended the dividend payout when banks earned enough profits. CTA is used as proxy of bank liquidity position.

The amount of retained earnings is used to demonstrate the banks financial slack (SLACK). Companies with low growth and few investment opportunities had greater aptitude to pay high dividends, there was negative relationship concluded by number of studies (Rozeff, 1982; Dempsey & Laber, 1992; Myers & Majluf, 1984; John & William, 1985; Lloyd *et al*., 1985; Jensen *et al*., 1992; Dempsey & Laber, 1992; Alli *et al*., 1993; Moh'd *et al*., 1995; Holder *et al*., 1998).

The earnings per share after tax (EPS) is used because dividend has been paid earning after the deduction of interest, taxes and depreciation and calculated as net earnings divided by number of shares. To compute the level of financial risk inherent in the operations of the banks. The total liabilities to total assets of the bank is used as proxy of risk (Leverage). Nazir *et al.*, (2010), Jensen and Meckling (1976), Jensen (1986), Stulz

(1988), Rozeff (1982), Higgins (1972), McCabe (1979), concluded that the leverage (Lev) also influences the dividend behaviour of the firm; if the level of the leverage is high its mean the firm is riskier in the cash flows.

3.3.1 Fixed Effects Model

In our study the cross sections included 21(N); total panel (balanced) observations are 105 and sample period: 2006 to 2010. The Fixed-Effects analysis can only support inference about the group of measurements, and the actual subject pool we looked at. The benefit of using the Fixed Effects Model is that it allows individual and /or time specific effects to be correlated with the independent variable. While the disadvantage of using the Fixed Effects Model is that the number of unknown parameter increases with the increase in the number of observations. The second disadvantage of using the Fixed Effects Model for estimation is that, it does not allow the estimation of the coefficients that variables are time-invariant (Neyman & Scott, 1948).

3.3.2 Hausman Specification

The Hausman test was formulated to test the choice between the Fixed Effects Model and Random Effect Model approaches. We applied the "Hausman specification test" to test the significance of Fixed Effects Model or Random Effects Model for our estimations. In Hausman test the null hypothesis is that REM is consistent and efficient Hausman test validates the results of Fixed Effects Model. The p-value is 0.00874, therefore we cannot reject H1. After confirming the Hausman test, Fixed Effect Model is robust to check the results after altering the assumptions of FEM.

4. Empirical Results

The Panel Data Regression along with Fixed Effects Model is used and the results are provided in Table 1.

Table 1: Model 1 Regression Analysis

	C	TAX	PAT	CTA	SLACK	EPS	TDA
Coefficient	33.455	-0.413	1.453	0.248	-0.736	0.995	-0.343
Std. Error	11.089	1.821	0.731	0.172	0.445	0.558	0.149
t-Statistic	3.016	-0.227	1.985	1.441	-1.654	1.78	-2.308
Prob.	0.0033***	0.820	0.05**	0.157	0.10*	0.07*	0.02**

Level of Significance: * Significant at 10%, ** Significant 5%, *** Significant at 1%

Table 2: Model 1 Combine Results of Regression and Descriptive Analysis

	C	TAX	PAT	CTA	SLACK	EPS	TDA
Coefficient	33.45	-0.413	1.453	0.248	-0.736	0.995	-0.343
Prob.	0.003***	0.82	0.05**	0.152	0.10*	0.07*	0.02**
Mean	-	0.596	1.033	10.738	1.021	3.683	89.05
Std.Dev	-	2.542	5.165	4.970	9.77	9.08	7.42

Level of Significance: * Significant at 10%, ** Significant 5%, *** Significant at 1%

The regression results show that all the variables are significant in explaining the dividend cash payout policy in banking sector of Pakistan except TAX, Cash and Cash Equivalents (CTA). The F-statistic value of our model is 7.8890 (Prob.F statistic 0.00) shows that our model is significant at 1% and all proxies of independent variables and dependent variable explaining each other. The value of R-squared is 46%, which is

comparatively low due to irregular payments of cash dividend in banking sector of Pakistan. which indicates the variation in independent variable is explained by the independent variables.

In the 1st model the Dividend Cash Payout was taken as dependent variable and TAX, PAT, CTA, SLACK, EPS and TDA were taken as independent variables. Among all of the independent variables TAX and CTA reported insignificant results and PAT, SLACK, EPS, TDA reported significant and the determinant of Cash Dividend policy in the banking sector of Pakistan. In our findings TDA with 2% prob. with the mean value of 89%, maximum value of 100.84% and minimum value of 50.23% is the highest influential variable in determining the Cash dividend Policy in banking sector of Pakistan followed by the PAT with 5% prob. with the mean value of 1.033% the maximum value of 26.94 and the minimum value of -10.43%, EPS with 8% prob. the mean value of 3.68% the maximum value of 24.47% and the minimum value of -41.29% and SLACK with 10% prob. the mean value 1.022% the maximum value of 50.62%and the minimum value of 3.02%. The results of our first model with Cash Payout as dependent variable, supported the Profitability Theory, Packing Order Theory and Agency Cost Theory and we found no support of Tax Theory and free Cash flow theory in banking sector of Pakistan.

Table 3: Model 2 Regression Analysis and Results

	C	TAX	PAT	CTA	SLACK	EPS	TDA
Coefficient	15.61	-0.924	1.901	0.494	-0.7852	1.065	-0.139
Std.Error	10.628	2.045	0.770	0.302	0.601	0.615	0.095
t-Statistic	1.469	-0.451	2.46	1.635	-1.306	1.731	-1.462
Prob.	0.145	0.65	0.01**	0.10*	0.19	0.08*	0.14

Level of Significance: * Significant at 10%, ** Significant 5%, *** Significant at 1%

Table 4: Model 2 Combine Results of Regression and Descriptive Analysis

	C	TAX	PAT	CTA	SLACK	EPS	TDA
Coefficient	15.617	-0.924	1.901	0.494	-0.785	1.065	-0.139
Prob.	0.145	0.652	0.01**	0.10*	0.19	0.08*	0.147
Mean	-	0.596	1.033	10.73	1.021	3.683	89.05
Std.Dev	-	2.542	5.165	4.970	9.77	9.08	7.425

Level of Significance: * Significant at 10%, ** Significant 5%, *** Significant at 1%

The regression results show that all the variables are insignificant in explaining the total dividend payout policy in banking sector of Pakistan except PAT, CTA and EPS. The F-statistic value of our model is 10.81017 (Prob.F statistic 0.0000000) shows that our model is significant at 1% and all proxies of independent variables and dependent variable explaining each other. The value of R-squared is 54% which indicates the variation in independent variable is explained by the independent variables. The value of R-squared is less than and the value of Durbin-Watson test stat which shows that our model is Best Fit and there is no problem of autocorrelation.

In the 2nd model the Dividend Total Payout was taken as dependent variable and TAX, PAT, CTA, SLACK, EPS and TDA were taken as independent variables. We utilized the Balanced Panel Date Regression with Fixed Effect to verify the Null hypothesis, all of the independent variables PAT, CTA and EPS reported statically significant results and TAX, SLACK and TDA reported insignificant results. In our findings, PAT is statically significant at 1.5% prob. with the mean value of 12.99% (9.6% contributed by the Cash Payout and 3.39% contributed by the Stock Payout).

The maximum value of 125% and minimum value of 0% is the highest influential variable in determining the Stock Dividend Policy in banking

sector of Pakistan followed by the EPS is statically significant at 8.6% prob. with the mean value of 3.68% the maximum value of 24.47 and the minimum value of -41.29%.CTA is statically significant at 10% prob. with the mean value of 10.73% with the standard deviation 4.97 and the maximum and minimum values 28.05% and 3.02% respectively.

The results of our second model with Total Payout as dependent variable supported only Profitability theory and Free Cash Flow theory and we found no support of Tax theory, Packing Order Theory, Agency Cost Theory in banking sector of Pakistan.

5. Conclusions and Recommendations

Among all of the independent variables TAX and CTA reported insignificant results and PAT, SLACK, EPS, TDA reported significant results and the determinants of Cash Dividend policy in the banking sector of Pakistan. In our findings, TDA with 2% prob. with the mean value of 89%, maximum value of 100.84% and minimum value of 50.23% is the most influential and significant predictor in determining the Cash dividend Policy in banking sector of Pakistan. Followed by the PAT with 5% prob. with the mean value of 1.033% the maximum value of 26.94 and the minimum value of -10.43%, EPS with 8% prob. the mean value of 3.68% the maximum value of 24.47% and the minimum value of -41.29% and SLACK with 10% prob. the mean value 1.022% the maximum value of 50.62% and the minimum value of 3.02%.

The results of first model with Cash Payout as dependent variable supported the Profitability Theory, Packing Order Theory and Agency Cost Theory and we found no support for Tax Theory and Free Cash Flow Theory in banking sector of Pakistan. The relationship of cash dividend with the interpreter variables could have been shown better scenario, if the banks shall pay cash dividend on regular basis. Our 2nd model represented the actual dividend policy taken by the banks in the banking industry of Pakistan between the periods 2006 to 2010.

The study combined the Cash payout and Stock payout and made our 2nd depended variable “Dividend Total Payout” was taken as dependent variable and TAX, PAT, CTA, SLACK, EPS and TDA were taken as

independent variables. All of the independent variables PAT, CTA and EPS reported statistically significant results and TAX, SLACK and TDA reported insignificant results. In our findings, PAT is statistically significant at 1.5% prob. with the mean value of 12.99% (9.6% contributed by the Cash Payout and 3.39% contributed by the Stock Payout). The maximum value of 125% and minimum value of 0% is the highest influential variable in determining the Stock dividend Policy in banking sector of Pakistan followed by the EPS is statically significant at 8.6% prob. with the mean value of 3.68% the maximum value of 24.47 and the minimum value of -41.29%.CTA is statically significant at 10% prob. with the mean value of 10.73% with the standard deviation 4.97 and the maximum and minimum values 28.05% and 3.02% respectively. The results of our second model with Total Payout as dependent variable supported only Profitability Theory and Free Cash Flow Theory and we found no support of Tax theory, Packing Order Theory, Agency Cost Theory in banking sector of Pakistan.

The results are consistent with the findings of Ms Clusky *et al.*, (2010), for Dulbin and Irish Financial market, Prociany and Weber (2007) for Brazilian Banking sector, Yiadom and Agyei (2011) for banking sector Ghana, Huda and Farha (2011) for banking sector of Bangladesh, Zaman and Sumaiya (2011) for Bangladesh, Al-Haddad *et al.*, (2011) for Amman Stock Exchange, Kowalewaski and Berlin (2007) for Poland, Broqi (2010) for Italian Banking, Weber (2007) for Brazilian banking, Esteban and Perez (2001) for Europeans Banking sector.

It was observed that profitability appeared to be the most significant determinant of dividend policy in the banking sector of Pakistan. Due to the vulnerability of bank's profitability and due to the economic changes in Pakistan; it is not viable for banks to formulate a dividend policy that follows a constant payout but a minimum rate for dividend payments according to one year money market deposit rate can safeguard the interests of the risk averse investors in the market, and also, Agency Problem can be dealt with to a certain degree.

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Executives Trends towards Joining Distance Learning Programs

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Abstract: The increased interest in Virtual learning programs across the nation emphasizes the merits of these programs over the traditional ones, with an opportunity provided to executives for getting a higher degree without joining Institutes and improving their careers. This paper explores the reasons of executive trends towards joining Virtual programs when they have traditional system as a powerful alternative of learning and also throws light on the importance of Virtual degrees in job market. A survey has been conducted through questionnaires to conclude about the trends of students enrolled in Virtual programs.

Keywords: Distance learning, Incentive Structures, Career Development
JEL Classification: I26, I21

1. Introduction

Keeping in view the different modes of learning, Wild (1994) defined that by the end of 2020 every education and training programme will be available in three modes, that are full time, part time and distance learning. Distance education can be explained as source of knowledge along with advancement of technology outside the traditional boundaries. Some explain distance learning as extension of class room environment in term of remote location (Long distance technology 1990). A more comprehensive definition has been provided by Ian Mugridge (1991), who states that it is:

> *"A form of education in which there is normally a separation between teacher and learner and thus one in which other means the printed and written word, the telephone, computer conferencing or teleconferencing, for example are used to bridge the physical gap."*

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A simpler definition of distance learning would be that distance education should make easy provision of whatever educational opportunities are needed by anyone, anywhere, at any time. Based upon the needs of the population, distance education is imparted from traditional learning due to the following characteristics:

Extensive use of media,

- A complete separation of learner and tutor,
- Promote two-way communication,
- Provide an alternative to traditional education system (Keegan, 1996)

Virtual learning is a term frequently used interchangeably with distance learning, online learning, e-learning, or Web-based learning. What should be the mode of the study; the end result will be the increased educational opportunities for broader segments of population that will accommodate their different situations and needs. Keeping in view the different needs of the students, Virtual programs are offered to those who are not willing to enrol themselves in traditional learning system due to limited availability of time which ceases them to complete the credit hours demanded by traditional programs. Another reason might be the need of degree for career improvement without leaving the jobs because of the need for the monthly salary (Larsen, 1999; McCallister & Matthews, 2001). Other reason might affect the size of the potential market for virtual programs where customer is living national or international. Therefore, Virtual programs are more suitable for those who need to improve their careers within the same organization or for elderly and disabled people who cannot easily move and go to campuses. The main focus of this paper is to emphasize on the pre and post trends of executives towards joining virtual programs.

As far as the Virtual learning is concerned, there seems an increased trend of enrolment during past few years. This may be due to the fact that virtual programs tailored to the needs of the students.

As compared to the increased interest in such programs, the results are not very much favourable as only 7-10% students were able to get the degrees

after completing virtual programs. This might be due to the fact that more students enrolled in this program only to get degrees for career development and their focus is not learning. Therefore, they are not very much careful about grades as they only need a degree to enhance their careers. Also they are unable to do justice with their job and learning at the same time. For this reasons, grades are not comparable to traditional learning where student teacher interaction makes this point more favourable for traditional system. Same is the case with AIOU. This paper also attempts to explore the actual motive and market acceptance of this degree as well.

The questionnaire was designed to explore the competitive edge of virtual programs over traditional ones, the reasons of joining is either career development or learning, impact of virtual education on job skills and career development and HR executives ratings of Virtual degrees in job market.

As the main purpose of the paper is to analyze the effects of pre and post attitudes for joining virtual programs, the results are as per our expectations. The results clearly show that most of the executives enrolled in Virtual programs have least purpose of learning and most for career enhancement. They take this degree for granted. Also HR Executives ranking of virtual degree in job market do not carry the same weight-age as traditional degrees. In the end, future implications are given to define a strategy that will be helpful to change the prevailing trend and to attract more and more executives with the goal to enhance their learning rather than career development.

2. Literature review

Talking about the dilemma of “Education in Pakistan”, Khan and Mehmood (1997) focused upon the need of learning to survive in today’s age of rapid globalization. He agreed that primary schooling provide knowledge practically and intellectually but he also assisted on the need for both conventional financial and physical resources, as well as for new and innovative concepts and techniques. He concluded that for countries like Pakistan where education is not linked to economic prosperity, a

graduate degree instead of providing a secure future will guarantee unemployment in real sense. Traditional programs, along with its major drawbacks for those who want to learn but not having adequate time to fulfil the credit hours, ceases them to be at graduate level thus guaranteeing unemployment.

Virtual programs have met the needs of those who not only want to earn but also tried to learn side by side for improving their careers. Focusing on the improved need to develop a strategy for increasing the literacy and also keeping in view the demand of the executives for career development, Virtual learning came into being to provide world-class education. Since the emergence of virtual learning, many worldwide studies have been conducted emphasizing upon the merits of virtual programs for executives.

From Pakistan perspective, the driving force behind the concept of Virtual education is the lack of IT faculty in particular and other fields in general, at any academic institution in Pakistan which leads towards the severely compromises the quality of education being imparted. In Addition to this, quality staff is only present at few very highly ranked institutions where, access is not easy and the cost of education is out of the reach for common man. Virtual University of Pakistan (VU) collects the scattered intellectual resources on a single platform and then makes their expertise available to students across the length and breadth of the country as well as to students overseas, all at a very affordable cost.

The main intention of doing all this is to produce material using variety of media and delivery mechanisms, to test which are the most suitable for use by Virtual Universities. Similarly, virtual education uses both synchronous and asynchronous presentation technologies and course book technologies to provide basic learning environment function.

Nixon and Helms (2002) studied on the future of Corporate Universities and concluded that future of such Universities involved web-based learning. The future of corporate universities are also associated with the challenges to maintain current technology with advancing technology; therefore in order to ensure the creditability and legitimacy of corporate universities, official recognition and evaluation of program will become

more important to ensure. The facilities that Virtual programs provide as an alternative to traditional learning programs is its flexible delivery mechanism of information and communication technologies and also the convenience to the learners providing them exposure with emerging technologies (Hussain, 2008). As a biggest institute of distance learning, Allama Iqbal Open University has appropriate infrastructure and enough potential to provide access to the right to education on large scale since it can meet the educational needs demanded by the people irrespective of their circumstances and living conditions. Secondly, AIOU addresses the issue of access and equality particularly for the female population living in rural or culturally restricted areas of the country.

Therefore, it can be used as a strategy to provide the right education at all levels to all individuals of Pakistan (Hussain, 2008). Emphasizing upon the role of distance learning in promoting education for no gender biasness, Hussain (2008) concluded that distance education provides equal opportunities to all individuals of the society. It is more feasible for female population to cater their academic needs particularly to those belonging to culturally restricted areas. Distance learning is an appropriate strategy to address the issue of gender discrimination in Pakistan.

In a comparative study on AIOU "Executive student's Attitude towards Technological Change" results indicate that student feel distance learning a simple and easy way to get skilful by understanding the virtual methodology of learning. Learning through internet is pleasant and interesting experience for them as well as regarding the maximum use of technology and communication means in learning environment, they feel social obligation from friends, class fellows, teachers and other associates (Rashid & Riaz, 2003). Since, no focus has been made on the issue of actual motive of executives towards joining virtual programs, this paper attempts to focus on the issue.

3. Data and Methodology

Primary data was collected through questionnaires to conclude about the trends of students enrolled in Virtual programs. We attempted to get answered by 100 executives. The questionnaire was based on five point Likert scale developed by Rensis Likert. This scale enables the

respondents to answer according to the intensity of their attitude. Initially, 30 questionnaires were distributed as pilot testing, to check the reliability and validity of questionnaire. Then it was distributed to target group of respondents. The target group was expected to answers on the following issues:

- First, the emphasis was made to view whether the virtual degree has made any contribution to executives' career development and what is the demand of virtual executives in job market?
- Second those which are currently studying under such programs. The intention was to explore the reasons of joining virtual programs. The focus was on the issue that what factors ceases them to join the virtual programs when an attractive and more traditional system is available?

The sample executives were taken from two universities, AIOU and Virtual university of Pakistan. The students doing job along with study has been selected to answer so that they can respond to the need of the research work well. 200 questionnaires have been answered. The survey is conducted in different campuses of Virtual University and AIOU.

4. Results

4.1 Demographic Characteristics

Demographical analysis shows that 55% of respondents were between age 20-25, while 32% were between age 26-30 and remaining belongs to age group of 31-42 (13%) which means that virtual education serves the purpose of education for all beyond any age group. Reason of the young ages to join Virtual programs could be that they want to become the earning hand at the same time and also try to get knowledge at cheaper cost as well. Being the male dominated society, 71% questionnaires were answered by male, while female ratio is only 29%. This could be the reason that most families do not want their females to join co-education programs even through distance learning. 30% of the respondents were married. It concluded that married people who are unable to meet the needs of their families within the same salary, they want to earn more for which they want an extra degree to improve within the same organization.

Due to the emerging technologies and services offered by banking sector there is a high growth in service sector. May be due to the reason individuals working in service sector are more interested to enhance their knowledge and skill by enrolling themselves in distance studies. Total of 41% students surveyed were from service sector while the second highest figures is from marketing services 23%. The distribution of salary scale clearly shows that individuals who cannot afford to pay more in case of traditional system are more interested in distance learning for career development as it is a cost effective, time saving and flexible mechanism of learning delivery. Table 1 shows the demographic analysis of the executives.

Table 1: Demographical Analysis

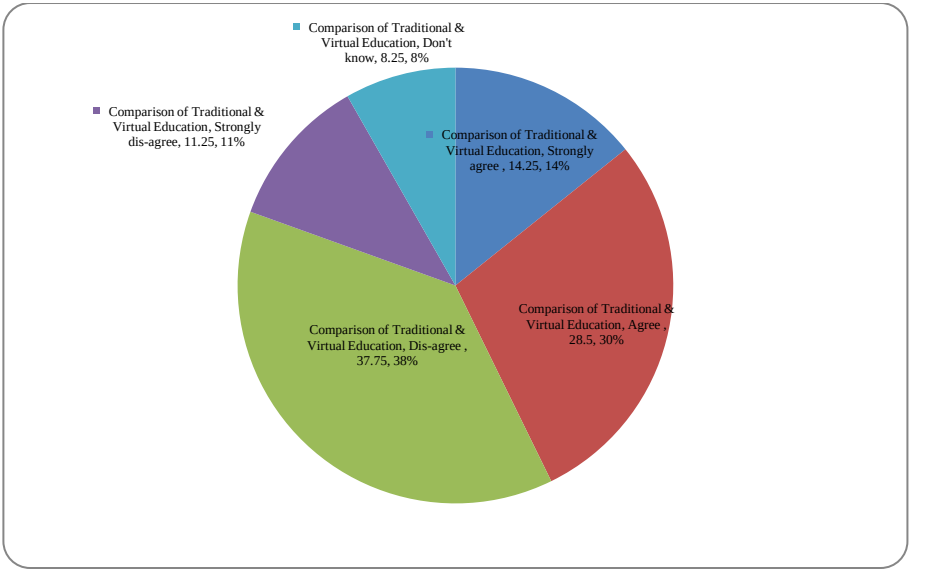
Age	20-25	55%
	26-30	32%
	31-42	13%
Gender	Male	71%
	Female	29%
Marital Status	Single	70%
	Married	30%
Occupation	Govt.	4%
	Marketing	23%
	Manufacturing	17%
	Service	41%
	Others	15%
Salary	Below 10.000	17%
	10,000-15,000	26%
	15,000-20,000	32%
	20,000-25,000	13%
	25,000-30,000	12%

Source: Demographic Analysis on the basis of Questionnaire Responses

4.2 Analysis

The analysis of descriptive variables shows the mixed trends in some cases. In a set of the questions about the comparison of the Traditional and Virtual systems (Figure 1), 37.75% students disagree that virtual programs provide the learning in same effective way as traditional can. They are in a view that in the absence of student teacher direct interaction and due to the communication gap, virtual learning is not as effective as traditional is. Almost 28.50% students are positive about the usefulness and ease of study for virtual system. They think that direct communication is not as much necessary because they have to take it as opportunity cost for the continuation of job along with study. The graph given below states the results gathered from the answered of the students.

Figure 1: Comparison of Traditional & Virtual Education

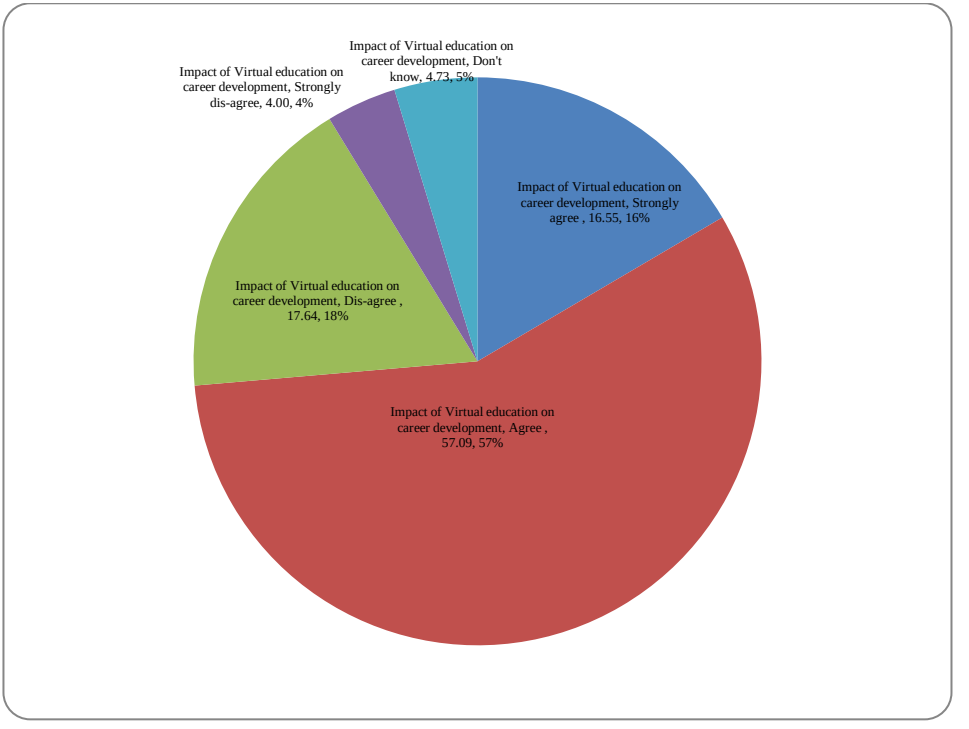


Source: Pie Diagram for Analysis of Descriptive Variables

In another set of questions (Figure 2), where it has been asked to provide consensus about the impact of virtual education on career development, nearly 57.09% agree that virtual education have a positive impact on career development. As students become used to be self-planned and hardworking that will enhance their job development and also have a

positive effect on job search. While 17% disagree about the impact of virtual degree on career enhancement. This clearly indicates that students join virtual programs for career development and learning is a secondary motive.

Figure 2: Impact of Virtual Education on Career Development

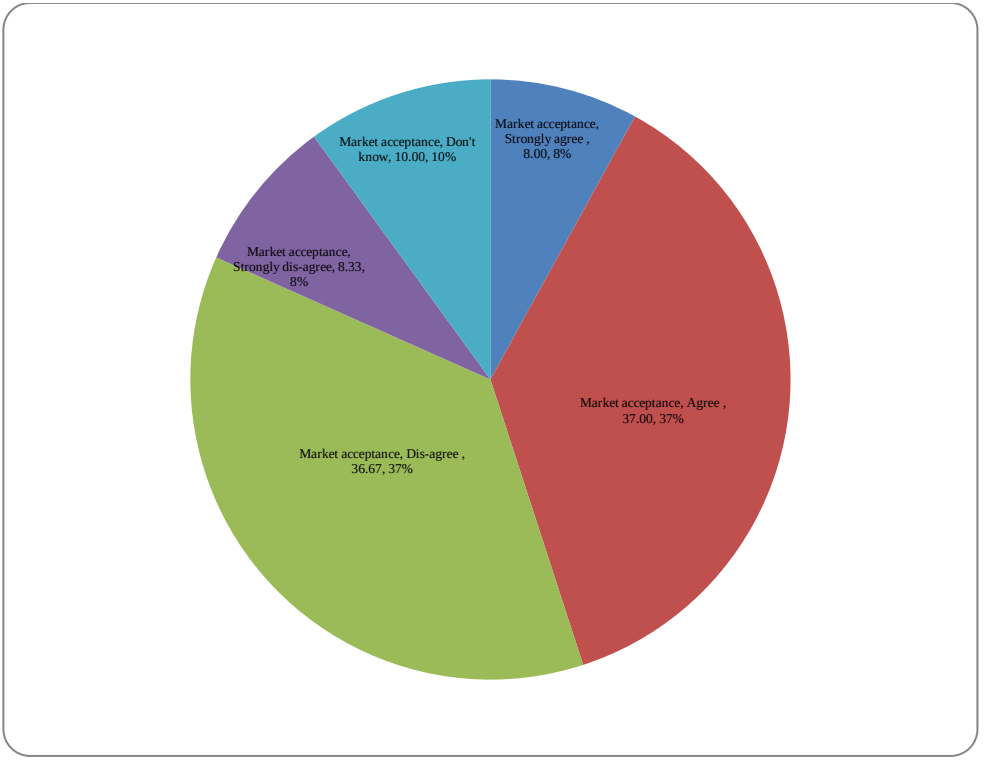


Source: Pie Diagram for Analysis of Descriptive Variables

Another set of the questions throw light on the job market acceptance of the virtual degree (Figure 3). Nearly 36.67% students disagree that this degree provides them an edge in the job market. The reason may be the process of knowledge distribution that is indirect student teacher interaction in this system than traditional one and therefore this degree is ranked less than traditional degree in job market. On the other hand, 37% students agreed that this degree has an impact on job market. The reason may be that those students that are already in job market use this degree to

improve their current positions within the same organization and they need not to search for job. The graph given below clearly explains the analysis of the job market behaviour of the students.

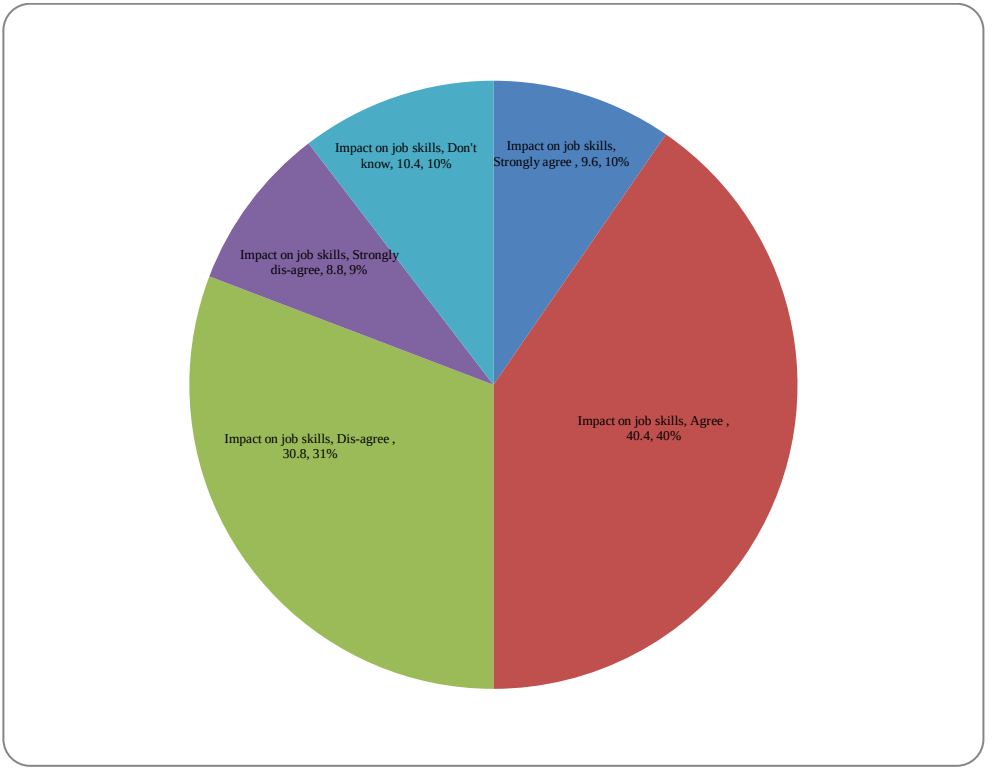
Figure 3: Market Acceptance



Source: Pie Diagram for Analysis of Descriptive Variables

Consensus about the impact of Virtual learning on job skills (Figure 4) provide us mixed results. 30.8% disagree that distance education has any impact on the job skills on the other hand, 40.4% agree that it has. The reason might be the introduction of new advanced technology and use of new delivery methods help them to use the same skills in their job and get the benefits in turn. But those who disagree, state that due to the communication gaps, they are unable to polish the hidden qualities that is possible if there is a direct communication between student and teacher.

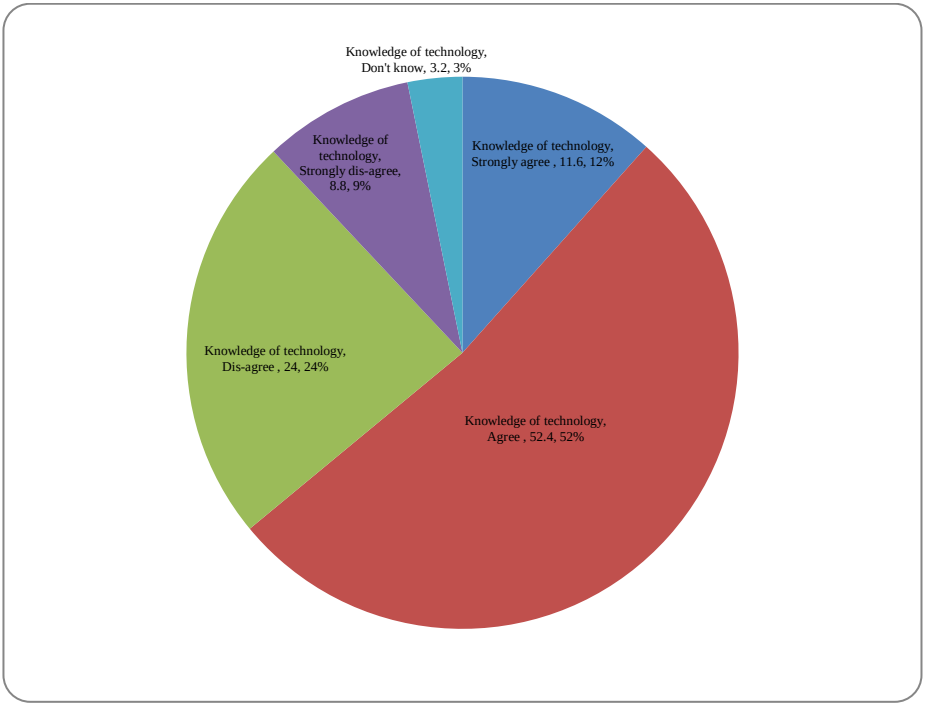
Figure 4: Impact on Job Skills



Source: Pie Diagram for Analysis of Descriptive Variables

It was surprised to see the results about the impact of technology on career growth (Figure 5). It is the fact of the day that due to rapid globalization, advanced technology has facilitated the business environment a lot. But 52.4% students do not know how the use of technology can be used to improve their careers. It may be due to the reason that they are far apart from their tutors and by just listening the lectures on compact discs it may be difficult for them to catch the real meaning of all subjects. Also the students living in rural areas are not very much aware of the use of the advanced technology. That is why, they can cot clearly formulate the impact of advanced technology on career development.

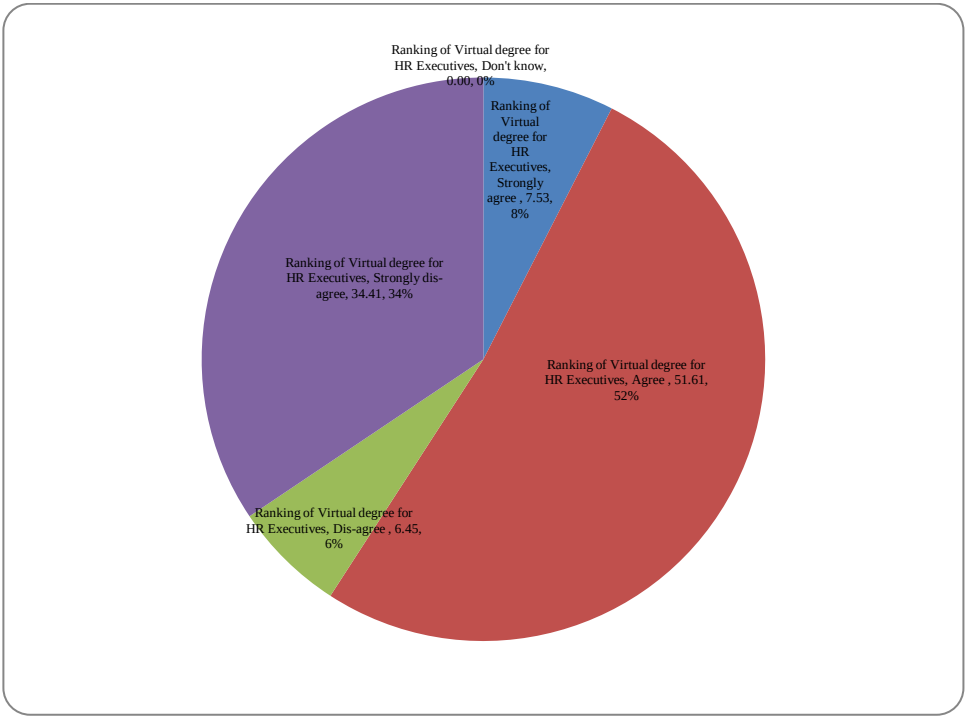
Figure 5: Impact of Technology on Learning



Source: Pie Diagram for Analysis of Descriptive Variables

We have made a comparative analysis of the ranking of both degrees for HR executives (Figure 6), almost more than half of the population (51.61%) believes that virtual degree is ranked less than traditional degree in job market by HR executives. 34.41% agree that HR do not rank this degree while awarding jobs. The preference is given to the traditional degree holders. The reason might be that virtual executives has some deficiencies in term of delivery of knowledge, lack of skills to be interviewed and also the lack of self-confidence due to the perceived knowledge that he has gained on their own behalf in the absence of a physical tutor.

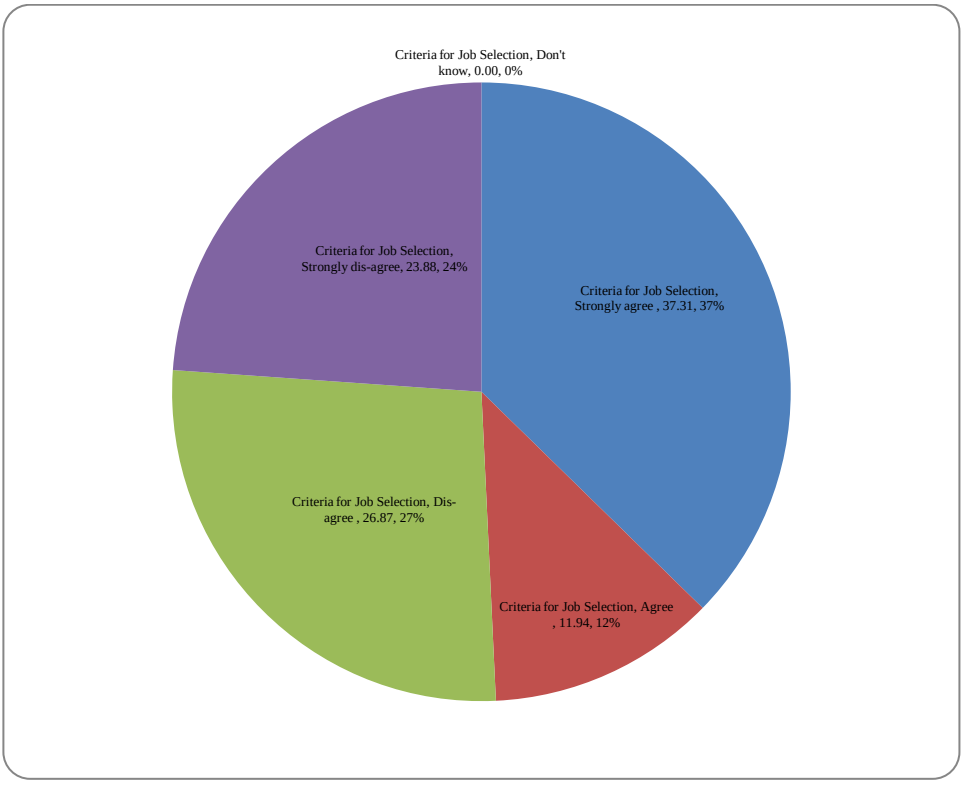
Figure 6: Ranking of Virtual Degree for HR Executives



Source: Pie Diagram for Analysis of Descriptive Variables

Almost 37.31% students strongly believe that basic qualification level is the foremost criteria for job selection. It means that if students do not fulfil the minimum requirement of the education for a particular job, they will be deprived of that job opportunity. In order to avoid this situation, executives get themselves enrolled in distance learning programs, to get education keeping in view the motive of career improvement by just getting a degree to fulfil the minimum criteria of education level for job selection. Figure 7 summarises these results**.**

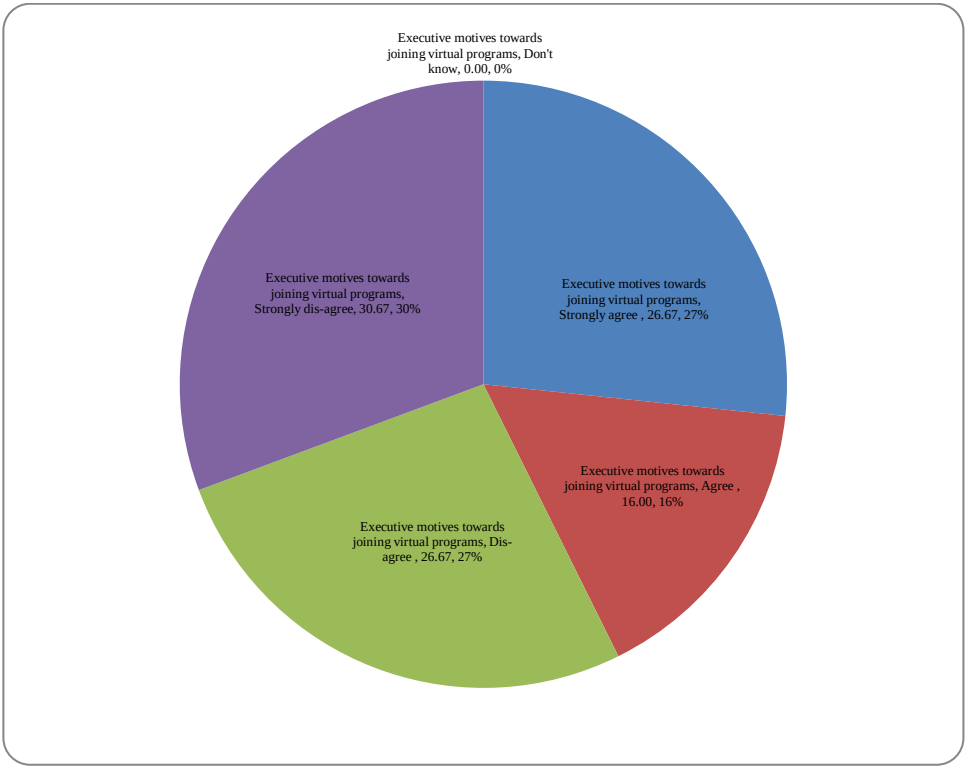
Figure 7: Basic Qualification is Criteria for Job Selection



Source: Pie Diagram for Analysis of Descriptive Variables

In the end, it is clearly shown from the graph given below (Figure 8) that most of the students (26.67%) agree that their motive is to satisfy their learning aptitude. While 26.67% agree that the motive is to improve their career. This shows the mixed results and may be due to the fact that those students who want to increase their earning get themselves enrolled in such programs and those who want to learn without going to institute due to having no time to fulfil the requirement of credit hours or disability or age factor, or low fee get themselves enrolled in such program.

Figure 8: Executive Motives towards joining Virtual Programs



Source: Pie Diagram for Analysis of Descriptive Variables

5. Conclusions

What would be the reason of the students; it is the responsibility of the university administration to make the students aware of the fact that in this age of competition how much knowledge is important? Despite of focusing on the impact to improve career they should first get the knowledge and then try to use it most efficiently. Also make them realize that either they get the knowledge by formal or informal ways; it is their responsibility to make effective use of the opportunity given to them so that they also become successful in life. This paper has been written on the executive trends towards joining virtual programs. The results are somewhat mixed and noticeable. Most of the students have set their mind about the virtual education as it is a degree that could be obtained without

hard work but it may benefit them as for the improvement of their careers and personal benefits. They do not think about the long term benefits of getting education and to face the upcoming competition due to the emerging technologies. They just think to fulfil the current needs in any way therefore they are in need to get advanced degrees in order to boost their careers and they use virtual education for this purpose.

6. Future Prospects

As per our discussion with students it has been observed that virtual students are not very much happy with the mode of the study as in their opinion the lectures are outdated and are not revised according to the changing market conditions. Their question was “how to compete when lectures CDs do not provide us the current information about market?” So, it has been suggested to revise the lecture CDs as necessary.

Again the problem has been seen about the interaction with tutors because there is not any provision for the students to interact with the tutors directly. For the problems they have faced. Since the LMS has been provided to facilitate them but according to the students it does not fulfil the satisfaction level. The university should maintain a proper communication system for students help.

There is a problem regarding the supply of handouts and other study material. It has been observed that students have not direct access to the handouts and other material till midterm and some after that. This is the biggest reason of the low %ages of results and students have to face a lot of difficulty in coping with the scheduled lectures for continuation of study. And then they face a lot of difficulty to understand the material for which they lagged behind. The University administration should made easy and timely access of handouts and study material for students help. Also during online exams, many students faced the problem of system. The systems provided to them are outdated and do not work properly. Due to which the given time for the exams is wasted and students are unable to complete the paper. University should made advanced visit to approved campuses and they themselves check the quality and quantity of the systems according to the students’ adjustments.

Those students that are studying along with jobs better focused their job and take degrees of distance learning for development of their career. For such students attempts should be made to change their focus by providing them the guarantee that the University will be responsible for the job of those students who will get the scores above certain %ages decided by university administration. This will increase the competition among them and also the focus on study. Such arrangements will in turn increase the %ages of the results up to a standard level. That will attract the students to be enrolled in a bright university for getting better chances of study.

These are the basic problems faced by students and if such type of problems can be resolved, there will be a big change in the mode of the study and students satisfaction level. They will be better able to concentrate on study and interaction of the tutor will able them to cover up the deficiencies. Again the motive of the students will be changed from career development to learning also.

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Understanding the Determinants of Nascent Entrepreneurship in Entrepreneurially Active and Passive Economies: A Macro-Level Analysis

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Abstract: This quantitative study investigates the determinants of nascent entrepreneurship in GEM participating economies. Findings suggest that various economic and non-economic factors determine nascent entrepreneurial activity in these countries. However, complementing the on-going research on nascent entrepreneurship, the study has addressed a void in literature by examining the impact of entrepreneurial characteristic of an economy on its nascent entrepreneurial activity rate. Empirical estimates suggest that if an economy is entrepreneurially active it offers a significant positive impact on nascent entrepreneurship. Other active factors advancing nascent entrepreneurship in the sample countries include: per capita income, research and development expenditures, days required to start a business, certain age groups of the population, confidence of an individual on his/her skills to do business, desirability to pursue entrepreneurship as a career and the presence of entrepreneurial role models in an economy. Policy implications relate to measures suggested for advancing nascent entrepreneurship in entrepreneurially passive economies.

Keywords: Nascent entrepreneurship, entrepreneurially active and passive economies, GEM participating countries, economic and non-economic determinants, Macro level analysis
JEL Classification: L500

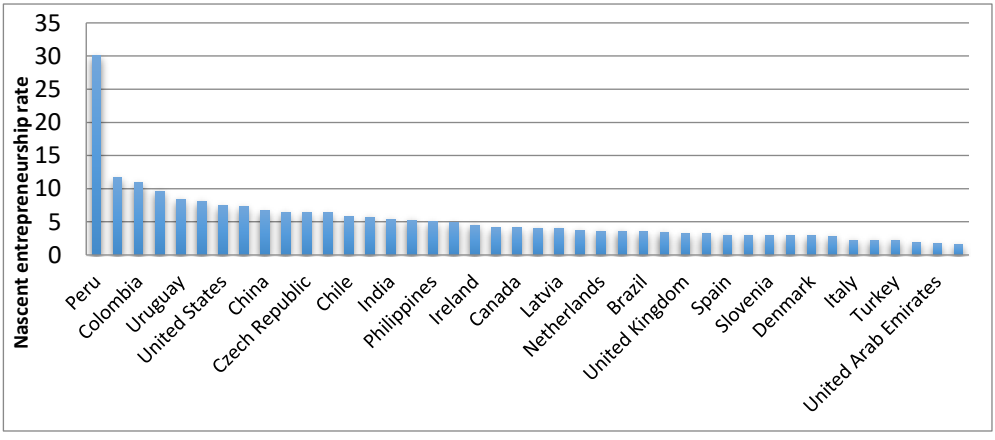
1. Introduction

The recent literature on entrepreneurship shows that researchers' interest in evaluating the role of new born enterprises in promoting economic welfare is increasing, resulting in the emergence of more popular areas of

research such as nascent entrepreneurship (Davidsson, 2006; Wennekers *et al.*, 2005; van Stel *et al.*, 2004). Nascent entrepreneurs are the individuals who are involved in creating new ventures (Wagner, 2004). According to the Global Entrepreneurship Monitor (GEM), a nascent entrepreneur is a person who is actively involved in new firm start-up, expects to be full or part time owner, and his/her venture has not paid salaries for over three months (GEM, 2006). Nascent entrepreneurs thus serve as a driving force behind new start-ups, which are realized to have a stimulating impact on economic development (Wennekers *et al.*, 2005; Audretsch & Keilbach, 2004; Fritsch & Mueller, 2004).

It is, however, noteworthy that new born enterprises do not sprout evenly across countries. For example, the estimates of GEM survey for the year 2006 show that, amongst the 42 countries which participated in the survey, the highest rate of nascent entrepreneurship has been observed in Peru (30.01) and lowest in Japan (1.59) (Figure 1). Overall, 7.14 per cent of GEM participating economies have experienced a double digit nascent entrepreneurship rate, compared to 30.95 per cent countries falling between 5 and 10 and the remaining 61.90 per cent countries with nascent entrepreneurial activity rate of less than 5.

Figure 1: Nascent entrepreneurship rate in GEM participating economies (2006)



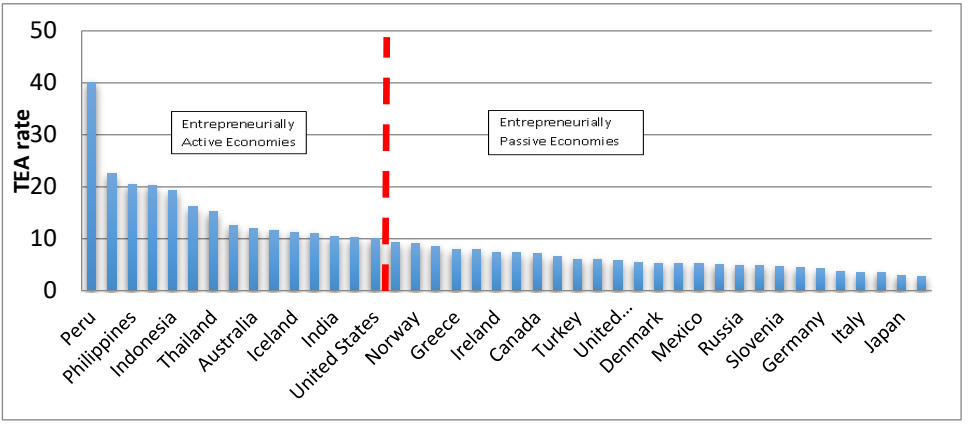
(Source: GEM data base, 2006)

Prior research generally attributes such a volatility in nascent entrepreneurship rate to various economic and non-economic factors (Davidsson, 2006; Wennekers *et al.*, 2005; van Stel *et al.*, 2004; Wagner, 2004;). While the economic factors can include measures such as per capita income and GDP, non-economic ones relate to the demographic, institutional, cultural, perceptual and technological factors (Arenius & Minniti, 2005; Verheul *et al.*, 2002; Blanchflower, 2000). Although such drivers of nascent entrepreneurship have previously been investigated (Audretsch *et al.*, 2006; Wagner & Rolf, 2004; Audretsch & Keilbach, 2004; van Stel & Storey, 2004; Carree, *et al.*, 2002; Delmar & Davidsson, 2000; Reynolds, 1997), what has not been analysed is the impact of an economy's attribute of being entrepreneurially active or passive on its nascent entrepreneurial activity rate. This study thus fills such a void in extant literature by addressing the question: What are the determinants of nascent entrepreneurship in entrepreneurially active and passive economies?

It is important to elaborate at the outset that drawing on GEM data (2006)1, this study regards countries having double digit total entrepreneurial activity rate (TEA) as entrepreneurially active economies compared to entrepreneurially passive economies achieving single digit TEA (Figure 2). Of the GEM participant economies for the year 2006 about 36 per cent have registered double digit TEA, whereas 64 per cent have recorded single digit TEA. Thus in this study entrepreneurially active economies are: Peru, Colombia, Philippines, Jamaica, Indonesia, China, Thailand, Uruguay, Australia, Brazil, Iceland, Malaysia, India, Argentina, and United States), and entrepreneurially passive economies include; Chile, Norway, Croatia, Greece, Czech Republic, Ireland, Spain, Canada, Latvia, Turkey, Hungary, United Kingdom, Netherlands, Denmark, South Africa, Mexico, Finland, Russia, Singapore, Slovenia, France, Germany, United Arab, Emirates, Italy, Sweden, Japan, Belgium (Figure 2).

[1] This study takes into account only Global Entrepreneurship Monitor (GEM) -a standardized portfolio of variables on entrepreneurship related issues- participating economies. The latest data set available for GEM is for the year 2006 (see: http://www.gemconsortium.org/about.aspx?page=gem_datasets). Thus the results of the study are based on information gathered from GEM 2006.

Figure 2: Entrepreneurially active and passive economies



(Source: GEM data base, 2006)

The proposed research carries great importance, not only because nascent entrepreneurial activity has the potential for negative displacement / competition effects as well as the positive economic and social effects and can therefore have bearing on the dynamics of entrepreneurial performance of a country, but also because it has implications for public sector managers and lessons for businesses.

It is a quantitative study. The conceptual and empirical analysis is brought together in investigation using econometric modelling and analysing data about 42 GEM (2006) participating economies. Desk-based research has been conducted extensively to collect data on a large number of macro level economic and non-economic determinants of nascent entrepreneurship (Appendix 1). In addition, some dummy variables as deemed appropriate for the analysis are also introduced to the models.

Overall, this article is structured in six sections. Following this introduction (Section 1), Section 2 presents a summary of key literature and develops the hypotheses. Section 3 outlines the methodology. Section 4 comprises of data. Empirical results are reported in Section 5. The

article finally concludes by offering some policy recommendations in Section 6.

2. Literature Review

While the main objective of this study is to investigate if nascent entrepreneurship is associated with the entrepreneurial characteristic of an economy – being an entrepreneurially active or passive country, it also draws on key literature on other economic and non-economic determinants of nascent entrepreneurial activity and therefore develops a number of hypotheses.

Prior research shows that various push and pull factors remain involved in determining the entrepreneurial activity rate of an economy (Vivarelli, 1991). These factors have also been viewed as demand and supply side determinants of entrepreneurship (Verheul *et al.,* 2002). The demand side variables offer market opportunities (e.g. diversity in consumers' wants) and supply side variables (demographic and cultural factors) come forward to create entrepreneurs who exploit the available and emerging opportunities. The seedbed for demand side factors of an entrepreneurial activity are economic and technological advancements along with newly emerging international actor of globalization (Davidsson, 2006; Verheul *et al.,* 2002). These factors perform indirectly i.e. by introducing industrial dynamism they tend to germinate diversity in product market thus create entrepreneurial opportunities. These opportunities attract entrepreneurs. The supply of entrepreneurs depends upon various economic, demographic, institutional, cultural and perceptual variables (Verheul *et al.,* 2002). These include unemployment rate of an economy, income level of residents, population growth, age structure and density of population in urban areas, economic system under which the state is administered, respect extended to entrepreneurs in a society, presence of role models, incumbent business ownership rate, fear of up taking an entrepreneurial venture, potential entrepreneurs' confidence in their skills to start a business and their opportunity perceptions (e.g. Parker & Robson, 2004; Wagner & Sternberg, 2004; Verheul *et al.,* 2002; Carree *et al.,* 2002; Audretsch & Thurik, 2000; Casson, 1995).

2.1 Economic Factors

2.1.1 Economic development

Economic development does not appear to have a determined impact on entrepreneurship (Verheul *et al.,* 2002). Some studies find support for positive relationship between economic dynamism and entrepreneurial activity (Carree *et al.*, 2002; Storey, 1999), while the others suggest that there exists a negative relationship between these two (Bregger, 1996; Schultz, 1990). With economic development, the purchasing power and consumption styles of individuals change. The variety in demand patterns opens new avenues for existing and would be entrepreneurs by providing them an opportunity in the form of unmet market demand. This results in the genesis of new ventures. Economic prosperity brings with itself a surge in the demand of more luxurious goods and services which are backed by technological advancements. This interaction of economic prosperity and advancements on the technological fronts provide supportive environment for entrepreneurship. On the other hand, the negative aspect is justified on the basis of the argument of opportunity cost associated with entrepreneurship. Economic prosperity results in higher wages, which makes employment more lucrative. Fewer workers will be inclined to start their own business when secure earnings are available. This discourages entrepreneurial spawning. Hence the following hypotheses are suggested.

Hypothesis 1: Per capita income and nascent entrepreneurship has a U-shaped relationship.

Hypothesis 2: Economic growth of a country positively affects nascent entrepreneurship.

2.1.2 Unemployment

The impact of unemployment on entrepreneurial activity can be viewed from the micro and macro perspectives. Micro perspective explains that unemployed individual tend to opt for starting their own business (necessity based entrepreneurship). This happens as the opportunity cost of self-employment falls (Verheul *et al.,* 2002). Macro perspective suggests a two-way causality between unemployment and entrepreneurial

activity (Carree *et al.,* 2002; Audretsch & Thurik, 2000). When unemployment rate is lower it suggests that the economic welfare is having an upward trend and therefore entrepreneurial opportunities are present to be exploited (Audretsch & Thurik, 2000). This raises the demand for entrepreneurship and promotes new venture creation process. On the other hand if self-employment is higher this suggests that more and more enterprises are being established as profitability attracts entrepreneurs. High entrepreneurial activity leads to higher economic development which in turn leads to a lower level of unemployment (Carree *et al.,* 2002). Further to that a depressed economy with suppressed entrepreneurial opportunities and reduced profitability will negatively affect the entrepreneurial activities. On the other hand necessity based entrepreneurship is expected to promote entrepreneurship when economy is not doing well. This leads to the following hypothesis.

Hypothesis 3: Unemployment positively affects nascent entrepreneurship.

2.2 Technological factors

2.2.1 Advancement in technology

Technological advancements have revolutionized the world. These are not only found to be supportive for enhancing the efficiency and productivity of existing businesses but are also identified to be a driving force behind reallocation of resources to produce new, better, faster and cheaper products (Verheul *et al.,* 2002). The production of new and comparatively high-tech products requires more and better skilled individuals and this generates demand for entrepreneurs (Verheul *et al.,* 2002; Wennekers & Thurik, 1999; Casson, 1995). The presence of ICT also supports entrepreneurial activity. The more easily the market information can be accessed, higher are the chances for entering into the market to serve the emerging needs (Zimmerer & Scarborough, 2005). At one end technological advancement raises demand for entrepreneurs to meet the emerging market needs, on the other hand it may also deter this process. For example, industry specific research and development activities which require high financial support will not allow potential entrepreneurs to step into an industry. Thus, just like economic prosperity, both positive and negative aspects are associated with technological advancement and entrepreneurial activity. Hence, the following hypotheses are suggested.

Hypothesis 4: Access to computers positively affects nascent entrepreneurship.

Hypothesis 5: Access to internet positively affects nascent entrepreneurship.

Hypothesis 6: Research and development expenditures have a u-shaped relationship with nascent entrepreneurship.

2.3 Institutional factors

2.3.1 Regulations regarding new venture establishment

Market dynamism can work independently or it may be monitored by the government. Active government intervention can be seen if authorities want to control the entry and exit of firms with an aim to control the number and quality of businesses (Suddle *et al.,* 2010; Verheul *et al.,* 2002). Various legislative measures can be adopted by the respective government departments to control the business turbulence. Licensing is one of the tools. Number of days required to start a businesses can be used as a proxy to measure it. The number of permits required to start a business in a country is another indicator. Higher the number of days and permits required to establish a venture lower will the entrepreneurial dynamism and lower the days and permits required to start a business more stimulus the entrepreneurial activity rate will be, ceteris paribus (Suddle *et al.,* 2010). This suggests the following hypothesis.

Hypothesis 7: Increased number of days required to start a business negatively affect nascent entrepreneurship.

2.3.2 Tax rate

Government policies have bearing on entrepreneurial activity rate in a country (Verheul *et al.,* 2002). These policies establish a framework for businesses to purse their activities under certain codes. Taxation policy is one of these codes. Research shows that the impact of taxes on entrepreneurial activity is complex (Davis & Henrekson, 1999; OECD, 1998a; Parker, 1996). Higher rate of taxes not only negatively affect the returns for an entrepreneur but also puts bar on the liquidity position of the firm. It is therefore expected that higher tax rates will discourage

entrepreneurial activity. However, if establishing personal business reduces the liability of tax then self-employment is expected to be preferred over wage-employment. This leads to the following hypothesis.

Hypothesis 8: Higher tax rates negatively impact on nascent entrepreneurship.

2.4 Demographic factors

2.4.1 Population growth

People of a nation can be an asset or a liability. They can therefore be regarded a double-edged sword, in that if properly educated and trained for efficiently engaging in various economic activities they become an asset but less educated and untrained human resources become a burden for the country (Verheul *et al.,* 2002). It is expected that a better educated and trained individual will pursue a job with higher wage rate. In this case the opportunity cost of starting a personal venture shall be higher. This will deter entrepreneurial activity. At the same time, increasing population growth generates demand for goods and services and attracts entrepreneurial activities. It is further stimulated by the future expectations of would be entrepreneurs who tend to target the emerging entrepreneurial opportunities associated with the rising trend of population. Thus, the following hypothesis is suggested.

Hypothesis 9: Population growth rate has a positive impact on nascent entrepreneurship.

2.4.2 Age structure of the population

All the age groups of a population do not have the same entrepreneurial potential. Some age groups generate more active entrepreneurs than others (Reynolds *et al.,* 1999). Prior literature has documented that entrepreneurial activity tends to rise with an increase in age (Acs *et al.,* 1994; Evans & Leighton, 1989a). It has been identified that people are more inclined to start their ventures between the age of 25 and 40 (Storey, 1994). The research by Reynolds *et al.,* (1999) has determined that the age group of 25 to 44 is entrepreneurially more active. This leads to the following hypothesis.

Hypothesis 10: Nascent entrepreneurship is not positively supported by all the age groups of population.

2.4.3 Education

Education helps an individual to refine his thinking skills to become more productive (Dakhli & De Clercq, 2004; Coleman, 1988). It promotes the ability to be independent, which advances self-confidence and responsibility. A better educated person can determine his career choice in a better and focused way. Education helps an individual to broaden his exposure and think outside the box (opportunity perception) to become competitive (Verheul *et al.*, 2002). Thus, the benefits attached with education are those which can help an individual to identify better entrepreneurial opportunities and exploit them efficiently (Delmar & Davidsson, 2000; Blanchflower & Oswald, 1998). It suggests that entrepreneurial activity rate on the part of government can not only be influenced through legislations but also through educational policies (Henrekson, 2007). Education may be imparted at primary, secondary and tertiary levels. However, the impact of tertiary education is documented to be higher on venture creation (Reynolds *et al.*, 1999). Education may not only impart the business-related skills but can also promote entrepreneurial values by influencing the perceptions of individuals and raising their inclination towards businesses instead of wage-employment (Shane, 2003; Fiet, 1996). This can help stimulate entrepreneurial culture in the country and thus the level of entrepreneurship (Suddle *et al.*, 2010; Verheul *et al.*, 2002). Hence, the following hypothesis is suggested.

Hypothesis 11: Education positively impacts on nascent entrepreneurship.

2.5 Perceptual factors

While up-taking an entrepreneurial activity, entrepreneurs along with other economic and non-economic determinants also take into account certain subjective perceptions (Arenius & Minniti, 2005). These perceptions are based on factors like confidence on one's skills to start a business, presence of role model, fear of failure and opportunity perception. Since perceptual factors are identified to be significantly associated with entrepreneurial activity, this leads to the following hypotheses.

Hypothesis 12: Individual's confidence of having skills to start and run a business successfully positively impacts on nascent entrepreneurship.

Hypothesis 13: Individual's ability to perceive entrepreneurial opportunities positively impacts on nascent entrepreneurship.

Hypothesis 14: Individual's fear of getting failed in business negatively impacts on nascent entrepreneurship.

Hypothesis 15: Individual's good relations with established business people positively impacts on nascent entrepreneurship.

2.6 Cultural factors

Culture plays an important role in determining the entrepreneurial dynamism in a country (Suddle *et al.,* 2010; Verheul *et al.,* 2002). Though culture cannot be measured directly, some indirect measures can include; respect of entrepreneurs in a certain society, the choice of business as a desirable career and the economic system of a country (centralized or market based). Reynolds *et al.,* (1999) have, for example, analysed that new venture creation and respect for entrepreneurs are positively associated. Suddle *et al.,* (2010) have also identified a significant positive impact of entrepreneurial culture on start-ups. Thus following hypotheses are suggested.

Hypothesis 16: Desirability of individuals to opt for entrepreneurship as a career choice positively impacts on nascent entrepreneurship.

Hypothesis 17: Higher the status and respect of entrepreneurs in a society more positively it shall impact on nascent entrepreneurship.

Hypothesis 18: Presence of entrepreneurial role models in a country positively impacts on nascent entrepreneurship.

Hypothesis 19: Inherited economic management structure of a country (previously centralized) negatively impacts on nascent entrepreneurship.

3. Data and Methodology

3.1 Methodology

This research adopts the quantitative approach (Saunders *et al.,* 2004). Regression analysis has been applied to the portfolio of variables under consideration (Appendix 1). First, the study has estimated the relationship between the economic and non-economic factors and nascent entrepreneurship rate, determining the appropriate statistical specifications. At the second stage, the additive impact of an economy as being entrepreneurially active or passive has been examined on nascent entrepreneurship. Diagnostic tests for checking the statistical credibility of regression estimates have been conducted. For this purpose, support has been drawn from Breusch-Pagan-Godfrey LM test for checking serial correlation and ARCH test for testing heteroscedasticity (Wooldridge, 2010; Greene, 2003).

A limitation of regression analysis has been that the researcher had to omit some variables from the analysis due to non-availability of data for all the GEM participating countries in the survey for 2006. These variables include two institutional factors (permits required to start a business and real interest rate) and one technological factor (expenditure on ICT).

3.2 Model Specification

Overall six models relating to various economic and non-economic determinants of nascent entrepreneurship have been developed, each considering the influence of entrepreneurial characteristic of the sample countries on their nascent entrepreneurial activity rate.

3.2.1 Model 1

$NE = f(PCI, GDP, U)$ ----------(1)

$NE = \beta_0 + \beta_1 PCI + \beta_2 GDP + \beta_3 U + \varepsilon_t$ ----------(2)

Linear specification

$NE = \beta_0 + \beta_1 PCI + \beta_2 PCI_2 + \beta_3 GDP + \beta_4 U + \varepsilon_t$ ----------(3)

Statistically superior specification

$NE = \beta_0 + \beta_1 PCI + \beta_2 PCI_2 + \beta_3 GDP + \beta_4 U + \beta_5 TEAD + \varepsilon_t$ ----------(4)

(TEAD =1 for entrepreneurially active economy)

The first model represents the economic category of variables. Here NE represents Nascent Entrepreneurship Rate, PCI represents Per Capita Gross National Income, GDP represents Economic Growth, U is representative for Unemployment Rate and TEAD is introduced as a dummy variable for catering the impact of entrepreneurial characteristic of the country. Keeping into consideration the stated hypotheses regression equations for economic factors have been specified both in linear and statistically superior forms. For linear specification, it is expected that $\beta_1<0$, β_2 and $\beta_3>0$. For statistically superior specification it is expected that $\beta_1<0$, β_2, β_3 and $\beta_4>0$. For the last equation of economic variables, it is expected that $\beta_1<0$, β_2, β_3, β_4 and $\beta_5>0$

3.2.2 Model 2

$NE = f(C, I, R\&D)$ ----------(5)

$NE = \beta_0 + \beta_1 C + \beta_2 R\&D + \beta_3 I + \varepsilon_t$ ----------(6)

Linear specification

$NE = \beta_0 + \beta_1 C + \beta_2 I + \beta_3 RD + \beta_4 RD_2 + \varepsilon_t$----------(7)

Statistically superior specification

$NE = \beta_0 + \beta_1 C + \beta_2 I + \beta_3 RD + \beta_4 RD_2 + \beta_5 TEAD + \varepsilon_t$ ---------- (8)

(TEAD =1 for entrepreneurially active economy)

The second model specifies the technological factors. Here C represents Computers Per Capita, I denotes Internet Subscribers Per Capita and RD is a label for Research and Development Expenditures. Following the stated hypotheses regression equations for technological factors have been specified both in linear and statistically superior specifications. For linear specification it is expected that β_1, β_2 and $\beta_3>0$. For statistically superior specification it is expected that β_1, β_2 and $\beta_4>0$ whereas $\beta_3<0$. In the final equation for technological factors it is expected that β_1, β_2, β_4 and $\beta_5>0$ whereas $\beta_4<0$.

3.2.2 Model 3

$NE = f(T, DR, RI)$----------(9)

$NE = \beta_0 + \beta_1 T + \beta_2 DR + \varepsilon_t$----------(10)

Linear specification

$NE = \beta_0 + \beta_1 T + \beta_2 DR + \beta_3 TEAD + \varepsilon_t$----------(11)

(TEAD =1 for entrepreneurially active economy)

The third model has been developed to represent the institutional variables. Here T is representative of Tax Revenue and DR stands for Days Required to Start a Business. Keeping into consideration the stated hypotheses, regression equations for institutional factors have been specified only in linear form. For linear specification, it is expected that β_1 and $\beta_2 < 0$. For the final equation of institutional factors, it is expected that $\beta_1, \beta_2 < 0$ and $\beta_3 > 0$.

3.2.3 Model 4

NE = f (PG, Edu, Age)----------(12)

$NE = \beta_0 + \beta_1 PG + \beta_2 Edu + \beta_3 Age + \varepsilon_t$----------(13)

Linear specification

$NE = \beta_0 + \beta_1 PG + \beta_2 Edu + \beta_3 Age + \beta_4 TEAD + \varepsilon_t$----------(14)

(TEAD =1 for entrepreneurially active economy)

The fourth model contains demographic variables. Here PG stands for Population Growth Rate, Edu represents Educational Profile of the residents of a country and Age represents the Age Structure of residents in a country. Following the stated hypotheses regression equations for demographic factors have been specified only in linear form. For linear specification, it is expected that β_1, β_2 and $\beta_3 > 0$. For the final equation of demographic factors, it is expected that $\beta_1, \beta_2, \beta_3$ and $\beta_4 > 0$.

3.2.4 Model 5

NE = f (OP, KoE, S, F)----------(15)

$NE = \beta_0 + \beta_1 S + \beta_2 OP + \beta_3 F + \beta_4 KoE + \varepsilon_t$----------(16)Linear specification

$NE = \beta_0 + \beta_1 S + \beta_2 OP + \beta_3 F + \beta_4 KoE + \beta_5 TEAD + \varepsilon_t$--------(17) (TEAD =1 for entrepreneurially active economy)

The fifth model specification caters perceptual variables. Here OP stands for Opportunity Perception of individuals, KoE represents Knowing other Entrepreneurs who have setup their businesses in past two years, S is representative of Confidence of an Individual on One's Skills and F denotes the Fear of Failure amongst individuals while up-taking an entrepreneurial activity. Following the hypotheses of the study regression equations for perceptual factors have been specified only in linear form. For linear specification, it is expected that β_1, β_2, and $\beta_4 > 0$ whereas $\beta_3 < 0$. For final regression equation of perceptual variables, it is expected that β_1, β_2, β_4 and $\beta_5 > 0$ whereas $\beta_3 < 0$.

3.2.5 Model 6

$NE = f(BD, ESR, IB, DC)$----------(18)

$NE = \beta_0 + \beta_1 BD + \beta_2 ESR + \beta_3 IB + \beta_4 DC + \varepsilon_t$----------(19)

Linear specification

$NE = \beta_0 + \beta_1 BD + \beta_2 ESR + \beta_3 IB + \beta_4 DC + \beta_5 TEAD + \varepsilon_t$----------(20)

(TEAD =1 for entrepreneurially active economy)

The sixth model contains cultural factors. Here BD represents Desirability of Individuals to opt for Business as a Career, ESR stands for Entrepreneurs Status and Respect, IB is Incumbent Business Ownership Rate in a country (a representative of entrepreneurial role models) and Dc is a dummy for previously centralized economies. Following the hypotheses of the study regression equations for cultural factors have been specified only in linear form. For linear specification it is expected that β_1, β_2 and $\beta_3 > 0$ whereas $\beta_4 < 0$. For final regression equation of cultural variables it is expected that β_1, β_2, β_3 and $\beta_5 > 0$ whereas $\beta_4 < 0$.

4. Data sources

For this study, data have been mainly gathered from two standardized national level data bases: Global Entrepreneurship Monitor (2006) and World Development Indicators (2001-2006).

5. Results

Using data of 42 countries which participated in GEM 2006, regression analysis has been conducted testing for both linear and statistically superior specifications as deemed appropriate following the stated hypotheses and trends of the data. Comparing on the basis of adjusted R2 values and related diagnostic tests of regression, such as D.W statistic, value of F-statistic, values of t-statistic for respective variable, Breusch-Pagan-Godfrey LM test and ARCH test (Wooldridge, 2010; Greene, 2003) significant factors determining nascent entrepreneurship in entrepreneurially active and passive economies have been identified, and the results are presented below.

5.1 Economic determinants of nascent entrepreneurship

The linear regression analysis shows that per capita income has a negative relationship with nascent entrepreneurship (column 2 of Table 1). However, statistically superior specification reveals that per capita income assumes a U-shaped relationship (column 3 of Table 1) with nascent entrepreneurial activity, and this is a better fit compared to negative linear relationship. It implies that if individuals have a secure earning source (wage-based) and are satisfied with their income they would prefer to continue with the same earning source thus will not prefer entrepreneurial activity over it. In other words, it suggests that the opportunity cost of doing business is high. However, after a certain level of per capita income nascent entrepreneurial activity adopts an upward trend i.e. assumes a positive relationship with per capita income. It is supported by the argument that as per capita income rises beyond a certain level, changes in the purchasing power of individuals allow them to buy high quality products. The demand for high quality products generates market opportunities which attract new entrepreneurs. Economic growth has a positive impact on nascent entrepreneurship. Good economic health of country brings prosperity and diversification in demand patterns, this in turn opens new avenues for entrepreneurial activity. Unemployment and nascent entrepreneurial activity are also identified to be positively associated. Unemployed individuals on not finding appropriate paid jobs and in pursuit of earning their livelihood go for starting their own ventures. It implies that necessity based entrepreneurship gets flourished. To analyze the impact of entrepreneurial characteristic of the economy the

study has estimated the similar regression approach as in the initial model with statistically superior specification (column 3 of Table 1) but with an addition of dummy variable TEAD. The results suggest a positive impact of a country being entrepreneurially active on nascent entrepreneurship (column 4 of Table 1).

Columns 5 and 6 of Table 1 contain results for consolidated regression equation showing that amongst economic variables per capita income is the most powerful driver behind nascent entrepreneurship and that if an economy is entrepreneurially active it has an encouraging impact on nascent entrepreneurship.

Table 1: Economic determinants of nascent entrepreneurship

Variables	Initial linear model	Initial model with statistically superior specification	Initial model with Statistically superior specification including TEAD	Consolidated model with statistically superior specification	Consolidated model including TEAD
Constant	7.16 (2.32)	10.8 (2.99)	3.39 (0.75)	10.8 (5.45)	5.65 (1.98)
Per Capita Income	-0.11* (1.78)	-0.52** (2.22)	-0.10 (0.37)	-0.51** (2.38)	-0.15 (0.62)
Per Capita Income Squared		0.0091** (1.81)	0.0020 (0.36)	0.0089** (1.87)	0.0025 (0.48)
Economic Growth	0.08 (0.31)	0.03 (0.14)	0.03 (0.13)	---	---
Unemployment	0.02 (0.12)	0.03 (0.17)	0.15 (0.87)	---	---
TEAD	---	---	4.59** (2.51)	---	4.15** (2.40)
R2	0.12	0.19	0.31	0.19	0.29
Adjusted R2	0.05	0.10	0.21	0.15	0.24

F-Statistic	1.76 [0.17]	2.22 [0.08]	3.29 [0.01]	4.64 [0.01]	5.41 [0.00]
D.W Statistic	2.10	2.00	1.97	1.99	1.95
ARCH Test for Heteroske dasticity	0.05 [0.81]	0.06 [0.79]	0.05 [0.81]	0.06 [0.79]	0.07 [0.78]
Breusch-Godfrey Serial Correlatio n LM Test	0.28 [0.75]	0.00 [0.99]	0.01 [0.98]	0.00 [0.99]	0.02 [0.97]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

5.2 Technological determinants of nascent entrepreneurship

The estimates of initial linear regression model show that all the technological factors have a negative relationship with nascent entrepreneurship (column 2 of Table 2). Whereas the results of statistically superior specification show that a better statistical fit of technological factors is present supporting nascent entrepreneurship (column 3 of Table 2).

The presence of computers and internet subscription are identified to have a positive impact on nascent entrepreneurship (column 4 of Table 2). The use and application of ICT facilitates business activities/management. Such kind of easing is considered by a potential entrepreneur a support therefore raises their confidence that the dealings of venture can be managed with ease and speed. Moreover, using internet more entrepreneurial opportunities can be identified. It also helps to get connected to potential buyers both in local and international markets. Research and development expenditures are identified to have a U-shaped relationship with nascent entrepreneurship (column 3 and 4 of Table 2). It suggests that after a specific level spending on research and

developmental activities turns out to be an encouraging factor for nascent entrepreneurs. Research and development expenditures facilitate the process of innovation. Once innovations are in place and commercialization of these can bring profitability it attracts new entrepreneurs. Since new and small businesses cannot spend much on research and development due to financial constraints so they enter the market at the commercialization stage of newly developed products. Large size firms get support from new and small size firms by embedding them in their supply chains. This stimulates nascent entrepreneurship.

The additive impact of an economy being entrepreneurially active is also positive (column 4 of Table 2). Results of consolidated regression equations are documented in column 5 and 6 of Table 2. Findings highlight that among technological factors research and development expenditure dominate the factors affecting nascent entrepreneurship.

Table 2: Technological determinants of nascent entrepreneurship

Variables	Initial linear model	Initial model with statistically superior specification	Initial model with Statistically superior specification including TEAD	Consolidated model with statistically superior specification	Consolidated model including TEAD
Constant	7.30 (6.18)	9.35 (5.92)	5.77 (2.96)	9.25 (6.13)	5.65 (2.96)
Computer per Capita	-0.00 (0.13)	0.02 (0.49)	0.02 (0.43)	---	---
Research and Development Expenditure	-1.18 (0.85)	-6.56* (2.08)	-3.63 (1.17)	-5.54** (2.42)	-2.26 (0.93)
Research and	---	1.37* (1.88)	0.60 (0.82)	1.21** (1.86)	0.43 (0.65)

Development Expenditure Squared					
Number of Internet Subscribers	-0.01 (0.08)	-0.01 (0.09)	0.04 (0.25)	---	---
TEAD	---	---	4.22*** (2.76)	---	4.13** (2.77)
R2	0.10	0.18	0.32	0.18	0.31
Adjusted R2	0.03	0.09	0.23	0.13	0.26
F-Statistic	1.54 [0.21]	2.12 [0.09]	3.52 [0.01]	4.29 [0.02]	5.92 [0.00]
D.W Statistic	2.11	2.13	1.96	2.12	1.98
ARCH Test for Heteroskedasticity	0.04 [0.83]	0.04 [0.83]	0.08 [0.77]	0.04 [0.84]	0.07 [0.78]
Breusch-Godfrey Serial Correlation LM Test	0.15 [0.85]	0.33 [0.71]	0.07 [0.92]	0.30 [0.73]	0.09 [0.90]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

5.3 Institutional determinants of nascent entrepreneurship

The role of institutional factors in determining nascent entrepreneurship rate has been analysed through linear regression only as this is identified to be the best fit.

Table 3: Institutional determinants of nascent entrepreneurship

Variables	Initial Model	Initial Model Including TEAD	Consolidated Model	Consolidated Model Including TEAD
Constant	6.07 (2.81)	4.57 (2.31)	4.12 (4.08)	3.34 (3.63)
Tax	-0.10 (1.01)	-0.06 (0.70)	---	---
Days Required to Start a Business	0.04* (1.74)	0.01 (0.48)	0.04* (1.68)	0.009 (0.41)
TEAD	---	4.72*** (3.35)	---	4.85*** (3.50)
R2	0.09	0.29	0.06	0.28
Adjusted R2	0.04	0.24	0.04	0.25
F-Statistic	1.94 [0.15]	5.40 [0.00]	2.85 [0.09]	7.95 [0.00]
D.W Statistic	2.24	2.03	2.16	1.99
ARCH Test for Heteroskedasticity	0.03 [0.85]	0.06 [0.79]	0.06 [0.79]	0.07 [0.79]
Breusch-Godfrey Serial Correlation LM Test	0.63 [0.53]	0.13 [0.87]	0.28 [0.75]	0.00 [0.99]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

Initial model for institutional variables show that tax rates and nascent entrepreneurship are negatively associated (column 2 of Table 3), suggesting that rigid tax regime is not supportive for breeding nascent entrepreneurial activity. Days required to start a business is identified to have a positive relationship with nascent entrepreneurship. Though this result is surprising but these findings get support from the argument that if entrepreneurial opportunities abound even though more days are needed

to officially start a business, opportunistic entrepreneurs will follow the unmet market demand to capture market profitability associated with such opportunities. Moreover, in case of necessity based entrepreneurial activity increased number of days to set up a business will be positively associated with nascent entrepreneurship.

The addition of entrepreneurial characteristic determinant is also identified to be positively affecting nascent entrepreneurship while operating with institutional factors. Last two columns of Table 3 contain results of consolidated model showing that among institutional factors days required to start a business is the prominent determinant affecting nascent entrepreneurial activity in GEM economies.

5.4 Demographic determinants of nascent entrepreneurship

For demographic factors linear regressions are considered as this is identified to be the best fit for the data. The coefficient of population growth rate shows that it has a positive impact on nascent entrepreneurship (column 2 of Table 4). Increase in population raises demand for various products in an economy because the number of consumers rise and it generates entrepreneurial opportunities. At the same time an increasing population also supplies entrepreneurs as people tend to exploit various entrepreneurial opportunities for earning their livelihood. Education is also identified to have a positive impact on nascent entrepreneurship (column 2 of Table 4). The measure that depicts education is secondary level education. It suggests that those people who hold higher educational degrees generally tend to opt for paid jobs instead of entering into the entrepreneurial world. For analysing the impact of age on nascent entrepreneurship various age groups of population have been considered, however only the results of age group 45-54 years old are reported in table 4.4. It has been identified that people falling within the age groups of 35-44 and 45-54 years tend to opt for more entrepreneurial activities. It suggests that nascent entrepreneurs emerge frequently in mid-thirties and mid-forties.

Table 4: Demographic determinants of nascent entrepreneurship

Variables	Initial model	Initial model including TEAD	Consolidated model	Consolidated model including TEAD
Constant	-1.79 (1.14)	-1.39 (0.88)	-2.03 (1.39)	-1.73 (1.18)
Population Growth	0.15 (0.45)	0.20 (0.61)	---	---
Education	0.55*** (11.2)	0.61*** (9.21)	0.54*** (11.4)	0.61*** (9.30)
Age (45-54 years old)	0.12* (1.79)	0.09 (1.44)	0.12* (1.91)	0.10 (1.59)
TEAD	---	1.52 (1.41)	---	1.44 (1.36)
R2	0.77	0.78	0.77	0.78
Adjusted R2	0.75	0.76	0.76	0.76
F-Statistic	43.5 [0.00]	34.0 [0.00]	66.5 [0.00]	45.9 [0.00]
D.W Statistic	1.86	1.89	1.82	1.83
ARCH Test for Heteroskedasticity	0.004 [0.94]	0.16 [0.68]	0.01 [0.91]	0.07 [0.78]
Breusch-Godfrey Serial Correlation LM Test	0.66 [0.52]	0.20 [0.81]	0.78 [0.46]	0.34 [0.71]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

In addition to the demographic factors the impact of an economy being entrepreneurially active is also positive (column 3 of Table 4). Consolidated results for demographic factors show that education and the age group of 45-54 years old are statistically the most significant factors

contributing to nascent entrepreneurship among GEM economies (column 4 and 5 of Table 4).

5.5 Perceptual determinants of nascent entrepreneurship

Table 5: Perceptual determinants of nascent entrepreneurship

Variables	Initial Model	Initial Model Including TEAD	Consolidated Model	Consolidated Model Including TEAD
Constant	-4.83 (1.37)	-2.75 (0.73)	-4.70 (2.24)	-3.14 (1.43)
Skills for Starting a Business	0.17*** (2.89)	0.13** (2.19)	0.21*** (4.98)	0.16*** (3.21)
Opportunity Perception of Individual	0.0096 (0.16)	0.01 (0.21)	---	---
Fear of Failure while Starting a Business	-0.05 (0.85)	-0.05 (0.71)	---	---
Knowing other Entrepreneurs	0.09 (1.26)	0.05 (0.71)	---	---
TEAD		2.19 (1.46)	---	2.63* (1.92)
R^2	0.42	0.45	0.38	0.43
Adjusted R^2	0.36	0.37	0.36	0.40
F-Statistic	6.77 [0.00]	6.01 [0.00]	24.8 [0.00]	15.09 [0.00]
D.W Statistic	1.84	1.87	1.97	1.95
ARCH Test for Heteroskedasticity	0.11 [0.73]	0.10 [0.75]	0.10 [0.74]	0.09 [0.75]
Breusch-Godfrey Serial Correlation LM Test	0.08 [0.92]	0.05 [0.94]	0.00 [0.99]	0.01 [0.98]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

Individual perceptions play an important role in the decision-making process of an individual to become an entrepreneur. For carting the impact that perceptual factors have on nascent entrepreneurship regression analyses are reported in table 4.5. The best fit has been identified to be linear specification. Results of initial regression show that if a person considers that he/she has the skills required to start and run a business successfully he/she is more likely to become an entrepreneur. Similarly, the coefficients of opportunity perception and knowing other entrepreneurs who have recently successfully established businesses also depict that the presence of such factors encourage an individual to become an entrepreneur. However, the fear that the business will fail is identified to discourage an individual to step into entrepreneurship. Just like previous regression results entrepreneurially active economies are identified to have a positive impact on nascent entrepreneurship. The consolidated models for perceptual variables are reported in column 4 and 5 of Table 5, suggesting that among this category the confidence of having skills to start and run a business is the most important factor that can encourage an individual to become an entrepreneur.

5.6 Cultural determinants of nascent entrepreneurship

For the cultural factors, linear specification is identified to be the best fit. The results of initial model show that nascent entrepreneurship gets boost if business is considered as a desirable career by the residents of a country. Individuals also tend to become entrepreneurs if in their countries entrepreneurs are perceived to be enjoying a high status and respect. In addition, presence of successful entrepreneurial role models is also identified to be a stimulating factor for nascent entrepreneurial activity. It therefore suggests that higher the number of established business in an economy higher will be the propensity of entrepreneurial spawning.

Table 6: Cultural determinants of nascent entrepreneurship

Variables	Initial Model	Initial Model Including TEAD	Consolidated Model	Consolidated Model Including TEAD
Constant	-0.45 (0.10)	0.82 (0.19)	-3.72 (1.14)	-2.06 (0.66)
Business as a Desirable Career	0.13** (2.28)	0.11* (2.01)	0.11* (2.04)	0.09* (1.78)
Entrepreneur's Status and Respect	0.06 (1.06)	0.06 (1.01)	---	---
Incumbent Business	0.29* (1.70)	0.02 (0.12)	0.27* (1.68)	0.0038 (0.02)
Previously Centralized Economy (Dummy = 1)	-0.69 (0.34)	-0.47 (0.25)	---	---
TEAD	---	4.05** (2.45)	---	4.14** (2.54)
R^2	0.25	0.36	0.23	0.34
Adjusted R^2	0.17	0.27	0.19	0.29
F-Statistic	3.22 [0.02]	4.12 [0.00]	5.96 [0.00]	6.69 [0.00]
D.W Statistic	1.91	1.91	1.94	1.96
ARCH Test for Heteroskedasticity	0.11 [0.73]	0.07 [0.77]	0.08 [0.76]	0.06 [0.80]
Breusch-Godfrey Serial Correlation LM Test	0.09 [0.91]	0.06 [0.93]	0.07 [0.92]	0.04 [0.95]

Small Parentheses contain absolute t-values
Large Parentheses contain p-values for F-Statistics
* significant at 10% level; ** significant at 5% level; *** significant at 1% level

However, the study has identified a negative impact of previously centralized economies on nascent entrepreneurship, possibly because

their culture and institutional set up does not offer much support for setting up private ventures. Though they are in transition to take measures to encourage entrepreneurship yet better, entrepreneurially conducive environment is needed to nurture nascent entrepreneurship. In the final model, impact of entrepreneurial characteristic of the economy as being entrepreneurially active is again identified to be positive for fostering nascent entrepreneurship. The consolidated regression results are reported in column 4 and 5 of Table 6. Findings suggest that among the cultural factors presence of the desirability of adopting business as a career and successful entrepreneurial role model are the most important variables casting a positive impact on nascent entrepreneurship.

6. Conclusions and policy implications

This research has investigated the relationship between various economic and non-economic determinants on the nascent entrepreneurial activity across GEM participating countries for the year 2006, while also estimating the impact of an economy being entrepreneurially active or passive on this form of entrepreneurship. It has tested several models. Various diagnostic tests of regression analysis, such as ARCH test for Heteroskedasticity and Breusch-Godfrey serial correlation LM test, have been used to determine the statistical credibility of these models (Wooldridge, 2010; Greene, 2003).

The study finds a significant positive impact of an economy being entrepreneurially active on its nascent entrepreneurship rate. As regards the impact of economic variables, per capita income has been identified to have a significant U-shaped relationship with nascent entrepreneurship. This U-shaped relationship becomes weaker when dummy variable for entrepreneurial characteristic of the economy is introduced in the analysis. It is however expected to improve with an increase in sample size for the signs of coefficients are as expected. Though the impact of economic growth and unemployment is also as expected but the variables are not found to be significantly contributing. It may be due to the fact that these are cyclical variables the behaviour of which can be better evaluated in a time series data set, whereas this study is cross-section. Considering the

technological determinants, research and development expenditures is found to be a significant stimulus for nascent entrepreneurship, and just like per capita income it also assumes a U-shaped relationship with nascent entrepreneurship. About the relationship between institutional factors and nascent entrepreneurship, most significant factor is the days required to start a business. Though its sign is not as expected (negative) but its positive relationship with nascent entrepreneurship suggests that if entrepreneurial activity emerges out of necessity or the market opportunity is so beneficial that entrepreneur will not let it go then this positive relationship would prevail. The impact of tax is also as expected but it is not identified to be very significant. Among demographic factors, education of an entrepreneur and the age group he/she belongs to is identified to have a significant positive impact on nascent entrepreneurship. The study has identified that most often nascent entrepreneurs step into entrepreneurial career after mid-thirties because the age groups of 35-44 and 45-54 are found to be positively associated with nascent entrepreneurship. The impact of population growth is positive but it is not significant.

Results of individual level variables suggest that the confidence of an individual that he /she has the skills to start and run the business successfully is the most significant driver behind a start-up business. Though the impact of other perceptual variables is as expected but they are not identified to be very significant. Considering the cultural factors, desirability of individuals to peruse entrepreneurship as a career and the presence of entrepreneurial role models in a country are identified to be significantly positively associated with nascent entrepreneurial activity. Though the relationship of other cultural variables is as expected but their impact is not significant.

Overall, findings of this study highlight that various economic and non-economic factors serve as push and pull forces in determining the dynamics of nascent entrepreneurship. However, another major force is the entrepreneurial characteristic of an economy. The results of this research bring in the limelight that if an economy is entrepreneurially active it will have a significant impact on the germination of nascent entrepreneurs in a country. On the policy side for those economies which are entrepreneurially passive they need to revisit their economic and enterprise policies. Even more important is to note that it is not always the

institutional factors which sever as stimuli for entrepreneurial activities but various economic, technological, demographic, perceptual and cultural factors create an environment which support the emergence of new and small businesses.

This research thus suggests that, first, entrepreneurially passive economies instead of focusing more on the promotion of business start-ups should focus on the skill development of their nationals i.e. improve their managerial and technical skills. Second, the promotion and efficient delivery of entrepreneurial education is an important tool for promoting entrepreneurial culture and thus entrepreneurial activities. Through entrepreneurial education entrepreneurial attitudes can be developed and promoted. Third, economic mangers need to come up with such flexible investment policies which attract foreign direct investment. The presence of multinationals through their spill over effects and by embedding the local firms in their supply chains become a seedbed for entrepreneurial spawning. Fourth, it is further required to be complemented with improved physical infrastructure to support the birth process of new ventures. Fifth, entrepreneurially passive economies can also find support from collaborative research and development activities from entrepreneurially active economies to come up with more and more such innovative products that attract customers. By stimulating the demand for goods and services more entrepreneurial opportunities can be created. Sixth, since tax is identified to have a negative impact on nascent entrepreneurship, flexible tax system should be introduced which provides relief to entrepreneurs. This shall attract individuals towards establishing their own enterprises. Finally, the study suggests for entrepreneurs not only to refine their personal skills but to develop strong networks to grasp possible good information about available and emerging market opportunities both in local and international markets. This will help them minimize the potential threats before entering into a new market while exploiting available and emerging market opportunities. Though in the short run the impact of government policies may be modest but in the long run they shall, if effectively implemented, bring fruitful results. For this the economic managers and political representatives should ensure economic and political stability. Since the study is cross section and takes into account only one moment in time, the impact of cyclical variables has

not been observed to be significant. However, within the present framework of the study it can be concluded that structural variables play an important role in determining nascent entrepreneurship rate. It is therefore suggested for potential researchers to also analyze the dynamics of nascent entrepreneurship by using time series data.

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Appendix 1
Variable description and data sources

Variables	Label	Description	Source
Nascent Entrepreneurship Rate	NE	Number of adults [18-64 years old] per 100 involved in nascent business (new firm start-up), defined as active, expect to be a full or part time owner, and no salaries or wages paid for over three months.	GEM 2006
Gross National Income per capita	PCI	GNI per capita based on purchasing power parity (PPP). PPP GNI is gross national income (GNI) converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GNI as a U.S. dollar has in the United States. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current international dollars.	WDI 2005-06
Economic Growth	GDP	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2000 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	WDI 2005-06
Unemployment	U	Unemployment refers to the share of the labour force that is without work but available for and seeking employment. Definitions of labour force and unemployment differ by country.	WDI 2005-06
Population Growth	PG	Annual population growth rate for year t is the exponential rate of growth of midyear	WDI 2001-06

		population from year t-1 to t, expressed as a percentage. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship--except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of the country of origin.	
Age Structure of Population	Age	a. Percentage within all people involved in TEA who are in age category 18-24 b. Percentage within all people involved in TEA who are in age category 25-34 c. Percentage within all people involved in TEA who are in age category 35-44 d. Percentage within all people involved in TEA who are in age category 45-54 e. Percentage within all people involved in TEA who are in age category 55-64	GEM 2006
Educational Profile of Nationals	Edu	a. Number of Adults with some secondary experience as highest qualification, per 100 involved in a nascent firm or young firm or both (if doing both, still counted as one active person). b. Number of Adults with secondary degree as highest qualification, per 100 involved in a nascent firm or young firm or both (if doing both, still counted as one active person). c. Number of Adults with post- secondary degree as highest qualification, per 100 involved in a nascent firm or young firm or both (if doing both, still counted as one active person). d. Number of Adults with graduate experience as highest qualification, per 100 involved in a nascent firm or young firm or both (if doing both, still counted as one active person).	GEM 2006
Tax Revenue	T	Tax revenue refers to compulsory transfers to the central government for public purposes. Certain compulsory transfers such as fines, penalties, and most social security contributions are excluded. Refunds and corrections of erroneously collected tax revenue are treated as negative revenue.	WDI 2005-06

Days Required to Start a Business	DR	Time required to start a business is the number of calendar days needed to complete the procedures to legally operate a business. If a procedure can be speeded up at additional cost, the fastest procedure, independent of cost, is chosen.	WDI 2005-06
Real Interest Rate	I	Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator.	WDI 2005-06
Business as Desirable Career	BD	Percentage yes on item [July 2006]: In your country, most people consider starting a new business a desirable career choice?	GEM 2006
Entrepreneurs Status and Respect in a Country	ESR	Percentage yes on item [July 2006]: In your country, those successful at starting a new business have a high level of status and respect?	GEM 2006
Incumbent Business Ownership	IB	Established Businesses: Number of adults [18-64 years old] per 100 involved in established firm as owner and manager for which salaries or wages have been paid for more than 42 months.	GEM 2006
Formerly Centralized Economy	DC	Dummy = 1 for formerly centralized economy Dummy = 0 for not formerly centralized economy	Based on Literature Survey
Opportunity Perception of Individuals	OP	In the next 6 months there will be good opportunities for starting a business in the area where an individual lives	GEM 2006
Knowing Other Entrepreneurs	KoE	The Individual personally knows someone who started a business in the past 2 years	GEM 2006
Confidence on One's Skills	S	The knowledge, skill, and experience which an individual has and is required to start a new business	GEM 2006
Fear of Failure to Start a Business	F	Fear of failure that would prevent an individual from starting a new business	GEM 2006
Computers per capita	C	Personal computers (per 100 people) are self-contained computers designed to be used by a single individual.	WDI 2005-06
Internet Subscribers	I	Fixed broadband Internet subscribers (per 100 people) are the number of broadband subscribers with a digital subscriber line, cable modem, or other high-speed	WDI 2005-06

		technology.	
Research and Development Expenditures	RD	Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development.	WDI 2005-06
Entrepreneurial Characteristic of an Economy	TEAD	Dummy = 1 for Entrepreneurially Active Economy: countries having double digit entrepreneurial activity rate. Dummy = 0 for Entrepreneurially Passive Economy: countries having double digit entrepreneurial activity rate.	Based on GEM Data 2006

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