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SOCIETY FOR SCIENCE AND EDUCATION

Does R&D Matter for Economic Growth or Vice-Versa? An Application to Portugal and Other European Countries

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ABSTRACT

Significant research has studied the impact of Research and Development (R&D) on Gross Domestic Product (GDP) at the country level. However, few studies consider the possibility that a country's GDP can also be a driver for R&D. This paper investigates the causal relationship linking R&D and growth in a sample of European Union (EU) countries, with an emphasis on Portugal. A causal relationship from growth to R&D can only be proven for France and Spain, whereas the inverse causality only seems to exist for The Netherlands. The co-integration results question the existence of a long-run relationship between R&D and GDP.

Keywords: R&D, Economic growth, Co-integration, Granger causality, European countries, Portugal.

INTRODUCTION

Under the European Year of Creativity and Innovation in 2009, an increased emphasis was put in areas that relate with Research and Development (R&D), innovation, and patents. This effort aimed at contributing to the goal of the March 2000´s Lisbon Strategy which intended to make the European Union (EU), by 2010, *"the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion."*

One of the primary objectives of the Lisbon Strategy – raise overall R&D investment in Europe to 3% of gross domestic product (GDP) – was not accomplished, however. Only Finland (3.87%), Sweden (3.42%) and Denmark (3.06%) placed themselves above the 3% target that was set for 2010, while Germany and Austria were close to it (2.62% and 2.76%, respectively). Portugal, with a 1.59% mark, is one of the EU countries that did not meet the above objective, despite some important progress. From 2000 to 2009 R&D intensity more than doubled in Portugal, and R&D spending almost tripled, with a remarkable increase from 2005 onwards. Likewise, the number of researchers in Portugal increased 130% between 2000 and 2008, largely above the EU average, which was less than 29%.

The current paper is a contribution to the understanding of the relationship between R&D and macroeconomic performance. The study is applied to the European Union, with a particular emphasis being given to Portugal, where investment largely increased in recent years, but GDP did not. The Portuguese evolution is consistent with the "R&D paradox" (for instance Ejermo et al., 2011) – high and growing levels of R&D connected with low GDP growth. Based on the outcome of causality and co-integration tests on R&D and GDP series, we intend to find out which EU countries have the most effective R&D policies. We focus on the pre- economic and financial crisis period.

The remaining of the paper is structured as follows. Next section provides a review of the most relevant literature on the theme. Section 3 presents the procedures to be employed in our analysis as well as the data. In Section 4 results are extracted. We present the results of stationarity testing, cointegration testing and Granger causality testing. Section 5 summarizes and discusses the main findings.

LITERATURE REVIEW

In what concerns Portugal, and although there exist some related works, to the best of our knowledge this is the first time that causality between R&D and GDP is addressed. Previous studies (Teixeira and Fortuna, 2004 and 2010) applied cointegration analysis (to investigate the role of human capital in Portuguese economic growth), but did not inspect causality. Tavares (2004) and Cavalcanti and Novo (2005) analysed the relationship between Portuguese institutions and economic growth, concluding that Portuguese legal and financial institutions should be reformed in order to enhance the catch-up process to other more developed EU countries. The findings of Teixeira (2007) and Barbosa and Faria (2011) go in the same direction. Despite the relatively vast literature on the Portuguese case, research on the causal relationship between R&D spending and economic growth by using time series analysis is still needed.

The neoclassical growth theory postulates that technological progress is exogenous and proceeds at a steady rate, with technology falling as "manna from heaven". The endogeneization of technological progress with the seminal works of Romer (1986) and Lucas (1988) was an important step forward. Many models have since then dealt with endogenous growth focusing on profit-seeking research as an important source of technological progress and economic growth. The growth rate of ideas is a positive function of the number of researchers and an increase in the current stock of ideas leads to an increase in productivity. This implies that countries with more researchers should have faster growth rates. The empirical evidence, however, sometimes seems to contradict this implication. The well-known Jones (1995) critique to Schumpeterian models points out the fact that R&D has increased enormously in the post war period with no tendency for productivity to rise – R&D paradox. To reconcile Schumpeterian growth with evidence, and among other attempts, a recent article by Ertur and Koch (2011) proposes that the cross-country interdependence generated by international R&D spillovers is taken into account when testing the role of R&D in the long-run growth process (see also Scopelliti, 2010 for a survey on recent models of competition and Schumpeterian growth). The directionality, however, is just from R&D to GDP, falling to consider the reverse (from GDP to R&D), which we also address.

Even though, as we said, the empirical outlook on the relation between R&D investment and economic growth has been mostly unidirectional, there are some studies attempting to cover the possible two-way causality between R&D and economic output (e.g. Bravo-Ortega and Marín, 2011, Coada and Rao, 2008). Directly connected with our paper, Wu et al. (2007) examine the causality pattern in R&D expenditure and economic growth. By using an error correction model (ECM), testing for Granger causality and analysing the impulse response in a study applied to China, the authors conclude that there is a long-run co-integration relationship between R&D and GDP and a bidirectional causal relationship.

The present paper is a further input to the comprehension of the role of R&D on economic growth and vice-versa. In the current paper, the co-integration and Granger causality tests for Portugal fail to prove that increased R&D investment engenders increased economic growth and/or vice-versa. However, for other countries such as France and Spain, a Granger causal relationship running from GDP growth to R&D growth can be proven. For the Netherlands, a unidirectional causal link running from R&D investment to GDP growth is found.

DATA AND APPROACH

The main objective of this paper is to analyse the existing relationship between R&D investment and economic growth for the EU, with a special focus on Portugal. Econometric tools such as co-integration analysis and Granger causality testing are adequate for this purpose. If there is a co-integration vector linking R&D effort and economic growth, there is causality among these variables in at least one direction, and a stable long-run relationship between the two. Building on these tests, it is possible to tell whether R&D investment causes economic growth or the reverse (or both - bidirectional causality). The outcome drawn is confronted with the European Union's reality vis-à-vis R&D policies.

We use annual OECD data for GDP and R&D, covering 22 observations, from 1987 to 2008, the pre-crisis period. This is a short sample, which will require the use of small sample critical values. The raw time series come in million US $, at constant PPP's. For the GDP time series, the reference year is 2005, whereas for the R&D data the reference year is 2000. The fact that the series are at a different base year does not influence the results, as what is being tested is the correlation and interdependence of both variables. Besides Portugal, the analysis focuses on Germany, France, the Netherlands, Spain, the United Kingdom, Belgium and Ireland.

Using the natural logarithm of the data, the series will be tested for stationarity, through the analysis of the respective graphs, correlograms and Augmented Dickey-Fuller tests (Dickey and Fuller, 1981). Based on these results, the series will be "detrended" by using the first difference. Moreover, the Johansen (1991) co-integration test will be computed (after having previously confirmed residual normality). Finally, the Granger causality test will also be performed in order to check the nature of the causal relationship that may link R&D spending and GDP.

TESTS AND RESULTS

Stationarity tests

Portugal

One of the main reasons for a spurious correlation is caused by non-stationary time series. Before assuming any causality between the GDP and R&D variables, both series need to be checked for whether they are stationary or not. A stationary time-series is one whose basic properties do not change over time. On the contrary, a non-stationary variable has usually ascending or descending trend. As a matter of fact, Figure 1 appears to show an upward trend over time for both variables depicted, Portugal's GDP and R&D, both in logarithms.

The two series increase at rather different rates, with R&D spending growing at a higher pace than GDP, especially from 2004 onwards. This structural break implies a significant deviation from the previous mean. The explanation for this major trend change can be the massive public

R&D investment in 2005. Actually, in order to comply with the previous Lisbon Strategy and EU2020 3% target, R&D spending in Portugal almost tripled from 2005 to 2008.

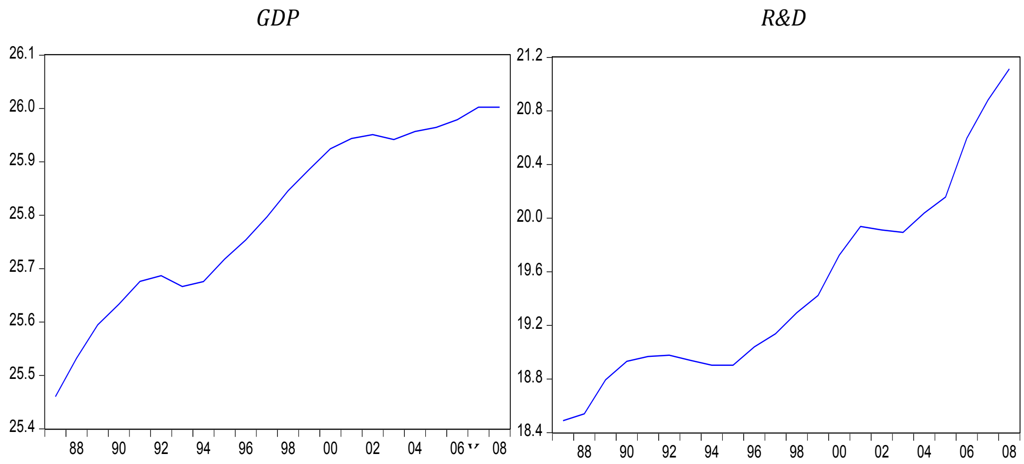
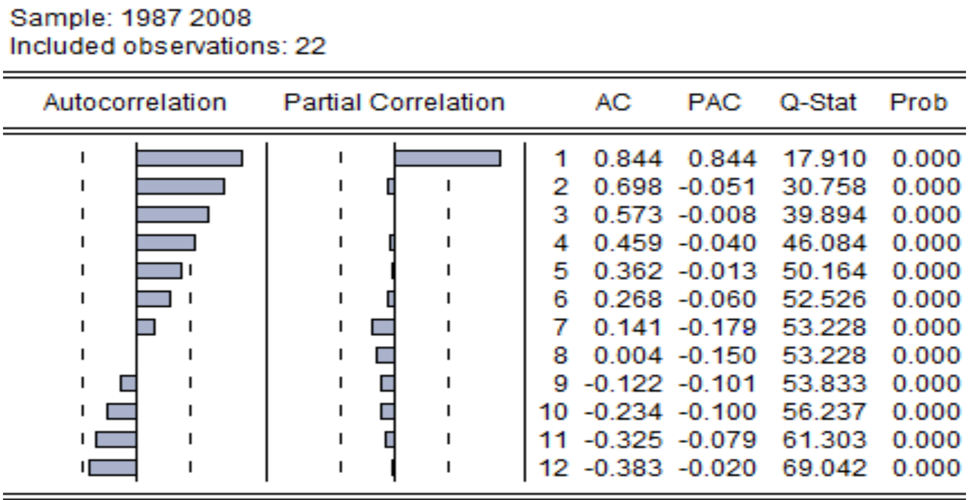


Figure 1 - Portugal's GDP and R&D expenditure in Industry from 1987 to 2008 (logarithm)

The analysis of the correlograms suggests that the series are non-stationary, as the autocorrelation values are always significantly positive and decrease in a geometrical fashion (see Figures 2 and 3 below).

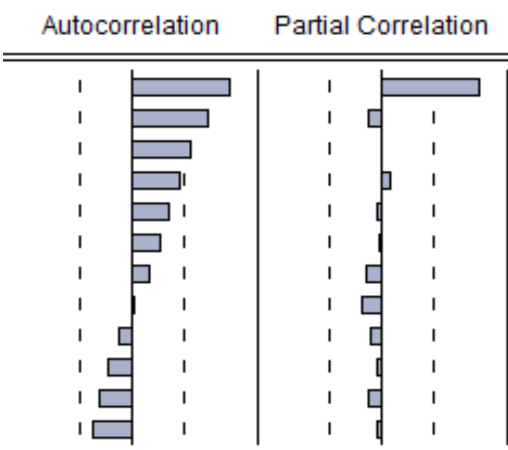


Sample: 1987 2008
Included observations: 22

Lag	AC	PAC	Q-Stat	Prob
1	0.844	0.844	17.910	0.000
2	0.698	-0.051	30.758	0.000
3	0.573	-0.008	39.894	0.000
4	0.459	-0.040	46.084	0.000
5	0.362	-0.013	50.164	0.000
6	0.268	-0.060	52.526	0.000
7	0.141	-0.179	53.228	0.000
8	0.004	-0.150	53.228	0.000
9	-0.122	-0.101	53.833	0.000
10	-0.234	-0.100	56.237	0.000
11	-0.325	-0.079	61.303	0.000
12	-0.383	-0.020	69.042	0.000

Figure 2 – Correlogram of GDP (Portugal)

Sample: 1987 2008
Included observations: 22



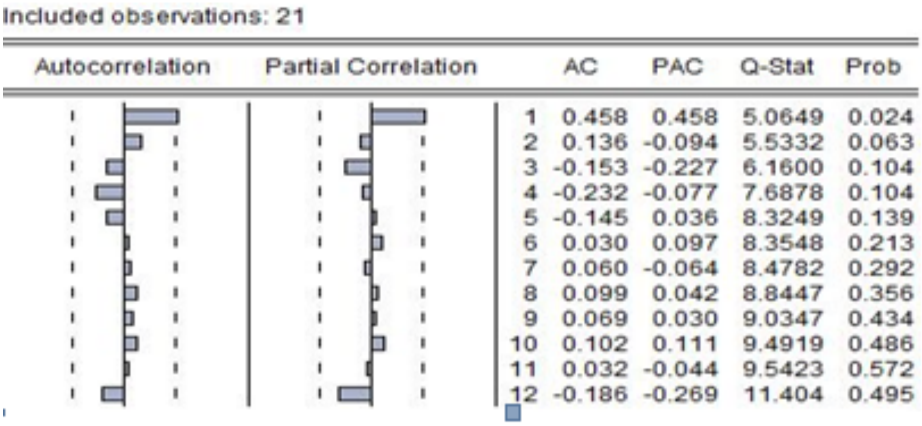
	AC	PAC	Q-Stat	Prob
1	0.816	0.816	16.761	0.000
2	0.630	-0.109	27.251	0.000
3	0.480	-0.006	33.646	0.000
4	0.389	0.076	38.084	0.000
5	0.308	-0.041	41.026	0.000
6	0.235	-0.019	42.848	0.000
7	0.137	-0.116	43.512	0.000
8	0.011	-0.161	43.516	0.000
9	-0.108	-0.090	43.988	0.000
10	-0.191	-0.045	45.598	0.000
11	-0.266	-0.114	49.001	0.000
12	-0.320	-0.048	54.416	0.000

Figure 3 – Correlogram of R&D (Portugal)

Additionally, unit root tests were conducted, in order to check whether the R&D and GDP series are stationary or not. The results of the Augmented Dickey-Fuller (ADF) test expose the non stationarity of the series. For GDP the test fails to reject the null hypothesis of a unit root at any of the significance levels. Indeed, the ADF test Statistic (1.24) does not lie to the left of the MacKinnon (1996) critical values (-2.69 at 1%, -1.96 at 5%, and -1.61 at 10%) (MacKinnon critical values are the ones for ADF testing in small samples). Therefore, the null hypothesis is accepted, and the GDP series has a unit root. In other words, it is non stationary.

Regarding the R&D spending in Portugal, the test also fails to reject the null hypothesis of a unit root for the R&D series. As a matter of fact, the ADF test Statistic (1.99) does not lie to the left of the MacKinnon critical values. For that reason, the null hypothesis is accepted and the R&D series is also non stationary.

The GDP and R&D data for Portugal thus need to be transformed. In order to remove the trend component from the time series, we take first differences. The ADF Test Statistic (-2.27) for the GDP time series in first differences is now lesser than the 5% MacKinnon critical value (-1.96), therefore the GDP time series for Portugal is integrated of order one. Even though it is close to the 10% level, the t-Statistic in the ADF test for the first difference of the R&D time series (-1.46) is above the MacKinnon critical value, pointing out the existence of a unit root. This result, however, appears to be influenced by the existence of outliers. Taken this into account and using Franses and Haldrup (1994), we would likely find that R&D is indeed an I(1) series. In fact, if a dummy variable in the years 1993 to 1995 and 2002 to 2003 is included, then the first differences of the R&D series visibly pass the 5% MacKinnon critical value: the t-Statistic (-3.28) lies to the left of the respective 5% critical value (-3.04). In order to further confirm that the R&D series can be assumed as integrated of order one, the respective correlogram is analysed (Figure 4). As one can see, it does not show any signs of non-stationarity. Actually, the autocorrelation function lies within the error bands and dies off.



Included observations: 21

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.458	0.458	5.0649	0.024
		2	0.136	-0.094	5.5332	0.063
		3	-0.153	-0.227	6.1600	0.104
		4	-0.232	-0.077	7.6878	0.104
		5	-0.145	0.036	8.3249	0.139
		6	0.030	0.097	8.3548	0.213
		7	0.060	-0.064	8.4782	0.292
		8	0.099	0.042	8.8447	0.356
		9	0.069	0.030	9.0347	0.434
		10	0.102	0.111	9.4919	0.486
		11	0.032	-0.044	9.5423	0.572
		12	-0.186	-0.269	11.404	0.495

Figure 4- First difference correlogram for Portuguese R&D spending

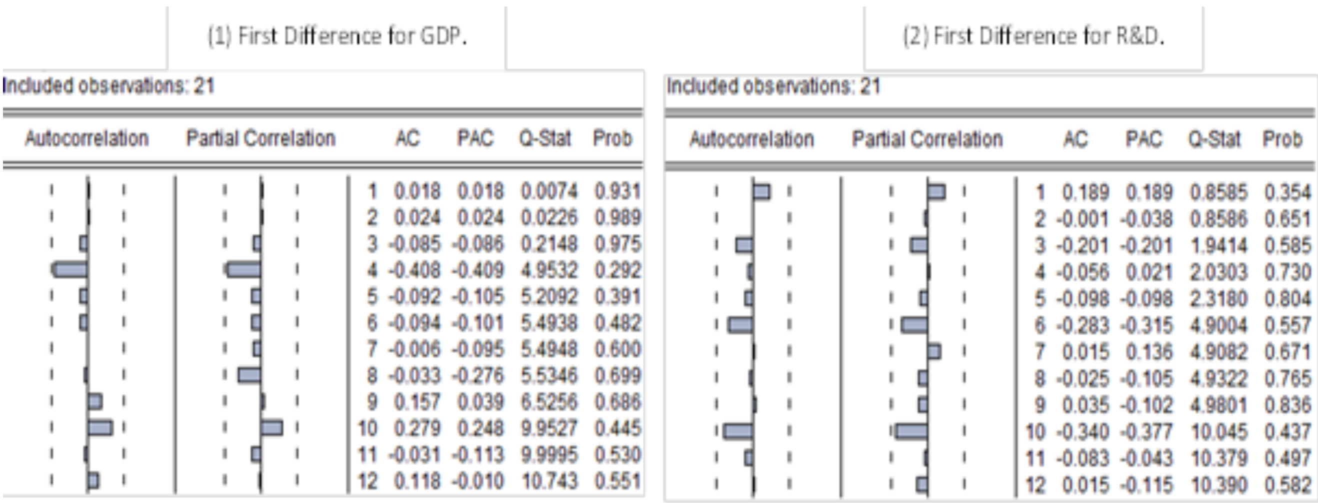
As a conclusion, it is possible to confirm that both the GDP and R&D series for Portugal, taken in natural logarithms, are I(1). Thus, we use the first-difference of the logarithms.

Other countries

The same testing procedures were applied to the GDP and R&D series of Belgium, France, Germany, Ireland, Netherlands, Spain and the United Kingdom. These series do not prove to be I(0). After the first difference of logarithms is applied, however, the series became stationary.[1] Under these conditions, it will be possible to proceed to co-integration testing. Following we present the results of the Augmented Dickey-Fuller test statistic for the first difference logarithm of these variables, as well as the respective correlograms.

Belgium

The t-Statistic values for Belgium, -4.44 and -3.49 respectively for GDP and R&D, lie to the left of the MacKinnon critical values. Therefore, the null hypothesis can be rejected and the first differenced GDP and R&D spending time series are stationary. The correlograms of the transformed series confirm the stationarity of the samples (Figure 5).



(1) First Difference for GDP.

Included observations: 21

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.018	0.018	0.0074	0.931
		2	0.024	0.024	0.0226	0.989
		3	-0.085	-0.086	0.2148	0.975
		4	-0.408	-0.409	4.9532	0.292
		5	-0.092	-0.105	5.2092	0.391
		6	-0.094	-0.101	5.4938	0.482
		7	-0.006	-0.095	5.4948	0.600
		8	-0.033	-0.276	5.5346	0.699
		9	0.157	0.039	6.5256	0.686
		10	0.279	0.248	9.9527	0.445
		11	-0.031	-0.113	9.9995	0.530
		12	0.118	-0.010	10.743	0.551

(2) First Difference for R&D.

Included observations: 21

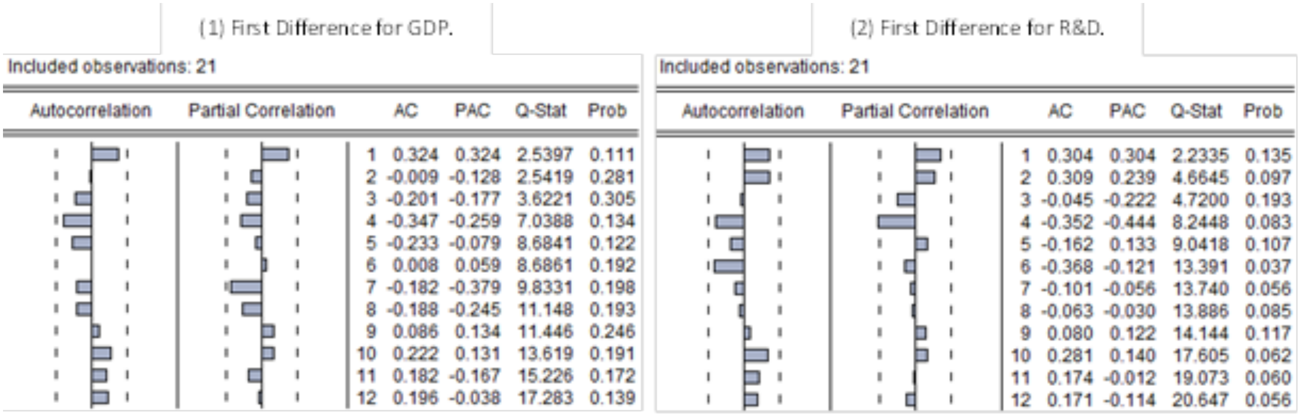
Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.189	0.189	0.8585	0.354
		2	-0.001	-0.038	0.8586	0.651
		3	-0.201	-0.201	1.9414	0.585
		4	-0.056	0.021	2.0303	0.730
		5	-0.098	-0.098	2.3180	0.804
		6	-0.283	-0.315	4.9004	0.557
		7	0.015	0.136	4.9082	0.671
		8	-0.025	-0.105	4.9322	0.765
		9	0.035	-0.102	4.9801	0.836
		10	-0.340	-0.377	10.045	0.437
		11	-0.083	-0.043	10.379	0.497
		12	0.015	-0.115	10.390	0.582

Figure 5- First difference correlograms for GDP and R&D - Belgium

[1] However, it should be mentioned that these results were not obvious in the first place for some countries, such as Spain. The main reasons for these problems are related to outliers and to the size of the sample.

France

The t-Statistic values for France, -2.05 and -2.57 respectively for GDP and R&D, lie to the left of the MacKinnon critical values. The null hypothesis can be rejected and the first differenced GDP and R&D spending time series are stationary. The correlograms of the transformed series confirm the stationarity of the samples (Figure 6).


(1) First Difference for GDP.

Included observations: 21

Lag	AC	PAC	Q-Stat	Prob
1	0.324	0.324	2.5397	0.111
2	-0.009	-0.128	2.5419	0.281
3	-0.201	-0.177	3.6221	0.305
4	-0.347	-0.259	7.0388	0.134
5	-0.233	-0.079	8.6841	0.122
6	0.008	0.059	8.6861	0.192
7	-0.182	-0.379	9.8331	0.198
8	-0.188	-0.245	11.148	0.193
9	0.086	0.134	11.446	0.246
10	0.222	0.131	13.619	0.191
11	0.182	-0.167	15.226	0.172
12	0.196	-0.038	17.283	0.139

(2) First Difference for R&D.

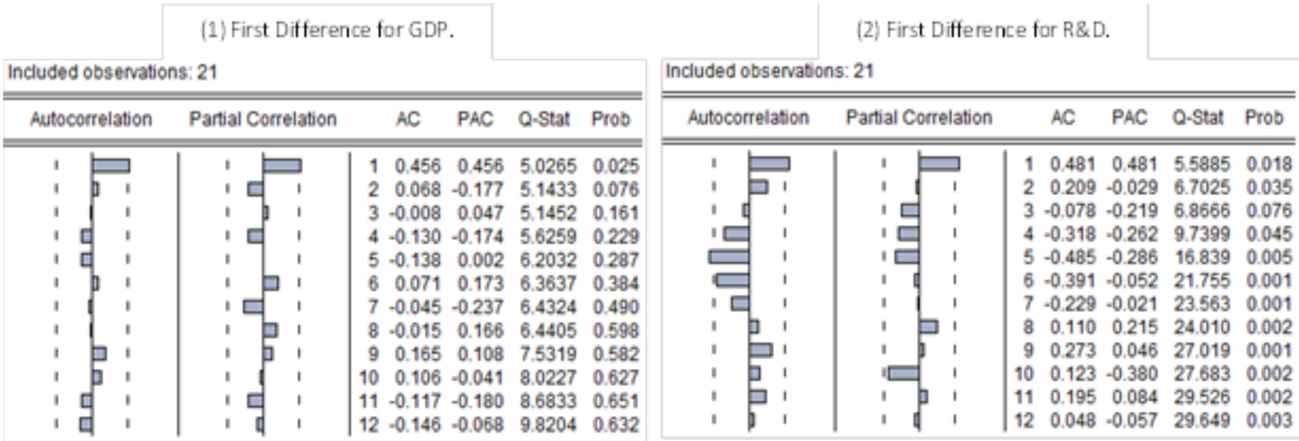
Included observations: 21

Lag	AC	PAC	Q-Stat	Prob
1	0.304	0.304	2.2335	0.135
2	0.309	0.239	4.6645	0.097
3	-0.045	-0.222	4.7200	0.193
4	-0.352	-0.444	8.2448	0.083
5	-0.162	0.133	9.0418	0.107
6	-0.368	-0.121	13.391	0.037
7	-0.101	-0.056	13.740	0.056
8	-0.063	-0.030	13.886	0.085
9	0.080	0.122	14.144	0.117
10	0.281	0.140	17.605	0.062
11	0.174	-0.012	19.073	0.060
12	0.171	-0.114	20.647	0.056

Figure 6- First difference correlograms for GDP and R&D - France

Germany

The t-Statistics for Germany, -1.77 and -1.94 respectively for GDP and R&D, do not lie to the left of the 5% MacKinnon critical value but are really close to it (in the case of R&D) and pass the 10% critical value. As with the R&D spending stationarity tests for Portugal, an analysis on the first difference graph and correlogram is needed in order to conclude that both the GDP and R&D spending series are integrated of order one (Figure 7). As the results show, they both seem to prove stationarity. In conclusion, the two series are I(1) and the fact that they appeared to be integrated of order two was likely related to the size of the sample and to outliers.


(1) First Difference for GDP.

Included observations: 21

Lag	AC	PAC	Q-Stat	Prob
1	0.456	0.456	5.0265	0.025
2	0.068	-0.177	5.1433	0.076
3	-0.008	0.047	5.1452	0.161
4	-0.130	-0.174	5.6259	0.229
5	-0.138	0.002	6.2032	0.287
6	0.071	0.173	6.3637	0.384
7	-0.045	-0.237	6.4324	0.490
8	-0.015	0.166	6.4405	0.598
9	0.165	0.108	7.5319	0.582
10	0.106	-0.041	8.0227	0.627
11	-0.117	-0.180	8.6833	0.651
12	-0.146	-0.068	9.8204	0.632

(2) First Difference for R&D.

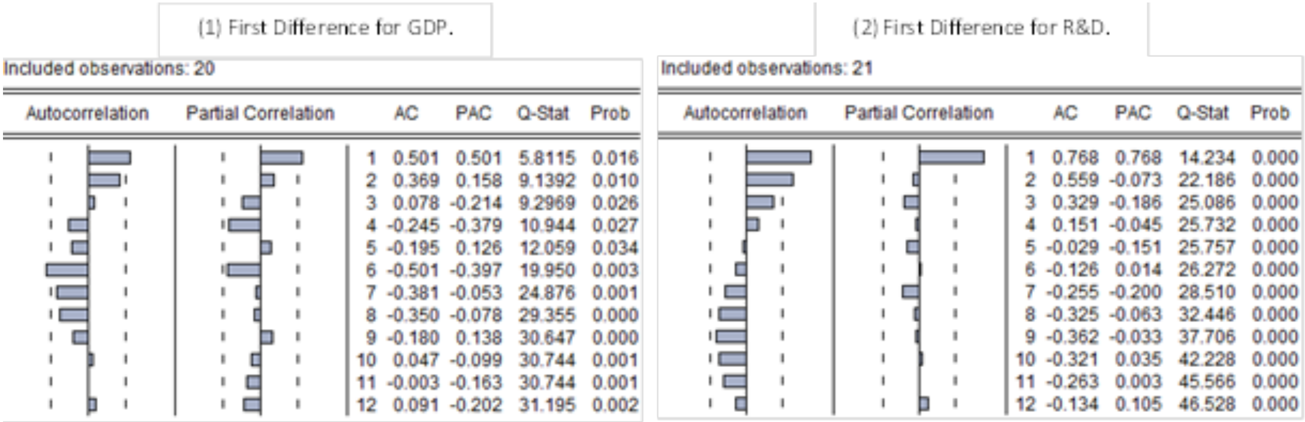
Included observations: 21

Lag	AC	PAC	Q-Stat	Prob
1	0.481	0.481	5.5885	0.018
2	0.209	-0.029	6.7025	0.035
3	-0.078	-0.219	6.8666	0.076
4	-0.318	-0.262	9.7399	0.045
5	-0.485	-0.286	16.839	0.005
6	-0.391	-0.052	21.755	0.001
7	-0.229	-0.021	23.563	0.001
8	0.110	0.215	24.010	0.002
9	0.273	0.046	27.019	0.001
10	0.123	-0.380	27.683	0.002
11	0.195	0.084	29.526	0.002
12	0.048	-0.057	29.649	0.003

Figure 7- First difference correlograms for GDP and R&D - Germany

Ireland

The t-Statistic value for the R&D time series, -2.01, lies to the left of the 5% MacKinnon critical value. Therefore, the assumption of the series as being stationary is acceptable. As-regards the GDP series, the t-Statistic (-2.84) fails to pass the 5% critical level but clearly passes the 10% level. Still, correlogram analysis is conducted in order to confirm that both the GDP and R&D series are integrated of order one (Figure 8).



(1) First Difference for GDP.

Included observations: 20

	AC	PAC	Q-Stat	Prob
1	0.501	0.501	5.8115	0.016
2	0.369	0.158	9.1392	0.010
3	0.078	-0.214	9.2969	0.026
4	-0.245	-0.379	10.944	0.027
5	-0.195	0.126	12.059	0.034
6	-0.501	-0.397	19.950	0.003
7	-0.381	-0.053	24.876	0.001
8	-0.350	-0.078	29.355	0.000
9	-0.180	0.138	30.647	0.000
10	0.047	-0.099	30.744	0.001
11	-0.003	-0.163	30.744	0.001
12	0.091	-0.202	31.195	0.002

(2) First Difference for R&D.

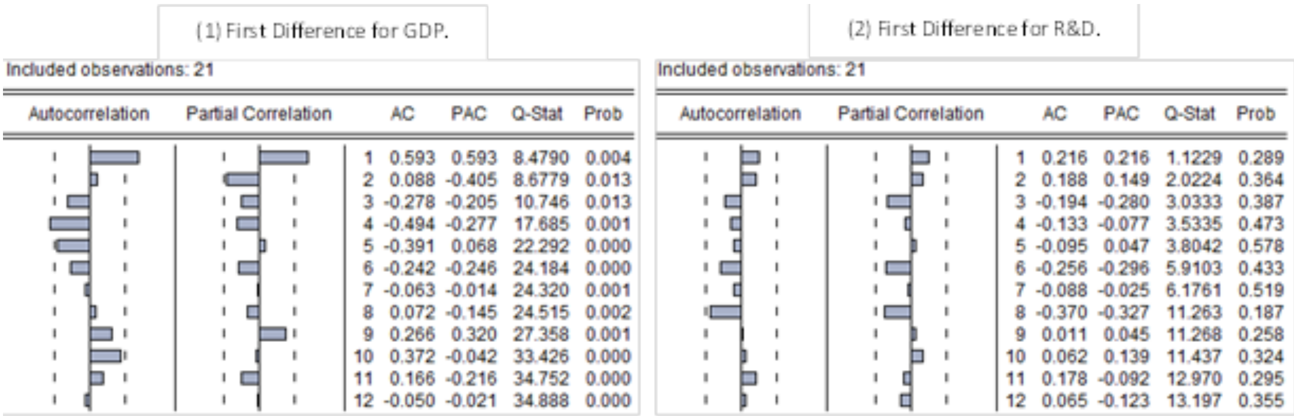
Included observations: 21

	AC	PAC	Q-Stat	Prob
1	0.768	0.768	14.234	0.000
2	0.559	-0.073	22.186	0.000
3	0.329	-0.186	25.086	0.000
4	0.151	-0.045	25.732	0.000
5	-0.029	-0.151	25.757	0.000
6	-0.126	0.014	26.272	0.000
7	-0.255	-0.200	28.510	0.000
8	-0.325	-0.063	32.446	0.000
9	-0.362	-0.033	37.706	0.000
10	-0.321	0.035	42.228	0.000
11	-0.263	0.003	45.566	0.000
12	-0.134	0.105	46.528	0.000

Figure 8- First difference correlograms for GDP and R&D - Ireland

Netherlands

The t-Statistics for Netherlands, -3.20 and -3.28 respectively for GDP and R&D, lie to the left of the MacKinnon critical values. Therefore, the null hypothesis can be rejected and the first differenced GDP and R&D spending time series are stationary. The correlograms of the transformed series confirm the stationarity of the first differences (Figure 9).



(1) First Difference for GDP.

Included observations: 21

	AC	PAC	Q-Stat	Prob
1	0.593	0.593	8.4790	0.004
2	0.088	-0.405	8.6779	0.013
3	-0.278	-0.205	10.746	0.013
4	-0.494	-0.277	17.685	0.001
5	-0.391	0.068	22.292	0.000
6	-0.242	-0.246	24.184	0.000
7	-0.063	-0.014	24.320	0.001
8	0.072	-0.145	24.515	0.002
9	0.266	0.320	27.358	0.001
10	0.372	-0.042	33.426	0.000
11	0.166	-0.216	34.752	0.000
12	-0.050	-0.021	34.888	0.000

(2) First Difference for R&D.

Included observations: 21

	AC	PAC	Q-Stat	Prob
1	0.216	0.216	1.1229	0.289
2	0.188	0.149	2.0224	0.364
3	-0.194	-0.280	3.0333	0.387
4	-0.133	-0.077	3.5335	0.473
5	-0.095	0.047	3.8042	0.578
6	-0.256	-0.296	5.9103	0.433
7	-0.088	-0.025	6.1761	0.519
8	-0.370	-0.327	11.263	0.187
9	0.011	0.045	11.268	0.258
10	0.062	0.139	11.437	0.324
11	0.178	-0.092	12.970	0.295
12	0.065	-0.123	13.197	0.355

Figure 9- First difference correlograms for GDP and R&D - Netherlands

Spain

The t-Statistic value for the R&D series (-2.75) lies to the left of the 1% MacKinnon critical value, suggesting stationarity in first differences. On the other hand, the GDP series does not pass the ADF test (t-Statisitc of -1.45) but is very close to the 10% critical level. This happens probably because of the existence of a punctual break (outlier) in 1993. If this punctual break is taken into account, relying on Franses and Haldrup (1994) results the GDP series visibly passes the 5% MacKinnon critical value. The t-Statistic (-3.61) now lies to the left of the respective 5% critical value (-3.04).

A correlogram is convenient in order to assure that GDP, besides R&D, is integrated of order one. As the results suggest, the correlogram seems to prove the stationarity of the sample (Figure 10).

(1) First Difference for GDP.

Included observations: 21

	AC	PAC	Q-Stat	Prob
1	0.526	0.526	6.6712	0.010
2	0.125	-0.210	7.0654	0.029
3	-0.113	-0.119	7.4094	0.060
4	-0.353	-0.300	10.950	0.027
5	-0.378	-0.073	15.268	0.009
6	-0.220	0.008	16.834	0.010
7	-0.264	-0.342	19.244	0.007
8	-0.185	-0.072	20.518	0.009
9	0.028	0.036	20.550	0.015
10	0.077	-0.116	20.809	0.022
11	0.079	-0.143	21.114	0.032
12	0.061	-0.189	21.314	0.046

(2) First Difference for R&D.

Included observations: 21

	AC	PAC	Q-Stat	Prob
1	0.226	0.226	1.2299	0.267
2	0.314	0.277	3.7340	0.155
3	-0.140	-0.290	4.2618	0.235
4	-0.249	-0.313	6.0257	0.197
5	-0.238	-0.004	7.7392	0.171
6	-0.320	-0.151	11.046	0.087
7	-0.073	-0.003	11.230	0.129
8	0.068	0.184	11.401	0.180
9	-0.118	-0.401	11.966	0.215
10	0.104	-0.050	12.440	0.257
11	-0.115	0.062	13.083	0.288
12	0.046	-0.102	13.195	0.355

Figure 10- First difference correlograms for GDP and R&D - Spain

United Kingdom

The t-Statistic value for R&D (-3.47) lies to the left of the MacKinnon critical values. Regarding the GDP series, the 10% level is passed and the 5% critical value is almost reached as well (t-Statistic equal to -1.84). Therefore, the null hypothesis can be rejected. The first differenced GDP and R&D spending time series are stationary. The correlograms of the transformed series confirm the stationarity of the samples (Figure 11).

(1) First Difference for GDP.

Included observations: 21

	AC	PAC	Q-Stat	Prob
1	0.438	0.438	4.6367	0.031
2	-0.008	-0.247	4.6383	0.098
3	-0.272	-0.210	6.6293	0.085
4	-0.210	0.022	7.8820	0.096
5	-0.083	-0.034	8.0882	0.151
6	0.045	0.015	8.1530	0.227
7	-0.138	-0.296	8.8099	0.267
8	-0.255	-0.140	11.220	0.190
9	-0.141	0.065	12.021	0.212
10	-0.018	-0.117	12.035	0.283
11	0.008	-0.154	12.038	0.361
12	0.031	-0.029	12.088	0.439

(2) First Difference for R&D.

Included observations: 21

	AC	PAC	Q-Stat	Prob
1	0.151	0.151	0.5503	0.458
2	-0.264	-0.293	2.3198	0.314
3	-0.245	-0.168	3.9361	0.268
4	-0.074	-0.093	4.0898	0.394
5	-0.012	-0.115	4.0942	0.536
6	0.148	0.092	4.8013	0.570
7	-0.015	-0.131	4.8090	0.683
8	-0.104	-0.066	5.2084	0.735
9	-0.018	0.005	5.2221	0.815
10	-0.053	-0.142	5.3459	0.867
11	-0.042	-0.052	5.4309	0.909
12	0.129	0.070	6.3190	0.899

Figure 11- First difference correlograms for GDP and R&D – United Kingdom

Co-integration Testing

Portugal

A linear combination of two or more non-stationary series may be stationary. If such a linear combination exists, the non-stationary time series are said to be co-integrated. The stationary linear combination is called the co-integrating equation and can be interpreted as a long-run equilibrium relationship between the variables (Engle and Granger, 1987).

In order to prove whether there is a long-term equilibrium relationship between GDP and R&D spending, the co-integration test can be performed by using the Johansen method, by looking at the eigenvalue statistic. The Johansen's multivariate co-integration test consists of analyzing the relationships between the GDP and R&D variables by using a vector auto-regression (VAR) model. Before performing this test, it is important to verify that residuals are normal, since the maximum likelihood existent in the Johansen co-integration test assumes that the residuals are distributed as in a Normal distribution. The Doornik-Hansen (2008) test is suitable to jointly test for residuals' normality and was employed. We selected a VECM(1) with a standard information criteria. Figure 12 shows the results for Portugal.

VEC Residual Normality Tests [**Orthogonalization**: Residual Correlation (Doornik-Hansen)] [**Null Hypothesis**: residuals are multivariate normal] [Sample: 1987 2008] [Included observations: 18]				
Component	**Skewness**	**Chi-sq**	**df**	**Prob.**
1	-0.909734	3.399947	1	0.0652
2	0.483463	1.051243	1	0.3052
Joint		4.451190	2	0.1080
Component	Kurtosis	Chi-sq	df	Prob.
1	3.217576	0.212653	1	0.6447
2	3.437186	1.834621	1	0.1756
Joint		2.047273	2	0.3593
Component	Jarque-Bera	df	Prob.	
1	3.612599	2	0.1643	
2	2.885863	2	0.2362	
Joint	6.498463	4	**0.1649**	

Figure 12 – Doornik-Hansen residual normality test (Portugal)

Given these results, it is possible to confirm that the null hypothesis cannot be rejected and that the residuals are multivariate normal. Consequently, the Johansen co-integration test can be performed. The results are shown in Figure 13. As the Max-Eigen Statistic value (10.59934) is lower than the 0.05 critical value, the existence of co-integration is rejected. In other terms, the Johansen's method cannot confirm that there is any co-integration vector. Therefore, for the case of Portugal, it is not possible to conclude that there is a stable long-run relationship between GDP and R&D.

Sample (adjusted): 1989 2008 Included observations: 20 after adjustments Trend assumption: Linear deterministic trend Series: LNGDP_PO01 LNRD_PO01 Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		**Max-Eigen**	**0.05**	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.411376	**10.59934**	**14.26460**	0.1755
At most 1	0.009977	**0.200544**	**3.841466**	0.6543
Max-eigenvalue test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values				

Figure 13 – Johansen co-integration test for GDP and R&D spending (Portugal)

Other countries

The same analysis was performed for the other countries - Belgium, France, Germany, Ireland, Netherlands, Spain and the United Kingdom. A co-integration vector linking GDP and R&D spending was found only for the case of the United Kingdom, but with the unexpected sign (negative relationship, instead of positive).[2] Concluding, no co-integration was found between GDP and R&D spending for any of the EU countries considered.

This subsection presents the results for the Doornik-Hansen residual normality test, the Johansen co-integration test and the respective Vector Error Correction Model (VECM), whenever applicable. We selected a VECM(1) with a standard information criteria.

Belgium

Given the 0.0032 p-value in the Doornik-Hansen test, residual normality fails. However, one can see that only the residual for one of the equations fails to meet kurtosis. Having this in mind, we still take the Johansen procedure. As the Max-Eigen Statistic value (5.60) is lower than the 5% critical value (14.26), the existence of co-integration is rejected. Therefore it is not possible to conclude that there exists a stable long run relationship between GDP and R&D.

France

Given the 0.4946 p-value in the Doornik-Hansen residual normality test, it is confirmed that the residuals follow a Normal distribution, and therefore the Johansen procedure for testing for co-integration is valid. As the Max-Eigen Statistic value (14.14) is lower than the 5% critical value (14.26), co-integration is rejected. Therefore it is not possible to conclude that there is a stable long run relationship between GDP and R&D.

Germany

Given the 0.7835 p-value in the Doornik-Hansen residual normality test, it is confirmed that the residuals follow a Normal distribution. Consequently, the Johansen procedure for testing for co-integration is valid. As the Max-Eigen Statistic value (12.57) is lower than the 5% critical value (14.26), the existence of co-integration is rejected. Therefore it is not possible to conclude that there is a stable long run relationship between GDP and R&D.

Ireland

Given the 0.7420 p-value in the Doornik-Hansen residual normality test, it is confirmed that the residuals follow a Normal distribution. Therefore, the Johansen procedure for testing for co-integration is valid. The results of the Johansen test indicate that there are two co-integrating vectors describing this model. This odd result (at most one would be expected) may actually be a symptom of the possible existence of structural breaks, either in the joint behaviour of GDP and R&D or, somewhat, in each of these.

Netherlands

Given the 0.6239 p-value in the Doornik-Hansen residual normality test, it is confirmed that the residuals follow a Normal distribution. As a result, the Johansen procedure for testing for co-integration is valid. As the Max-Eigen Statistic value (13.34) is lower than the 5% critical value (14.26), the existence of co-integration is rejected. Therefore it is not possible to conclude that there is a stable long run relationship between GDP and R&D.

[2] Recall that, following Engle and Granger (1987), a system of co-integrated variables can be characterized by a dynamic error correction model (ECM), so accordingly a Vector ECM (VECM) was estimated by Johansen-Juselius (1990) method for UK data. However, a surprising negative long-run relationship between R&D and GDP was obtained. This result may stem from the existence of structural breaks, either in the joint behaviour of GDP and R&D or in each of these.

Spain

Given the 0.7652 p-value in the Doornik-Hansen residual normality test, it is confirmed that the residuals follow a Normal distribution, and therefore the Johansen procedure for testing for co-integration is valid. As the Max-Eigen Statistic value (9.95) is lower than the 5% critical value (14.26) the existence of co-integration is rejected. Therefore it is not possible to conclude that there is a stable long run relationship between GDP and R&D.

United Kingdom

Given the 0.8165 p-value in the Doornik-Hansen residual normality test, it is confirmed that the residuals follow a Normal distribution. Consequently, the Johansen procedure for testing for co-integration is valid. The results of the Johansen test indicate that there is a co-integrating vector describing this model. The Maximum Eigenvalue statistic (19.86) is higher than the respective 5% critical value (14.26). This suggests that there is a stable long run relationship between the GDP and R&D spending variables for the case of the United Kingdom.

Following Engle and Granger (1987), a system of co-integrated variables can be characterized by a dynamic error correction model (ECM). Accordingly, a Vector ECM (VECM) is estimated by Johansen-Juselius (1990) method. The results are presented below (Figure 14).

Vector Error Correction Estimates
Sample (adjusted): 1990 2008
Included observations: 19 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1	
LNGDP_UK01(-1)	**1.000000**	
LNRD_UK01(-1)	**-2.091042**	
	(0.18703)	
	[-11.1802]	
C	**21.29502**	
Error Correction:	**D(LNGDP_UK01)**	**D(LNRD_UK01)**
CointEq1	0.106883	0.473118
	(0.05483)	(0.17148)
	[1.94950]	[2.75902]
D(LNGDP_UK01(-1))	0.532965	-0.921084
	(0.34550)	(1.08065)
	[1.54257]	[-0.85235]
D(LNGDP_UK01(-2))	-0.289344	0.103377
	(0.20541)	(0.64248)
	[-1.40861]	[0.16090]
D(LNRD_UK01(-1))	0.127859	0.672350
	(0.10278)	(0.32147)
	[1.24403]	[2.09152]
D(LNRD_UK01(-2))	-0.004050	0.189238
	(0.10840)	(0.33904)
	[-0.03737]	[0.55816]
C	0.015879	0.019421
	(0.00678)	(0.02119)
	[2.34337]	[0.91635]

Figure 14 - Vector Error Correction Estimates – United Kingdom

The surprising negative long-run relationship between R&D and GDP may stem from the existence of structural breaks, either in the joint behaviour of GDP and R&D or in each of these.

Granger Causality Testing

Portugal

Granger causality is a circumstance in which one time series variable helps to predict the other one. The importance of the Granger causality test comes from the fact that it makes possible to analyse which variable precedes another one. This can be particularly convenient for forecasting purposes. As stated by Granger (1988), if there is a co-integrating vector between R&D expenditure and GDP, there is causality among those variables at least in one direction. Granger causality tests can be used to examine the nature of this relationship. When there is no co-integration between the variables, causality may still exist.

Given the absence of co-integration between R&D spending and GDP, the causality test is performed in the VAR in first differences. This can also be interpreted in terms of testing causality between GDP growth and R&D growth. Figure 15 displays the results for Portugal.

Pairwise Granger Causality Tests
Sample: 1987 2008
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
DLN_RD_PO does not Granger Cause DLN_GDP_PO	20	0.44547	0.5135
DLN_GDP_PO does not Granger Cause DLN_RD_PO		0.35154	0.5610

Figure 15 - Pairwise Granger Causality Tests for GDP and R&D (Portugal)

The outcome of the test is not enough to reject the null hypothesis that R&D growth does not Granger cause GDP growth and vice-versa. However, it should be mentioned that, despite this, the causal relationship is more likely to run from R&D to GDP than the other way round. Actually, the probability that GDP growth does not Granger cause R&D growth is higher than in the opposite case.

Other countries

As for the other countries being analysed, Granger causality could be proven for France, the Netherlands and Spain. As a matter of fact, the outcomes of the tests reveal a unidirectional causal link running from GDP to R&D investment for France and Spain, in terms of these variables growth. In addition, a unidirectional causal link running from R&D investment to GDP growth is found for the case of the Netherlands. For the rest of the EU countries analyzed, the probabilities are not low enough so that it is possible to reject the null hypothesis of no Granger causality with a robust confidence level. This means that for Belgium, Germany, Ireland and the United Kingdom there is no causal relationship between GDP growth and R&D growth that could be proven.

The results of the Granger Causality test performed on the first difference (logarithm) of the GDP and R&D spending time series for Belgium, France, Germany, Ireland, Netherlands, Spain and the United Kingdom are presented below (Table 1).

Table 1 - Pairwise Granger Causality Tests
Sample: 1987 2008. Obs: 20, Lags: 1

	Belgium	France	Germany	Ireland	Netherlands	Spain	UK
DLNRD does not Granger Cause DLNGDP							
F-Statistic	0.70014	1.33480	0.12436	0.22870	3.57768	0.06312	0.00186
Prob.	0.4143	0.2639	0.12436	0.6386	0.0757	0.8046	0.9661
DLNGDP does not Granger Cause DLNRD							
F-Statistic	0.00137	9.79243	1.12904	1.30825	2.28000	16.6038	0.99576
Prob.	0.9709	0.0061	0.3028	0.2686	0.1494	0.0008	0.3323

SUMMARY OF RESULTS AND DISCUSSION

This paper investigates the causal relationship linking R&D investment and economic growth in a sample of EU countries. We show that the causal link between R&D growth and GDP growth may exist, but it does not affect all countries in the same way. Despite the strong effort that Portugal did in order to comply with the EU2020 R&D target of 3%, the co-integration and Granger causality tests failed to prove that increased R&D investment engenders increased economic growth and/or vice-versa. However, for other countries such as France and Spain, a Granger causal relationship running from GDP growth to R&D growth could be proven. For the Netherlands, a unidirectional causal link running from R&D investment to GDP growth was found.

Table 2 summarizes our empirical findings.

Table 2 – Main empirical findings

Country	Co-integration test	Granger Causality Test	
		GDP to R&D	R&D to GDP
Portugal	X	X	X
Belgium	X	X	X
France	X	V	X
Germany	X	X	X
Ireland	X	X	X
Netherlands	X	X	V
Spain	X	V	X
United Kingdom	V	X	X

The fact that a co-integrating vector linking GDP and R&D could not be found for the majority of the countries analysed, questions the usually presumed existence of a long-run relationship between these variables. The results obtained do not indicate that expenditures in R&D are directly related with economic growth. Actually, the amount of money invested in R&D does not seem to be sufficient to stimulate economic growth. The way in which money is invested also accounts for the final outcome and might explain why some countries can reap the benefits of such investment better than others. This is especially valid for countries like Portugal, where R&D investment has increased at a fast pace but the economic returns were unseen. Possibly, only measures of actual innovation, fuelling total factor productivity, do bear a significant link with economic growth. Another important issue to address is the role of public versus private R&D investment. The data employed in this study does not separate the two. However, an interesting advance would be to analyse whether a long-run relationship and/or a causality relationship exist between economic growth and one of these variables. This is left for future work.

Taking our results into account, a conclusion that can be drawn is that substantial reforms should be undertaken in the countries where a causal relationship could not be verified, as is the case of Portugal. This comes in line with other papers such as Tavares (2004) and Teixeira (2007), which also concluded that Portuguese science and technology institutions need to be reformed in order to maximize the benefits of R&D investment. Given that different R&D policies may have considerably dissimilar impacts on each EU economy, EU states should focus more on the effectiveness of their R&D policies rather than on simply meeting the EU goals for R&D spending. The results obtained show that - for the selected countries - the implemented R&D policies at both the EU and national level are not effective enough to cause economic growth.

In addition, increased economic growth does not seem to necessarily mean increased R&D investment either. This may be good news for European countries which are currently experiencing very low (or even negative) GDP growth rates. According to our findings, the current economic crisis scenario, which affects some countries more than it affects others, will not necessarily contribute to deepen science and R&D asymmetries among them. A few years need to go by before we can verify it.

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A SWOT Analysis of the Contribution of Community Support Frameworks to Tourism: The Case of Syros Island

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ABSTRACT

Tourism is the main sector in Greece contributing the most to the economic and social growth. It accounts for more than 10% of the gross national product with significant for the economy and the society trends. Tourism has gained considerable comparative advantage as main international tourism destination place. The scope of this study is to examine the extent to which the implementation of the the Third Community Support Framework contributed to tourism development, focusing on the island of Syros (capital of the prefecture of Cyclades islands). The survey was based on structural questionnaire distributed to 200 recipients, out of which 100 questionnaires were mailed to investors and 100 to various entities, local banks and tourism offices. Research showed that it is difficult to make a positive or negative evaluation of the Community Support Frameworks. The majority of individuals and entities involved in research carried out stated that the projects funded were not adequate enough to increase the tourism development of Syros.

Keywords: **SWOT Analysis; Tourism Destination; Community Support Framework; Development Programs**

INTRODUCTION

Tourism is currently one of the most important sectors of the Greek economy contributing significantly to employment and investment. At the same time, the country has considerable comparative advantage as main tourism destination place [1]. Over the last decades, Greece has received large financial assistance from European Union (E.U.) Funds in the form of Community Support Frameworks (CSF). Greece spent the greater part of the E.U. financial aid from the first three Support Frameworks in the construction of tourism infrastructure sector. Nowadays, particular attention is being given to the country's competitiveness [2].

This paper attempts to explore the extent to which the 3rd Community Support Framework contributed to the implementation of tourism intervention actions, taking as example the island of Syros. Syros is the capital of the Prefecture of the Cyclades in the region of the South Aegean. In the past, the industrial era is the Neorion shipyard suffered tremendous depression with no prospects of comeback. Thus, the island was transformed from an industrial place to a tourism destination place. Today, people are directly or indirectly engaged in tourism, having comparatively better access to information about grants and programs compared to the other smaller islands of the Cyclades.

Despite the positive steps that have been taken in the island's tourism sector, the aim of this paper is to examine whether the 3rd CSF was fully exploited for both private and public sector. The choice of the 3rd CSF as a point of reference is not accidental if one takes into account the expertise in management gained after the realization of the two previous programs.

RESEARCH METHODOLOGY

The first reports on tourism policy appeared in the 70s. As mentioned by Hall [3], while the importance of tourism to the economy of each country dominates, there are rarely reports found referring to tourism policy. It is remarkable that even today, there is a lack in tourism policy research literature [4] compared to the huge one in other social sciences sectors. Therefore, it is not surprising the fact that recent or past literature research in evaluating E.U. Support Frameworks in Tourism in Greece is not found.

The main reasons for which research, regarding the political dimensions of tourism, has not received the proper attention in the literature [5] are:

- The reluctance of tourism policy operators to understand and accept the political nature of tourism.
- Lack of official interest in research in the tourism policy.
- Tourism was not acknowledged for many years as a serious research area.
- The problems existing in the methodology of policy studies and administration.

The aim of this research is to explore the profile of the investors and businessmen in Syros Island that exploited the 3rd Community Support Framework. At the same time, it aims to determine whether they believe that the implementation of the 3rd Framework helped the tourism development of Syros and to what extent. We considered as representative sample for evaluating the impact of the 3rd CSF investors on the island of Syros businessmen who either created new businesses or upgraded existing ones, as well as, entities (local authorities, banks, etc) that handled these programs.

Sample selection

The sample consists of investors and entities engaged in tourism activities in the entire island of Syros that participated in the 3rd CSF. It was also examined the Intermediate Body of the 3rd CSF and the Greek Development Company (EL.AN.ET.) located in Athens.

The survey was based on structural questionnaire distributed to 200 recipients. Specifically, 100 questionnaires were mailed to investors and 100 to various entities, such as consulting companies, the Chamber of Commerce of Cyclades, local banks' branches, the Region of the South Aegean, the Intermediate Managing Authority, the local office of the National Tourism Organization and the Municipalities.

The questionnaire for investors

The questionnaire was sent to investors by email, fax or post. Its structure of closed and open questions [6] was divided into two parts. The first part included questions concerning the respondents' profile (gender, age, type of business, operating time). The second part examined their views, regarding the degree of participation in the 3rd CSF, as well as, whether the 3rd CSF helped actually the tourism development of Syros.

The questionnaire for entities

This questionnaire was also structured using closed and open questions divided in two parts. The first part included questions related to age, sex, the respondents' working field and relationship with the CSF. The second part examined their views on the 3rd CSF and the degree to which this helped the tourism development of Syros. The postal, telephone and electronic contact methods [7] with respondents were successful, having no reply rejections.

SWOT ANALYSIS – DESCRIPTION OF OPERATIONAL PROGRAMS

The 3rd Community Support Framework [8] was divided into 24 Operational Programmes, 11 of which were national sectoral policies and 13 integrated regional development programs, one for each region of Greece. The selected priorities included sectors like Human Resources, Competitiveness, Country side and Fisheries Development, Information Society, Life Quality and Regional Development (CSF 2000-2006).

The SWOT analysis presents the overall tourism situation, recording its Strengths, Weaknesses, Opportunities and Threats [9].This paper describes the special features of Syros, namely the factors that affect both the internal environment and the external environment, like growth outlook, opportunities and risks (Table 1).

Table 1. SWOT Analysis

Strengths	Weaknesses
• Great historical, archaeological and cultural heritage • Long coastline with many beaches • Good climate • Environment protection • Easy access • Composite tourist product • Infrastructures • Young aged population • Decision-making center for tourism • Development of domestic tourism • Tourism offer • Alternative forms of tourism	• Low level of services offered • Inadequate maintenance of archaeological sites • Lack of coordinated exposure - advertising • Low - staffing and lack of skilled staff • Inadequate statistics records • Improper utilization of infrastructure • Short-term tourist season • Reduced demand from foreigners • Improper development of alternative forms of tourism • Lack of a single tourism operator • Traffic problems
Opportunities	**Threats**
• Increased demand for alternative forms of tourism • Utilization of location • Existence of an appropriate institutional framework for tourism development • Sea tourism development • Coastal links with large islands of Greece • Ability to make interventions in the organization of the Public Administration • Tourism demand increase from the foreigners • Promotion and protection of the cultural heritage and the archaeological sites • Application of new technologies • Improvements in tourist infrastructure through the 3rd CSF	• Tourism development of other islands • Lack of tourist packages • Environmental pressures from tourism development • Lack of cooperation between entities • Lack of financial resources

STRENGTHS

Great historical, archaeological and cultural heritage

The comparative advantage of Syros over the other Cyclades islands is its great historical, archaeological and cultural heritage features. Its heritage is part of the tourism product and local characteristics. The combination of its natural beauties, the numerous wonderful beaches, the magnificent neoclassical buildings, the long history, the cultural events, the hospitable inhabitants, the night life, the unique culture of the island may satisfy interests of different target groups.

Long coastline with many beaches

Syros has many kilometers coastline where tourists can discover many and different style beaches. Most of them hold "Blue Flag" and are well organized. At the same time, some of them, located on the north side of the island, are promoted as "pristine". Many of them can be approached only through sea roots.

Simultaneously, according to a research made on behalf of the Cyclades Chamber, remote beaches are the main reason of attractiveness for many tourists. Coastline places could be further developed through more intense utilization of all beaches or by providing more and better services without losing their family features and protecting environmental balance.

Good climate

The island's climate is ideal for vacation 12 months a year. The long periods of sunshine and the low rainfall periods allows to develop many forms of tourism besides the model “sun and sea”.

Environment protection

Syros has already received many distinctions for environmental protection, particularly for its recycling projects. Thus, apart from visitors’ positive feedback ratings, this advantage can be used by the local authorities in order to attract environment-related tourists.

Easy access

Syros is connected to Piraeus port by speedboat or by ferry. The time consumed is hardly 2.5 hours by speedboat or 4 hours by ferry. It has a tiny airport and link to the rest of the Cyclades and the Dodecanese. Due to the short distance, ticket prices are quite affordable. During winter, the connection to Piraeus is realized twice a day, while during summer the daily scheduled routes are increased to four.

Composite tourist product

The tourist product of Syros is complex and includes many sub-products and services. Among these, alternative forms of tourism (sea tourism, walking tourism, cultural tourism, etc.), cultural events and casino facilities have been developed. All the above enhance the prospects of attracting new visitors. Moreover, Syros is the only island in Greece where the neoclassic Ermoupolis city, capital of Syros Island, is combined harmoniously with the medieval Ano Syros city and the traditional island village style.

Infrastructures

The island has several infrastructures, which are being developed and well preserved the last years. Taking advantage of the fact that the island is the capital of the Prefecture of Cyclades, as well as, the registered seat of the region of South Aegean, the implemented projects are many and significant. It has all basic infrastructures needed for tourism development, which give the possibility for further development of alternative forms of tourism, other than those already developed.

Young aged population

The fact that the majority of the population age range between 25-55 years old gives advantage to the island for future development. This age dispersion allows young entrepreneurs to invest in the island setting up new businesses and to apply new technologies.

Decision-making center for tourism

The island offers a wide range of tourism stakeholders and decision-making entities for tourism. It is the registered seat of the Chamber of Cyclades and the Development Company of Cyclades, which are entities involved in tourism development as intermediaries in development programs. Furthermore, they organize youth conferences and other educational events for tourist operators and they intervene in Central Management making suggestions in vitally tourist problems.

Development of domestic tourism

The majority of tourist visitors to the island are Greek. This gives the island the advantage of repeat visits by tourists, as well as, the possibility of extending the tourist season over summer holidays, such as Easter and Christmas. At the same time, the short distance from Piraeus and the good ferry connection is rendering the island a nice choice for weekend escapes.

Tourism offer

The tourism offer of the island is intense. Most tourism businesses are family ones. It has infrastructures that can be used for further development of alternative forms of tourism, like sports tourism and covers most needs of tourists.

Alternative forms of tourism

As aforementioned, in Syros many special and alternative forms of tourism are developed, such as cultural, conference, sports and ecotourism. All these forms are offering a great rate on total tourism demand of Syros, with high expectations for further development.

WEAKNESSES

Low level of services offered

Most entrepreneurs have other main profession. This can be justified if one takes into account the fact that Syros at first developed its industry and afterwards its tourism sector. In practice, this means that the offered services are low as many small family businessmen are not educated in providing high level services.

Inadequate maintenance of archaeological sites

Until today no any significant progress is made in preserving archaeological sites. Infrastructure is still inadequate, since no substantial interventions have taken place apart from some road signs indicating the existence of archaeological sites.

Lack of coordinated exposure - advertising

Syros does not have coordinated and continuous advertising programs due to the large number of small entities operating on the island. Each one of them promotes individually Syros as tourists' destination. In quite unorganized way many businesses participates in exhibitions, often by using old flyers or by creating their own websites. This results to excessive expenditure for promotion and advertising of Syros with doubtable possibility of achieving positive results.

Low - staffing and lack of skilled staff

In tourism sector, many businesses use unqualified and/or low skilled personnel. On the one hand, entities dealing with tourism are covering managerial positions with people who lack the basic tourism education. A good example is the case of the Hellenic Tourist Organization (EOT) in Syros where the local understaffed office assumes to satisfy the needs of the entire Prefecture. Under these circumstances, any kind of state controls on tourism activities is rare. It is worth mentioning the fact that a simple case of processing for the renewal of a rooms license may take quite long. Additionally, most of these family businesses operate only during the summer months. Therefore, staff is consisted of either family members, who are helping the family business, or by staff without any specialization and tourism education.

Inadequate statistics records

According to aforementioned elements, such as the existence of many entities and the understaffing of local state offices services, the reliable recording of tourism statistics is prohibited. This results to unreliable conclusions.

Improper utilization of infrastructure

On the island, there are many infrastructures which are not advertised and promoted. For example, there is the swimming pool built to Olympic specifications but has not yet been used (organization of any sport events).

Short-term tourist season

The heavy tourism season is mainly the summer months. Little tourist traffic also appears during the festive season of Easter but it lasts for few days. The use of alternative forms of tourism could increase the duration of the tourism season and particularly the development of those forms that could take place other months besides summer, like conference tourism.

Reduced demand from foreigners

Greeks are the major part of tourists visiting Syros. Foreigners hold a small proportion but slowly tending to increase. This is due to the lack of integrated tourist packages for the island. A small number of the existing packages concerns specific hotels. Meanwhile, the unorganized tourism promotion in foreign markets, from which the island has share even to new markets, will result in the continuation of this phenomenon for the next years.

Improper development of alternative forms of tourism

Alternative forms of tourism are not developed correctly and functionally while all efforts made for their development were incomplete. The main reason is the lack of good collaboration between the entities of Syros. The effort made to approach the island cruise ships is a good example. Due to entities' bad collaboration, the Commercial Association of Syros was not informed and all local shops during the first visit of these tourists were all closed.

Lack of a single tourism operator

Most of the aforementioned problems derive from the lack of a single tourism operator. An entity responsible for the local tourism development and problems solving management should be established consisting of staff specialized in tourism sectors. This entity would make decisions on all local matters related to tourism and could function as a link between the many associations and the various small businesses that exist on the island.

Traffic problems

The intense urbanization of the center of the island, the lack of traffic lights and the lack of major arterial road are causing huge traffic problem, especially in the summer months. The matching of two vehicles per inhabitant, the existence of one main road leading to the city center and crossing the harbor (despite all unrealized decisions made to fix the problem) led the island to a traffic jungle.

OPPORTUNITIES

Increased demand for alternative forms of tourism

Syros should exploit the fact that more tourists seek alternative ways to spend their holidays. This trend is rising and is a great opportunity for the island to increase its tourist offers and overnight stays. In the island, many alternative forms of tourism can be developed due to its infrastructures that can foster growth.

Utilization of location

The geographical position of Syros in the center of Cyclades enhances the easy access from the port of Piraeus and Rafina, but also from the other islands. This position gives tourists the possibility of daily visits to other islands from Syros to Tinos, Mykonos, Paros and Naxos. This perspective should be used and promoted as an advantage for the island.

Existence of an appropriate institutional framework for tourism development

In 2009, the Special Framework for Tourism was approved including provisions protecting the environment of islands and creates the proper circumstances for the development of tourism. Moreover, in this Framework the island of Syros was mentioned as Sea Tourism Center.

Sea tourism development

The approval of the framework for tourism gives more incentives for the development of sea tourism on the island in an organized way without aggravating the environment, rural and urban.

Coastal link with large islands of Greece

The existence of coastal link with large islands, such as Rhodes and Chios, enables the growth of tourism demand from these islands. At the same time, a request should be made to the Ministry of Shipping and Aegean for connecting the island with Thessaloniki and Crete, link that existed before and now is ceased.

Ability to make interventions in the organization of the Public Administration

Syros is the registered seat of the region of South Aegean, the capital of the Prefecture of Cyclades and in parallel the registered seat of various entities, which can intervene in the organization of the Public Administration. This intervention would enable the proper and functional organization of the Public Administration, aiming at serving long-standing demands of tourism operators, as well as, those who wish to start up a business on the island.

Tourism demand increase from foreigner tourists

Syros is registered as a domestic tourism destination. The lack of integrated tourist packages, the non-rational presentation of the island in foreign tourist markets and the lack of other movements towards the increase of tourism demand from the foreigners place the visitation rates of foreign tourists very low. If all the aforementioned problems of the island were solved then tourism demand would be enhanced and the tourist season would be lengthened.

Promotion and protection of the cultural heritage and archaeological sites

The promotion and protection of cultural heritage and archaeological sites that exist in the island would offer a new comparative advantage over competing destinations in the Cyclades. At the same time, visitors most interested in history and culture would be increased.

Application of new technologies

Nowadays, the majority of reservations and tourism promotion is realized through electronic means. The modern tourist is informed and planning its vacation from their home computer. The lack of electronic presentation of many tourism businesses, as well as, the lack of an integrated electronic presentation of the island reduces the chances of increasing tourist demand.

Improvements in tourist infrastructures through the 3rd CSF

The application of the 3rd CSF provides the possibility to the island to improve its tourism infrastructures, both in private and in the public sector. Its full utilization is considered to be one-way choice, not only for new projects, but also for older that require rehabilitation and modernization.

THREATS

Tourism development of other islands

The other islands of the Cyclades have tourism development similar to Syros. The non-implementation of the Investment Law and the Integrated Rural Development Programmes deprive tourism development opportunities from Syros and may pave the way to other islands. As a result Syros must compete, not only the classic destinations of the Cyclades islands, but also with the new ones that grow rapidly offering similar tourist products like Syros.

Lack of tourist packages

As mentioned, the majority of foreign tourists visit destinations usually after purchasing tourist packages. Syros, due to the lack of cooperation among tour operators, cannot develop inbound tourism. Moreover, all efforts made to promote the island abroad, mainly through participation in tourism fairs, falls on deaf ears of officials.

Environmental pressures from tourism development

It is well known that tourist development can create major environmental pressures to destinations, especially if no provision is made for. The risk of creating environmental problems on the island, which will reduce tourist development in the future, is real. This threat should concern all those who are involved in the tourism development of the island.

Lack of cooperation between entities

The most important problem of Syros is the lack of cooperation between local businessmen. This is a real and ongoing problem. The image given to the visitor and to those involved in the tourist industry both in Greece and abroad is quite negative.

Lack of financial resources

The lack of financial resources, both at national and local level, makes any kind of planning for tourism development very hard to implement. Exploitation of the financial support provided through E.U. fund (like CSFs) is the only solution for developments in tourism sector.

Investors' profile

The majority of investors are men, mainly of secondary education who are active in accommodation or catering businesses. For the two-third of them, it was the first time that they participated in a E.U. program. The main reason was the modernization and renovation of their business. Furthermore, they faced difficulties in collecting the proper documents for the various phases of the program. As a matter of fact, the majority of investors state that current procedures present few improvements if compared with previous CSF's. Nevertheless, they feel generally satisfied with the cooperation they had with the Intermediary Management Authority, which was responsible for the program.

As regards the assessment of the impact of the program on their businesses, half of them state that nothing changed. For the rest of them, positive opinions are clearly more than the negative ones. In general, it appears that income and the number of staff was increased. However, despite all the above positive effects on businesses, views on whether the 3rd CSF contributed positively to the tourism development of Syros conflict, while the average responses give moderate evaluation.

S.W.O.T. ANALYSIS AFTER THE COMPLETION OF 3RD CSF

The S.W.O.T. analysis is based on the presentation of the situation, as it has been formed after the 3rd CSF application. This presentation aims at making known the information collected and record the possible contribution of the 3rd CSF to the Syros tourism sector. It may also assist in highlighting its strengths and improve its weaknesses of the island for further managerial use.

Table 2. SWOT Analysis

Strengths	Weaknesses
• Great historical, archaeological and cultural heritage • Long coastline with many beaches • Good climate • Environment protection • Easy access • Composite tourist product • Infrastructures • Young aged population • Decision-making center for tourism • Development of domestic tourism • Tourism offer • Existence of tourism infrastructures for the development of alternative forms of tourism	• Moderate level of services offered • Inadequate maintenance of archaeological sites • Lack of coordinated exposure - advertising • Low - staffing and lack of skilled staff • Inadequate statistics records • Improper utilization of infrastructure • Short-term tourist season • Reduced demand from foreigners • Improper development of alternative forms of tourism • Lack of cooperation and organization among entities • Traffic problems • "Marina Syros" project fails to integrate
Opportunities	**Threats**
• Increased demand for alternative forms of tourism • Utilization of location • Existence of an appropriate institutional framework for tourism development • Sea tourism development • Coastal links with large islands of Greece • Ability to make interventions in the organization of the Public Administration • Tourism demand increase from the foreigners • Promotion and protection of the cultural heritage and the archaeological sites • Application of new technologies • Improvements in tourist infrastructure through the NSRF	• Tourism development of other islands • Lack of tourist packages • Environmental pressures from tourism development • Lack of a single tourism operator • Lack of financial resources • Increased absorption of 3rd CSF funds from the other islands

One could easily observe that few differences exist between the two SWOT analyses tables (Table 2). Increase of entrepreneurship was added to the strengths of the island by creating new businesses, implemented via CSF facilities and by utilizing infrastructures for alternative forms of tourism, like the new berth for cruise ships. It gives Syros the great opportunity to own a cruise ship terminal.

Regarding the island's weaknesses, although the majority of businesses received funds from CSF, in order to renovate and modernize them. Nonetheless, this improvement was considered as moderate, especially in accommodation. Furthermore, another weak point is the port project abandonment (Marina Syros) which would give to the island a significant advantage, as well as, it would also create new jobs and boost income for many businessmen, either engaged in tourism or not. Given that CSF could be included in the National Strategic Reference Framework (NSRF) or even be financed from the Municipality of Syros own funds or the Region of South Aegean, it could also be referred in 'Opportunities'.

The main weak point is that the local businesses lack of central organization and planning in the tourism. Some of these entities are the region of Southern Aegean, the National Tourism Organization (Syros office), the Municipality of Syros - Ermoupolis, the Chamber of Cyclades, Cycladic Tourist Accommodation Federation, the Union of Tourist Accommodation of Syros and the Development Company of Cyclades. According to a report, this lack of understanding and strategic planning result to the existence of two different stands in Syros. Today, marina of Syros is not working due to various problems that have arisen and has turned into anchorage for fishing boats and yachts [10]. The pier created for the cruise ships has been occupied by a vessel that has been seized. In many cases, cruise ships are forced to disembark passengers with flanges, as are anchored off the coast of Syros, although they have scheduled to disembark at the port of Syros [11].

In SWOT analysis one opportunity is the existence of the National Strategic Reference Framework, which is one possible source of financing projects that were not included in the 3rd CSF, such as the modernization of museums and archaeological sites.

In the case of threats, big absorption capacity of the 3rd CSF from the other islands of the Cyclades has been added, which will increase their advantage towards Syros. One such project was the "Maintenance and enhancement of ancient aqueduct of Naxos and sacred water sources in Melanes" and many more, without taking into account the projects implemented in the Prefecture of Dodecanese, which belongs to the same region with the Cyclades.

CONCLUSIONS AND RECOMMENDATIONS

Nowadays, the contribution of tourism is both at national and local level. Most economic sectors are directly or indirectly affected by tourism development, while there are many other positive aspects of tourism, such as the retention of population in rural areas.

Greece is lagging behind in tourism policy making. The main reason is the way in which it is practiced. Decisions are made by the central government and their implementation is performed by local authorities. Guidelines for the formulation and application of a tourism policy were given with the implementation of E.U. funding. The same tactic applied on financial instruments, namely the CSF's, the rational application of which could increase the competitive advantage of Greece.

The three CSFs programs that have already been applied and another one which is currently under way have improved the overall country's condition at many levels. In Syros, investments made in infrastructure through the Community frameworks are numerous and have significantly improved not only the image of the island, but also the lives of its permanent residents.

It is difficult to make a positive or negative evaluation of the Community Support Frameworks. The majority of individuals and entities involved in the research carried out in this paper admitted that the projects funded were not adequate to increase tourism development of Syros. In parallel, the existence of immeasurable elements prevents the formation of a comprehensive view. For example, the increase of a hotel's occupancy after its modernization or even the turnover increase of a tourist office after installing a computer system or office's on-line exposure.

A safe conclusion that could be extracted from the present study is that a destination, in this case Syros, cannot rely solely on the contribution of the Community Support Frameworks for its tourism development. Moreover, activities planning are necessary to exist, as well as, targets to be shared by all involved entities. One necessary stipulation is that any destination must have the necessary resources which could lead to the achievement realization of its goals. For this reason, a long-term tourism policy-making plan with clear strategies and priorities is a prerequisite.

Finally, the following recommendations are made in order the island of Syros to apply a common tourism policy:

- Development of specialized education programs on alternative tourism.
- Utilization of abandoned homes, especially those considered architectural masterpieces.
- Creation of restaurants network serving local dishes and prepared made from local products, in order to facilitate the connection between primary and tertiary sector.
- Identity creation of the high-quality local products.
- Creation of incentives in order to attract private investors to construct tourist infrastructures.
- Neorion shipyard place exploitation by converting it into a manufacturing and repairing yacht business and in conjunction with the operation of the Marina of Syros.

These indicative proposals, if applied, could give a significant boost to the island's tourism development, impacting directly or indirectly the economic and social life of its inhabitants.

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Antecedents of Workplace Safety and Performance in Emergency Service Provider Company: An Empirical Investigation

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ABSTRACT

High Performance Work Practices (HPWP) is considered as best player to improve performance (financial and operational) and productivity. This notion is also proved by a meta-analysis conducted by Combs et al. (2006) by taking 92 studies accompanied by 19,319 organizations into considerations. However, the scant literature is available in Pakistani context especially in Emergency Service Provider Company. So, the current study explored the impact of ten HR practices (employee hiring, measurement, training, compensation, employee security, information sharing job quality, status distinction, decision making and transformational leadership) on workplace safety. Regression analyses was employed to test the study hypothesis and the results revealed that only three practices were found to be significant predictor of workplace safety and five dimensions for organizational performance. The implications and recommendations for future researchers were discussed hereunder.

Key Words: Workplace Safety, High Performance Work Practices, Emergency Service Provider Company, Pakistan

INTRODUCTION

High Performance Work Practices (HPWP) considered as a junction of different human resource policies that briefly referred as "a HRM approach that relies on human resource practices that help employees to identify with the firm's goals so that people's behavior is self-regulated to work hard to accomplish those goals, rather than being controlled by sanctions and pressures" Wood and Albanese (1995). Different researchers proved the credible relationship between different HR practices with organizational and extra-role performance (Ishaq et al., 2012; Huselid 1995). But the relationship between HR practices, performance in emergency service providing organization is almost zero. This scarcity endorsed the applicability of this research that aimed to create theortical framework of HR practices, performance and workplace safety.

In underdeveloped countries like Pakistan, it is assumed that organization sshould take necessary preventive measures to safeguard their employees from any sort of injuries at workplace. The official report of PEILER's survey of Labor Force Survey (2010-11) claimed that around 74% Pakistani workforce working in informal small and medium scale industries like metal, leather, pharmaceutical and textile factories who are operating in Pakistan without any legal and moral obligations of worker's occupational health and safety (OHS). In this scenario, organizations are already deteriorated the OHS measures and did not compensate any financial and medical treatment if any worker faced permanent injury or accidental death. During 2000-2008, Pakistan Labor and HR Statistics pointed that 419 industrial accidents were happened in this number increased to 101 in 2011 year only. These alarming conditions, establishment of an emergency service provider company hold significant importance. In this situation, a provincial assembly passed a legislation of the establishment of Emergency Service Provider Company that includes Disaster Emergency Response Teams, Fire Services, Rescue and Emergency Ambulance, whereas Fire services, Ambulance and Trained emergency paramedics are not available.

As very limited studies are available on HPWP in emergency providing companies, therefore we took the researches of other industries to take different dimensions of HPWP related with emergency providing companies. To evaluate the best HR practices for this study, several large-scale theoretical and empirical studies on higher performance work practices were considered publication in last decade (Pfeffer, 1998; Pfeffer et al., 1995; Morgan, 2001; Huselid, 1995; Hartog and Verburg,2004; Delery and Doty, 1996;Becker and Huselid, 1998; Guest et al., 2004). In these studies, the researchers took minimum seven and 24 maximum dimensions of HR work practices were highlighted. Wood and Albanese (1995) defined high performance work systems as "a HRM approach that relies on human resource practices that help employees to identify with the firm's goals so that people's behavior is self-regulated to work hard to accomplish those goals, rather than being controlled by sanctions and pressures". Many related terms have emerged to refer to this HRM approach, such as high commitment work system (HCWS) or high involvement work system (HIWS), which have been regarded as synonymous by most studies. Arthur (1994) claimed that traditional HRM systems were responsible for improve efficiency, specified rules and procedures, reduce direct labor costs and measuring rewards on some laid criteria whereas HPWS seeks to influence employee motivation, abilities, commitment, knowledge, skills, and opportunities (Batt 2002; Appelbaum 2000; MacDuffie 1995). The basic aim of this current research is to find out the relative importance of ten HR practices named employee security, training, information sharing, contingent compensation, team and decentralized decision-making, measurements, job quality, transformational leadership and selective hiring on workplace safety and organizational performance in Emergency Service Providing Company in Pakistan.

LITERATURE REVIEW

In last two decades, Warech and Tracey (2004) claimed that practitioners and scholars put substantial amount of efforts to investigate the linkage between HR practices and firms' performance. These studies are strongly created the linkage between performance, and HR practices and argued that these practices gives an imitable competitive advantage. Murphy and Olsen (2009) also contended that different HR practices cannot operate or implement single handed and hence these strategies considered as overall competitive strategy because of their interrelated aspects. Becker and Huselid (1998) argued that "the systems identified in these studies have become known as high performance work practices systems or high involvement work practices systems in the literature within the field of strategic human resource management. Firms able to implement such systems through complementary internal alignment have been shown to increase the intangible value of their human capital and create greater economic value for the business". Organizations implemented combination of HR practices successfully can compete more effectively that leads to greater organizational performance.

As stated by Pfeffer, (1999), Milgrom & Roberts (1995), MacDuffie (1995), Jackson & Schuler (1995), Ichniowski, et al. (1997), Huselid (1995) and Arthur (1994) claimed the overall importance of HR systems and suggested that "it is the systemic and interrelated influence of HRM policies and practices that provides their impossible to imitate, and there-fore provides a strategic growing force for the firm. Such internally consistent and externally aligned with the firm competitive strategies of work systems are generally thought to include rigorous recruitment and selection procedures, performance-contingent incentive compensation systems, management development and training activities linked to the needs of the organizations, and significant involvement of employees commitment". Barney (1991) argued that organization used human resource management systems for attain the competitive advantage. Numerous researchers (e.g., Collins and Smith, 2006; MacDuffie, 1995; Ichniowski, Shaw and Prennushi, 1997; Batt, 1999, 2002; Huselid, 1995; Delery and Doty, 1996) found the strong positive relationship between high-commitment, involvement, firm performance and higher performance work systems / human resource management systems. Recently, the studies of Sun, Aryee and Law (2007), Zheng, Morrison and O'Neill (2006) and Zhang and Li (2009) in Asian countries (China) demonstrated the positive association of HRM system (high performance HR practices) with the firm performance.

Gallie et al. (2001) pretended about HRM systems as "a high-commitment strategy has been one of the most accepted and coherent human resource systems. In this sense, the empirical evidence shows a tendency for many of the presumed commitment practices to be found together". Various attributes of the human resource management system and the consequences thereof are assumed to underlie the employee antecedents that affect customer metrics. Kirkman, Rosen, Tesluk and Gibson (2004) explained empowerment as potential but valuable aim of an organization. The results of Batt (2002) study showed that "involvement significantly predicted quit rates and sales growth in residential and small business sectors but not in large business sectors". Kirkman, Rosen, Tesluk and Gibson (2004) conducted a research in virtual team contexts and found that team empowerment is positively associated with process improvement and customer satisfaction. Service recovery performance also affected by empowerment via commitment and satisfaction (Yavas, Karatepe and Avci, 2003).

It has been hypothesized that training may lead to customer outcomes such as satisfaction (Eaglen et al., 2000). Evidence for this is mixed, however with some positive findings (e.g. Babakus, et al., 2003) and others finding no relationship (Batt, 2002; Liao & Chuang, 2004). However a full framework considering the mediating impact of employee competence and positive affect stemming from training may aid understanding. Compensation elements may affect the customer outcomes as per the existing literature. Batt (2002) found that incentive schemes exert strong positive impact on sales growth. It also leads to service recovery performance (Babakus, Yavas, Karatepe and Avci, 2003). However, Liao and Chuang (2004) did not found any significant impact of incentive schemes on service performance.

Employment security was found to be one of the important factors differentiating high accident rate companies from low accident rate companies in the both Smith Cohen, Cleveland (1978) and Zohar (1980a) studies, reported that turnover was greater and workgroup stability was lower in plants with higher work injury rates. Similarly, Zohar's (1980a) review of the literature revealed that a more stable workforce with a greater number of older employees is characteristic of low accident rate companies. Employment security should result in fewer occupational injuries in that it encourages a long-term perspective. It is in their best interest to protect their safety. What typically seems to happen when management is not committed for the long-term is that employees are seen as dispensable and short-term profits override any concern with safety (Jackall, 1988). Similarly, Sells (1994), in his discussion of the asbestos industry claims that much of the threat to worker safety inherent to the asbestos industry was due to the short-term perspective that plagued management.

How responsible individuals feel for accidents they have previously been involved in. The use of this employee screening device in a milk processing and delivery company over the course of four years resulted in a significant reduction in the accident rate and decreased expenditures on worker compensation claims (Jones & Weubker, 1988). Similar results were respond in a trucking finnwhich had also implemented the screening inventory (Jones, 1991), suggesting that using such a device in the hiring process may effectively help reduce accidents at work. According to Pfeffer (1998a), training is one of the most important distinguishing attributes of a high performance work system. The reason being that the foundation of the commitment-oriented organization is the workforce, and training directly benefits employees and organizations. By extension, improving an organization's safety performance, like improving economic performance, should also be achieved by way of increased training. A study by Tannenbaum, Mathieu, Salas, Cannon-Bowers (1991) provides some insight into the broad effects of training on performance, and has several implications for safety training. Furthermore, training alone is not sufficient to achieve optimal performance. Rather, employers must also ensure that employees are empowered to use the knowledge they obtain (Parker, Wall &Jackson, 1997). Organizations need to provide opportunities for employees to use new skills following training (Parker et al., 1997), while also not punishing employees for doing so (Hamper, 1991).

There are a number of benefits that can be derived from organizing employees into teams. First, an employee's peers tend to be more effective at controlling his or her behavior than is someone else from higher up in the organization. Second, teams have the added benefit of making all employees feel more responsible for the success of the organization. Third teams remove layers of the hierarchy which, in effectives more control to those individuals who are closest to and best understand the situation. Fourth, teams allow employees to pool ideas resulting in more creative solutions (Pfeffer, 1998a). Each of these benefits and their role in promoting workplace safety will be discussed in turn.

Status distinctions in organizations remain the norm, and create unwanted barriers between people that harm motivation (Pfeffer, l998a; see also, Hamper, 1991). In a high-performance work system, each employee from the shop floor to top management should feel that they can contribute to diverse aspects of the organization. However, when select employees have special privileges such as the use of executive dining rooms, reserved parking or greater access to information, the message being conveyed is that these organizational members are more important than members not given the same advantages. One way of achieving a reduction in status distinctions is through management- by-walking-around (MBWA). MBWA encourages management to be less office-bound, and spend at least a part of each day walking around and talking with the people whom they supervise (Peters &Waterman, 1982). Ln the safety context, not only would management be able to better see some of the hazards experienced by their subordinates, but as they learn more about the daily safety problems encountered, they will be in a better position to engage in preventive efforts. In addition, employees who interact with their managers more frequently may be more prepared to trust their managers and may be more able to see that management does in fact hold occupational safety as a priority. The problems of mutual distrust identified by Clarke (1999) might be reduced.

Fitz-Enz (1997) suggests that information is one of the organization's most valuable resources. By providing employees with information, the organization enables them to have a better understanding of the operation and its goals which in effect should increase overall organizational functioning (Pfeffer. l998). Similarly, it would not be possible to work safely without full information about all aspects of one's job in panicle as well as the organization more generally. In fact Ontario's occupational health and safety legislation is based on this very assumption given that a worker cannot exercise his or her right to refuse unsafe work without full information about the safety of that work.

The contingent nature of compensation is even more important for organizations (Pfeffer, 1998a. 1998c). By explicitly choosing which behaviors are to be rewarded, the organization signals unambiguously the behaviors it values. Furthermore, employees are motivated to contribute more to the organization when their own interests are in line with those of the organization. The level of importance management places on occupational safety directly affects how motivated employees are to perform their job safely (Hofinann et al., 1995). For instance, in reviewing the literature, Cohen (1977) found strong management commitment to safety is a defining characteristic of successful occupational safety programs. Similarly, in a study comparing high and low accident rate companies, the management of low accident rate companies was more strongly committed and more actively involved with work-related safety than was the case for those companies with higher accident rates (Smith et al., 1978). Griffiths (1985) attributes the exceptional safety record of his company almost entirely too strong management commitment to occupational safety.

Despite job quality not being included as a component in any of the major conceptualizations of a high performance work system (e.g., Fitz-Enz, 1997; Pfeffer, 1998a), high quality work should be a critical component of a high performance system for two major reasons. In the front instance, a high quality job, one that is more fulfilling and effective" (Parker &Wall, 1998, p.ix), will ensure that employees maintain their focus and attention. Second, and again referring to Wheatley's (1997) comment that , you can't direct people into perfection; you can only engage them enough so that they want to do perfect work"(p. 25), a high quality job will engage people emotionally. Overall, a well-designed job will ensure that employees are engaged mentally, intellectually and emotionally, and optimally equipped to work safely.

High performance work systems are described by empowerment, incentives on work, development of staff and skill development (Batt, 2002). Batt (2002) investigated that "… links within service contexts … HPWS were generally linked to higher sales growth, an effect which was partially mediated by lower employee turnover. In addition, Batt's research confirmed her theory that the above effect was stronger for smaller, lower-value-added market segments, whereas for highvalue- added, bigger customer segments the HPWS seemed the price of market entry". In another study, Batt and Moynihan (2006) obtained a mediation model where discretion, employee training and rewards associated with higher service quality, which further exert significant impact on higher revenue.

From the literature, following two hypotheses are derived:

- Hypothesis 1: High performance work systems put positive impact on workplace safety.
- Hypothesis 2: High performance work systems positively influenced the organizational performance.

RESEARCH DESIGN

This study is cross-sectional in nature. Structured survey questionnaire to 150 employees working in emergency service providing company. After multiple responses, 112 complete questionnaire were returned with 84% response rate. Before collecting the data from respondents, researchers took written permission from the HR manager to conduct the study within the organization. A cover letter accompanied the research questionnaires explaining the purpose and nature of the research and elucidating that participation was voluntary, anonymous. The instrument was use for this study is valid and reliable, all the variable use in this study has evaluate via different items or question related to that variable, question related to employee security based on Kuhnert & Vance, 1992, Selective Hiring, Training, Contingent Compensation, Job Quality, Measurement, Information Sharing, Reduced Status Distinctions, Teams and Decentralized Decision-making from Barroll (1999) and Transformational Leadership from Bass and Avolio (1995). All responses were on a 5-point Likert-type scale ranging from strongly disagree' (1) to 'strongly agree' (5). A higher score reflected the perception that the organization had more extensively adopted the ten human resource practices. Stepwise regression analyses were conducted by using SPSS 20.

ANALYSIS AND INTERPRETATIONS

Table # 1 indicated the demographic profile of the study participants.

Table # 01: Demographic Profile

Demographic Variable		Frequency	Percentage
Designation	Lead Fire Rescuer	12	12.0
	Emergency Medical Technician	23	23.0
	DERT Rescuer	13	13.0
	Fire Rescuer	20	20.0
	Rescuer Driver	13	13.0
	Others	19	19.0
Age	21 - 25	28	28.0
	26 - 30	55	55.0
	Above 30	17	17.0
Job Nature	Permanent	84	84.0
	Contract	16	16.0
Job Timings	Morning Shift	51	51.0
	Evening Shift	33	33.0
	Night Shift	16	16.0

Descriptive statistics including mean, standard deviation, reliability coefficient, factor loading, and multicollineraity statistics are shown in table # 02. Results indicated that factor loading range against each variable and results suggested that there is issue regarding the factor loading. The study variables have a maximum variance-inflation factor less than 2; hence, multicollinearity was not a severe problem that would preclude interpretation of the regression analyses (Neter and other 1983). Tolerance and variance inflation factors (VIF) further conducted to analyze multicollineraity. Table # 2 reported no collinearity exists among the study variables because tolerance value is less than 0.1 and VIF value is far below than 10 (Gliem, 2005).

Table # 02: Descriptive Statistics

Variable	Mean	Std. Dev.	Reliability	FL	Tolerance	VIF
WPS	3.90	.57	.89	0.65 – 0.77	0.34	2.74
ES	3.44	.58	.66	0.42 – 0.72	0.64	2.43
SH	3.60	.68	.62	0.59 – 0.80	0.25	3.66
TR	3.29	.74	.61	0.61 – 0.68	0.39	2.54
TDDM	3.27	.61	.64	0.73 – 0.86	0.40	2.22
RSD	3.34	.54	.68	0.54 – 0.70	0.31	3.44
IS	3.34	.51	.71	0.68 – 0.74	0.38	2.51
CC	3.13	.64	.79	0.63 – 0.69	0.26	2.48
TL	3.45	.79	.64	0.76 – 0.85	0.28	3.81
JQ	3.18	.63	.73	0.53 – 0.69	0.33	2.39
MR	3.20	.88	.74	0.66 – 0.84	0.41	2.61
PER	3.89	.82	.79	0.68 – 0.80	0.28	3.38

WPS = Work place safety, ES = Employment Security, SH = Selective Hiring, Tr = Training, TDDM = Team & Decentralized Decision-Making, IS=Information Sharing RSD = Reduced Status Distinctions, CC = Contingent Compensation, TL = Transformational Leadership, JQ = Job Quality and Mr = Measurements, PER – Performance, FL, Factor loading, VIF = Variance Inflation Factor

Table # 03 indicated the correlation statistics among study variables. The relationship of all constructs are significantly and positive with each other except the relationship of RSD and ES, CC and SH, CC and TR. Since the relationship values among the variables is no more than 0.60 so there is no problem of multi-collienarity.

Table # 03: Correlation Statistics

	WPS	ES	SH	TR	TDDM	RSD	IS	CC	TL	JQ	MR	PER
WPS	1.0											
ES	.50*											
SH	.37*	.46*										
Tr	.35*	.41*	.67*									
TDDM	.40*	.51*	.54*	.61*								
RSD	.39*	.05	.38*	.22**	.38*							
IS	.50*	.37*	.35*	.41*	.54*	.29*						
CC	.36*	.47*	.14	.09	.29*	.26**	.40*					
TL	.48*	.31*	.35*	.43*	.58*	.40*	.57*	.31*				
JQ	.49*	.56*	.27**	.25**	.51*	.28**	.51*	.49*	.46*			
Mr	.48*	.56*	.25**	.27**	.52*	.35*	.43*	.52*	.54*	.60*		
PER	37*	.35*	.50*	.58*	.38*	54*	40*	.36*	.41*	.43*	.51*	1.00

** Significant at 0.001 Level*
*** Significant at 0.01 Level*

Table # 04 showed that all independent variables (ES, SH, TR, TDDM, RSD, IS, CC, TL, JQ, MR) were regressed on workplace safety. Only three variables named (IS, ES and RSD) are entered in the model. The overall variance explained by three independent variables is 43%. The results also reveals that IS explained 26% variance in the dependent variable whereas ES accounted for 12% and RSD explain 8% variance in the model. The results also displayed that IS, ES and RSD put positive and significant impact on workplace safety. ES put relatively stronger impact on the dependent variable (b=0.38, p = 0.001, t = 4.73) followed by IS (b=0.32, p = 0.001, t = 3.28) and RSD (b=0.30, p = 0.001, t = 3.67) whereas other practices of HPWP are not statistically significant. So, the study hypothesis is partially supported.

Table # 04: Regression Analysis for Workplace Safety

	Dependent Variable: Workplace Safety			
	R Square	F-Value	B	t-value
Information Sharing	.25	33.856	.279	3.280
Employment Security	.37	28.887	.386	4.731
Reduced Status Distinctions	.45	26.236	.291	3.673

Table # 05 showed that all independent variables (ES, SH, TR, TDDM, RSD, IS, CC, TL, JQ, MR) were regressed on organizational performance. Only five variables named (TL, JQ, Training, TDDM and IS) were entered in the model. The results reveals that transformational leadership explained 39% variance, job quality 38%, training 25%, team and decentralized decision making 21% and information sharing explained 20% variance respectively. The results also revealed that transformational leadership explained relatively stronger impact on organizational performance (b=0.48, p = 0.001, t = 9.74) followed by job quality (b=0.46, p = 0.001, t = 9.23), training (b=0.41, p = 0.001, t = 6.49), team and decentralized decision making (b=0.36, p = 0.001, t = 5.28) and information sharing (b=0.29, p = 0.001, t = 5.53).

Table # 05: Regression Analysis for Organizational Performance

	Dependent Variable: Organizational Performance			
	R Square	**F-Value**	**B**	**t-value**
Transformational Leadership	0.39	84.68*	0.48*	9.74
Job Quality	0.38	96.27*	0.46*	9.23
Training	0.25	34.22*	0.41*	6.49
Team & Decentralized Decision Making	0.21	41.82*	0.36*	5.28
Information sharing	0.20	39.21*	0.29*	5.53

DISCUSSION AND CONCLUSION

Regarding the results of this study that embraces this thesis asa number of significant contributions to the current literature. They extend our understanding of high performance work systems and their relationship with workplace safety. It also contributes to our understanding of the factors that may or may not affect the relationship between high performance work systems and workplace safety. This study advance to our understanding of the importance of the practices of human resource management related to the high performance work system and workplace safety.

The high performance work system described in this thesis, through comprising the use of selective hiring and transformational leadership, the provision of quality work, employment security and training, reduced status distinctions, self-managed teams, information sharing, contingent compensation and measurement of variables critical for success. This supports earlier findings that high performance work practices impact varied aspects of organizational performance. It also extends our understanding of how best to manage for workplace safety. While the results of this study do not allow us to make causal inferences, there does appear to a strong relationship between high commitment of management practices and occupational safety at the organizational level. The current study results also further our understanding of the role of safety climate in such a system. It is well established in the literature that safety climate is related to outcomes such as safety knowledge, safety motivation, safety compliance and safety initiative as well as actual injury rates (Barling, Loughlin et al., 2001; Hofmann & Stetzer, 1996; Neal et al., 2000; Zohar, 2000). What is less well understood are the organizational factors that create positive perceptions of safety climate? This study provides strong evidence that high performance work systems are related to perceptions of positive safety climate. Again, given the cross-sectional nature of the data, it is not possible to conclude that high commitment work practices positively impact safety climate, however, this preliminary research furnishes us with some insight into this relationship and provides a starting point for future research in this area These studies also contribute to our understanding of the manner in which the high performance work practices considered are interrelated It was found that the ten human resource practices were reflective of a single underlying construe namely, the high performance work system.

High commitment management practices have been the focus of increasing attention ever since Walton's seminal 1985 article describing the benefits to an organization of the commitment versus control-oriented approach to managing human resources. In his article, Walton argued that the employees would respond best to being treated as an invaluable organizational resource. Since then, a number of others have expounded on this idea, most distinctly Jeffrey Pfeffer (see, for instance, Pfeffer 1997, 1998a, 1998d). Pfeffer's work makes the distinct contribution of providing readers with a set of practices for managing the workforce which he argues increase worker trust in management and commitment to the organization and that encourage people to take control over their work smarter and more responsibly. The outcome of such a high performance work system, he claims, is improved employee performance and organizational profitability-what Pfeffer calls,achieving profits through people" (Pfeffer, 1998a, p. 121).

Many researchers have tested the proposition that commitment-oriented or high performance work system practices are associated with greater firm performance and profitability (see, for instance. Arthur, 1992, 1994; Hoque, 1999; Huselid, 1995; MacDuffie, 1995, Ichniowski et al. 1997), and support has been found for this non-traditional model for managing human resources. To date, however, the studies being reported have focused on employee-related performance measures including sales per employee, employee flexibility and turnover which are argued to be precursors of organizational performance and profitability more generally. This thesis makes a significant contribution to the literature by focusing instead on another critical individual and organizational outcome-worker safety. Cohen (1977) and his colleagues (see, as well, Smith et al. 1978) provided preliminary evidence that workers managed under a commitment-oriented approach would work more safely than those managed under a control-oriented system. They found that information sharing, training, employment security, selective hiring and a strong commitment on the part of management to safety issues were the hallmarks of low accident-rate plants. Cohen and his colleagues were remarkably ahead of their time for what they described was basically a high performance work system in which worker safety was the performance outcome.

Future research should look to overcome some of the limitations inherent to the current work. Now that evidence exists for a relationship between high performance work practices and workplace safety, as well as the roles of trust in management and safety climate, it is necessary to conduct longitudinal research that will provide us with insight into the causal relationships. Furthermore, future studies should refrain from depending solely on self-report measures of the variables of interest. As well, further refinements to the measures of high performance work practices employed in the current studies are desirable. Also of interest, would be a further examination of other variables that may play a pan in workplace safety, both positive and negative. A replication of the current work in which control-oriented practices were also measured would allow us to make a direct comparison between the commitment-oriented and control-oriented practices and their impact on workplace safety. As well, future research should re-examine the role of organizational commitment in mediating the relationship between high performance work practices and workplace safety. While affective commitment was not found to mediate the relationship between high performance work systems and workplace safety in the current study, it was found to mediate the relationship between some high performance work practices and performance outcomes in other studies (Parker et al, 2001, Gardner et al., 2000). Given these mixed findings, it is not wise at this stage to eliminate it as a possible mediating mechanism and future research should focus on resolving the role of this variable. The roles of job satisfaction and perceptions of organizational justice are further constructs that may be examined as mediators in the high performance work system-performance link.

To the realm of safety management, this study provides much needed confirmation of the paramount role organizational rather than individual factors play in worker safety and this remains the most substantial contribution of this work. The findings from this thesis suggest we need to take a much broader look at how we are currently managing occupational safety if we have any intention of ensuring workers have the basic right to return home safely to their families at the end of the workday.

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Performance Measurement of Small and Medium Enterprises (SMEs) in Pakistan

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ABSTRACT

This paper examines the performance of small and medium enterprises in Pakistan through primary data collection from 199 business concerns. The study shows that most of the people maintain record of their revenues to measure performance of their organizations. There are many approaches used for performance evaluation but in Pakistan these approaches are not very much popular for performance measurement. Paper analysis those approaches more commonly used in Pakistan for measuring performance for small businesses.

Keywords: Performance evaluation, small and medium business, SMEs, Pakistan.

INTRODUCTION

Companies of all sizes need to implement a streamlined accounting system in order to accurately record and report business transactions, keep track of invoices and reduce problems with tax authorities and the International Reporting Standards (IRS). Accounting procedures are typically coordinated by a CPA or financial manager who is responsible for recording all incoming and outgoing transactions, maintaining consistent records and creating financial statements at the end of each financial period.

Performance management is the processes where by an organization's programs, investments and acquisitions reached to the desired results by using some parameters which are established by the organization By using following approaches small organizations can evaluate/measure their performance.

1: Goal Approach

Goal approach measures the degree to which an organization accomplishes its goals. This approach focuses on vision, mission, aims and objectives which an organization set before it.

2: System Approach
Under this approach, an organization's performance is measured by appraising its capability to attain resources or input.

3: Balance Scorecard Approach
In this approach, an organization can evaluate its performance on the grounds of four aspects in which financial measures, internal process, quality and learning are incorporated.

4: Hybrid Approach
Hybrid approach is an approach in which a business organization's performance can be evaluated by using both either financial measures like net profit, earning per share and non-financial measures like employee turnover, customer satisfaction.

5: comparative Analysis Approach
In this approach organization compare its performance with another organization which is quite similar to it. It is just like the benchmarking.

6: Ineffectiveness Approach
Organization performance can be evaluated by focusing on those key factors which decelerate or preclude the growth of the organization.

7: Stakeholder Approach
This approach measures the extent of an organization's ability to meet the needs and expectations of its stakeholders.

Objectives of Study

The basic and the primary objective behind measures are to improve performance. For timely corrective actions, effective and efficient performance measurement is vital.

Following are the key objectives for measuring small organization performance**.**

- To evaluate, how much efficiently organization is performing.
- To ensure the managers that their subordinates are performing their jobs accurately and doing the right things.
- To budget: budgets are the basic tools for performance improvement.
- To motivate: Considerable goals are given to employees to be achieved and then focus on employee's work and philosophy by using performance measurement tools and at the end rewarded employees by periodic accomplishments.
- To celebrate: It is needed for the organization to celebrate their employee's accomplishments and give them a sense of individual and collective relevance.
- To ensure the stakeholders that organization is performing well, doing good job and in safe hands.
- To learn grounds behind good or bad performance.

Significance of Study

Performance Evaluation is the most important part of performance management. It focuses on performance improvement. Success f an organization is impossible without knowing about; what to improve? Where to allocate or re-allocate resources? How to compete others? Whether organization is improving or declining? Whether or which policies, procedures, or employees are producing desired results that are cost effective and efficient?

In this research, main focus is on small businesses of Lahore, because for developing countries like Pakistan, small businesses act as pillar of economy.

LITERATURE REVIEWS

A number of studies have been conducted on the issues regarding the performance measurement of the small business organizations'. Some of these are quoted here. Garengo et al (2005) stated that Performance Measurement System plays a vital role in managerial development of small organizations But Short Term Strategic Panning & Lack of Financial and Human Resources are two main barriers due to which organizations don't follow this system. Kaplan, Norton (1992) explained that generally trend is to use Balance Scorecard Approach for performance measurement of small organizations. Approach focuses on integration of four aspects which are: financial measures, internal process, learning and customers. Henri (2004) was of the view that organization's performance can be measured by using different approaches which include: Goal approach, Time frame approach, Ineffectiveness approach, System approach & Balance Scorecard Approach. Etzioni (1960) acknowledged that Performance of any organization can be evaluated by focusing on its ability to accomplish its goals i.e. by using Goal Approach.

Yucthman, Seashore (1967) provided details about System Approach which measures the performance on the basis that how much access organization has to its inputs or resources? Daft (1995) pointed that performance can be measured by evaluating the capability of an organization to meet its stake holder's needs & demands i.e. through Stakeholder Approach. Quinn, Rohrbaugh (1981) stated that Competing Value Approach is based on developing four other models which include: rational goal, open system, internal process & human relations. This approach expands the series of other approaches.

Pfeffer, Salancik (1978) explained that among Goal approach, System Approach, Balance Scorecard Approach, Ineffectiveness approach; Goal Approach is considered as the best approach for performance measurement due to its straightforwardness. Neely et al (1999) were of the view that Balance Scorecard Approach evaluates the performance of an organization by balancing financial & non-financial measures. It helps in looking & moving towards progress. Mochal (2003) pointed out that Matrices can be used as a basis for performance measurement. An effective Benchmarking program is to be implemented which makes organization successful in marketplace. Program requires blend of predefined matrices which results in well-defined processes.

Henezel (2002) explained that to measure performance, organizations establish some standards. Then, they gauge & evaluate their strategies, values, practices & performance against Benchmark (high performance organization anywhere in the world.) Antony, Bhattacharyya (2010) provided that organization's performance & excellence can be measured by proposing a conceptual framework which contains variables. Excellence is redefined as the ability of one performance variable to influence the other performance variable in an organization. Staw , Epstein (2000) gave the idea that small organizations can evaluate their performance by using conventional accounting measures of profit. For example Return on Assets which is obtained as the annual profit or net income divided by the average assets over the year.

Van Dyck et al (2005) stated that Return on Assets can evaluate operational efficiency as well as overall performance of small organizations by reflecting long term financial strength. But it is not always an optimal measure. Huselid (1995) suggested that profit is associated with performance but compute output of employees to evaluate organization's performance. Productivity/output is obtained as the revenue divided by total number of employees. Salamon, Robinson (2008) stated that to determine the performance of organization, sales or sometimes variants of sales can be utilized e.g. sales relative to target. In this approach, sales performance of each site is to be calculated to arrive at overall performance of organization. Sales performance of a site will be better if employees of site felt responsibility and accountability.

Gong et al (2009) were of the view that performance can be evaluated by using related measures of sales e.g. total sales growth. Studies show that many HR systems can enhance the performance including Career Planning, Extensive Training, Competitive Pay, and Participation in Decision Making & Performance Appraisal. Delaney, Huselid (1996) pointed out that to evaluate performance, utilize measures which combine benefits of subjective measures with merits of objective measures. For example series of subjective questions may be asked from contestants to acquire objective measures.

Ostraff (1992) explained that measures specific to particular industries can evaluate the performance. For example, to measure performance of a school, five realms were established: student contentment, student performance, teacher's turnover, academic achievement & managerial performance. Taticchi, Balachandran (2008) stated that now a day, organizations give much attention to measure their performance by utilizing Performance Measurement & Management (PMM) Systems but they felt difficulty in implementing these systems. To overcome difficulty, organizations should use framework which integrates five systems: a cost system, planning system, a benchmarking system, a performance system, a capability evaluation system.

McAdam et al (2008) were of the view to develop a theoretical model for performance evaluation and benchmarking. There is a need to develop new approaches to evaluate the performance due to environmental instability, rapid changes in technology & market. Lockamy (1998) provided that Performance measurement system is very much essential for organizational actions, firm's strategies & performance. Long term objectives are important for effective performance of organization & to gain competitive edge in specific markets or market segments. Gomes et al (2004) suggested that both financial and non-financial measures can evaluate the performance but study shows that non-financial measures are more important & useful for performance measurement of small organizations.

Behn (2003) stated that basic purpose of performance evaluation is to improve performance but measures that are not directly linked with improving performance (like measures that are aimed at better communication with employees to build trust) are measures are meant to achieve that ultimate purpose of performance evaluation.

Kravchuk, Schack (1996) explained that performance is measured for evaluating how well organization is performing? For this purpose management need to know what were strategies, mission, vision set by the organization before it at time of establishment.

Research Design

This study was conducted on the SMEs located in Lahore, Pakistan. The data was collected through a structured questionnaire and was analysed using SPSS.

Data Analysis

The information collected from the respondents is presented here in the form of tables and graphs.

Table 1: Maintaining Record of Revenues

Particular	Frequency	(%age)
Yes	161	80.9%
No	38	19.1%
	199	100%

Table 1 shows that 81% of the SMEs maintain the record of their revenue whereas the remaining 19% of the SMEs don't maintain record of their revenue. It may be concluded that SMEs in Pakistan maintain the record of their revenues

Figure 1: Maintaining Record of Revenues

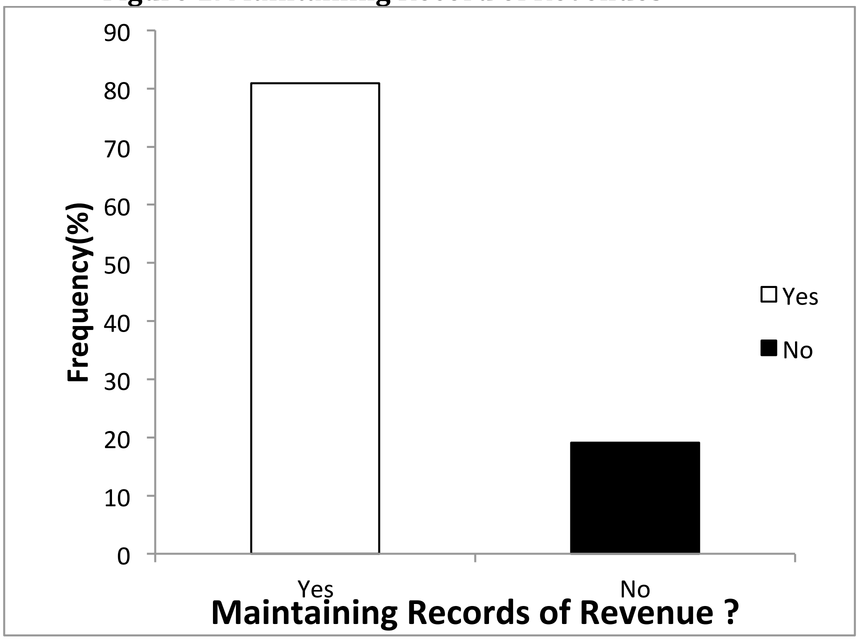

Table 2: Calculating profit on regular basis

Particular	Frequency	(%age)
Yes	87	43.7
No	112	56.3
Total	199	100

Table 2 shows that almost 44% SMEs calculate their profit on regular basis whereas the remaining 56% SMEs did not maintain there profit on regular bas is. It may be concluded that more than 50% SMEs did not maintains their profit on regular basis.

Figure 2: Calculating profit on regular basis

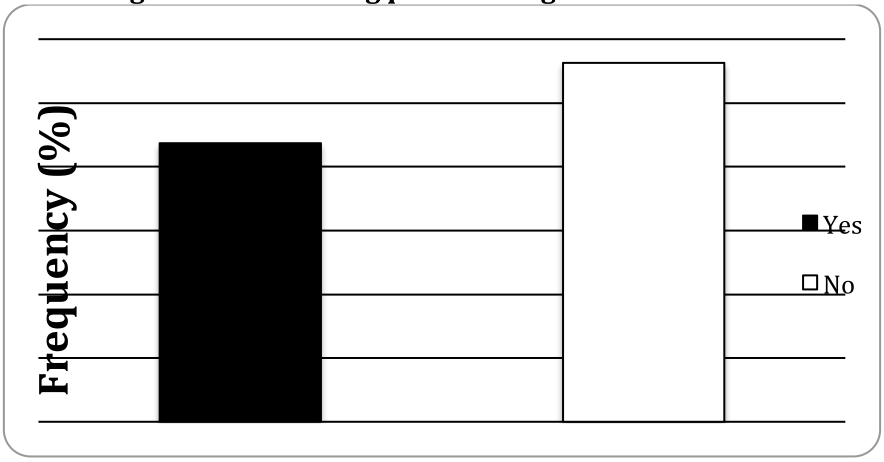

Table 3: Calculating Profit on Regular Basis

Performance Evaluation Measure		
Particular	**Frequency**	**(%age)**
Sales Revenue	50	25.1
Profitability	66	33.2
Number of customers	45	22.6
Market Share	38	19.1
	199	100

Table 3 shows that 25% of SMEs through sales revenue was their performance evaluation measure. 33% SMEs were of the view that profitability was their performance evaluation measure. 23% SMEs said that Number of Customers was their performance evaluation measure and almost 19% SMEs said that Market Share was their performance evaluation measure. Results showed that profitability was the most popular measure of performance evaluation among others.

Table 4: Performance Evaluation Measure in Relation to Competitors

Particular	Frequency	(%age)
Sales Revenue	58	29.1%
Profitability	45	22.6%
No of Customers	69	34.7%
Market Share	27	13.6%
	199	**100%**

Table 4 shows that 29% SMEs were of the view that sales revenue was their performance evaluation measure when they compared their performance with their competitors. 22% SMEs said that they used profitability for performance comparison with competitors. 35% SMEs supported number of customers as criteria for comparison & 14% SMEs used market share. No one supported Marketing Techniques for this purpose. Results showed that most of the people used profitability for performance comparison with competitors.

Table 5: Measures to Judge

Particular	Frequency	(%age)
Personal Judgment	56	28.1%
Comment Card	56	28.1%
Number of old Customers	47	23.6%
Number of visits by a customer during a time period	70	35.2%
	199	100%

Table 5 shows that 28% SMEs were of the view that they used comment card to judge the level of customer satisfaction. 28% SMEs also used personal judgment. 24% SMEs observed number of visits by a customer during a particular time period to judge satisfaction of customers & 35% SMEs used number of old customers for this purpose. Results showed that observing number of old customers was the most popular way to judge the level of customer satisfaction.

CONCLUSIONS

The Research study shows that most of the people maintain record of their revenues to measure performance of their organizations. Profitability is also a determinant of performance when it is compared with competitors but people don't calculate their profit on regular basis to evaluate performance.

Research shows that sales revenue, profitability & customers are the basic focuses of small businesses to measure their performance. These aspects are included in Balance Scorecard Approach. It is multidimensional approach for performance evaluation. This approach incorporates performance & exertions from lowest level in the organization to achieve quality, superiority & distinction in overall performance of organization. Most important aspect of Balance Scorecard Approach is customer satisfaction. If customers are satisfied with products & services provided by organization, then it can be said that organization is performing well. In fact customers are assets which can maximize your return.

Literature also supports usage of Goal Approach for performance evaluation by small business organizations but this approach focuses only on goals. For such organizations which use goal approach for performance evaluation, goals must be SMART; otherwise inadequate goals may lead the organization to ineffectiveness.

Some small business organizations also use other approaches for performance evaluation like System Approach, Hybrid Approach, Comparative Analysis Approach, Ineffectiveness Approach & Stakeholder Approach but all these approaches are not very much popular for performance measurement & are not frequently used.

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Public Health Funding and Health Service Delivery-A Case Study of the Gauteng Province, South Africa

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ABSTRACT

In South Africa, the provision of health care services by public institutions has been reported to be under tremendous funding constraints. This paper reports the findings of an exploratory study to determine the funding process as well as factors which influence funding of the public health sector in Gauteng South Africa by interviewing relevant officials in the province, as well as outpatients at certain public hospitals, since the funding will eventually impact the level of health-care service delivered. It became evident that allocating funds to the Gauteng Department of Health (GDoH) with specific conditions attached thereto, is an acceptable way of funding national policies and ensuring that such funds are 'protected' and spent only for the purposes as stipulated in the accompanying grant framework. There is need for the GDoH and the Gauteng Provincial Treasury (GPT) to ensure that the well-established provincial budgeting processes are followed, which should be accompanied by building technical capacity to ensure that all areas of spending are well funded, information is communicated to all the public health institutions, and that every unit adheres to the budget limitations to avoid overspending.

Keywords: public health service; health service financing; budgeting

ACRONYMS

CFO: Chief Financial Officer, **DORA**: Division of Revenue Act, **EXCO**: Executive Council, **GDoH**: Gauteng Department of Health, **GPT**: Gauteng Provincial Treasury, **MDG**: Millennium Development Goals, **MTEF**: Medium-Term Expenditure Framework, **MFMA**:Municipal Finance Management Act, **NDoH**: National Department of Health, **PFMA**: Public Finance Management Act, **WHO**: World Health Organisation

INTRODUCTION

In recent years, government funding for public health service institutions in South Africa has not been increasing proportionate to the increase in the demand for health services. This is primarily in the Gauteng province, where in 2010, it was declared the most populous province in the country, since the total population grew from of 7.8 million in 1996 to 12.3 million people in 2011 (Statistics South Africa, 2012). In recent past financial years, the tertiary hospitals in the Gauteng province have always been spending more than the budget allocated, citing underfunding from the province as the main reason (Section 27, 2013). From the publics' perspective, the lack of adequate funding is evident through continuous reports of poor service delivery, dilapidated and or inadequate infrastructure, exorbitant provision of medical supplies and a number of failures within the health system (Section 27, 2013). There are various reasons that may be contributing to the above state of affairs, of which the level of funding may be the most important.

Stephen, Muirhead, Doherty and Muheki (2000:127-147) revealed that an expanding public health sector budget accompanied by foreseeable sources of funding, is an important basis for improving public health service delivery. The aforementioned researchers argued that the budgeting process in South Africa has limited or constrained the drive towards achieving adequate funding in many ways. It is therefore possible that the provincial resource allocation process does not necessarily demonstrate efforts to attain sufficient funding for the provincial health sector.

In view of the above, this research was conducted to broadly understand the budgeting process, and determine the key factors that drive the funding of public health service institutions and the provincial resource allocation policy foundations that should be considered when resourcing the Gauteng public health sector. More specifically, this study was undertaken to identify factors that the Gauteng Department of Health (GDoH) and the Gauteng Provincial Treasury (GPT) should consider to ensure that the allocation of budgets to the public health institutions is improved.

LITERATURE REVIEW

As the primary custodian of policy development for the public health system, the National Department of Health (NDoH) indicated in its 2012/13 Annual Performance Plan that it will continue to implement a number of interventions to holistically address the health needs of all South Africans. These interventions are guided by the South African government's commitment to achieve a 'long and healthy life for all South Africans' (National Department of Health, 2012). However, health interventions have in the main, been targeted towards addressing clinical issues within public health institutions, and less attention is continually being paid towards sorting out issues of allocation efficiencies and improving the level of funding.

In the case of Gauteng, the 2012 Medium Term Expenditure Framework (MTEF) of the Gauteng Department of Health (GDoH) , the 'balanced budget' was identified as one of the key elements of the fifth strategic objective, which was referred to as 'organisation excellence'. There are many inputs that should play a role to ensure that jointly, they contribute to the attainment a balanced budget, of which, resource allocation forms the basis that all factors should align with. According to the World Health Organization (WHO) the purpose of health financing is to make funding available, as well as to set the right financial incentives to providers, to ensure that all individuals have access to effective public health and personal health care (WHO, 2000). Although it is reported in the WHO's 2010 Annual Report that all countries, rich and poor, face challenges in assuring, then sustaining universal coverage and all must address the core issues of health financing (WHO, 2010). The challenge in most countries is that demands and expectations frequently outstrip a country's capacity to provide services, and there is also evidence of inefficiency in the way resources are used, partly because health governance systems are often unable to keep pace with the expansion of the health sector. This seems to be the case in South Africa, where the state health institutions are not funded to a level that will enable them to meet the demand and expected healthcare services.

In 1994[1], the public health system in South Africa was reformed administratively along the lines of the new Constitution. Nine provincial health administrations were created and made responsible for the delivery of both hospital and primary health care. The provincial administrations transfer a portion of their budgets to local authorities who also render primary health care services. Furthermore, since 1994, a number of significant changes have occurred in the financial arrangements of the South African Government in general, with major implications for the rendering of health services to the public. These included inter-alia, the introduction of a fiscal federal system affecting the financing and budgeting of virtually all significant social services, including health, social development and education. A key issue being the role and extent of provincial discretion relative to national policy requirements, and whether a proper balance is currently maintained.

In the 1997/98 financial year the public sector officially switched over to a fiscal federal system whereby budgets for provincial public health systems were determined by provincial legislatures, with less dictation by national policy. The funds made available to the provinces were allocated through an unconditional (equitable share) grant allocated from the national budget. The equitable share allocation to provinces was all not earmarked for health services, but it was the prerogative of the provinces to determine the share of the resources to be allocated towards public health. Due to competing provincial priorities between social, economic, and governance services, the realisation of adequate funding of health was a challenge, and provinces could not always allocate adequate resources required for delivering public health care at an optimal level (Thomas & Gibson, 2004).

In April 1997, three years into South Africa's democratic dispensation, the National Department of Health published a White Paper on the transformation of the health system in South Africa (National Department of Health, 1997). However, Stephen et al., (2000) asserted that an admission was made that the funding of the public health care system in South Africa had reached a critical juncture and much was done post publication of the White Paper to improve equity in the funding of the public health care in the few years of the democratic government, the trend appeared to have been reversed, as there were tendencies of decreased funding of primary health care parallel to an increase in inequities within the public health sector funding system.

McIntyre (2007) reflected on the MTEF which was introduced as three year rolling budgets for all national and provincial departments, and that the move towards global provincial budgeting appears to have slowed the pace of relative redistribution of health budgets somewhat, and in some cases, most notably Gauteng, has reversed the redistribution process. Furthermore, the move to a fiscal federalism approach, in line with the South African Constitution, appeared to have shifted the equity and budget appropriateness focus to that of the total provincial budgets. The most important implication and unintended consequence of fiscal federalism was the fact that it actually resulted in the expansion of inequities for some provinces. Depending on competing provincial priorities and prevailing budget pressures, the provincial legislature had the discretion to determine how much should be allocated to each function. The budget allocation also depended on the capacity of each provincial department to motivate for funding. Those departments with capacity to motivate well got more funds while the others received less.

[1] South Africa became a democratic country after the first general elections in 1994.

Within the provincial sphere of government, the compilation and preparation of a provincial budget is provided for by the applicable legislation, that is, the Public Finance Management Act (PFMA), Act No. 1 of 1999, as amended by Act No. 29 of 1999. This regime is also applicable to the Gauteng Department of Health, which is primarily responsible for the management of the public health sector in the province. At the end of the 2007/08 financial year, the Gauteng Department of Health spent R639 million over the allocated budget of R12 billion. The trend of spending more than the allocated budget continued to the end of the 2009/10 financial year. However, at the end of the 2010/11 financial year, the department spent less than the budget, by an amount of R279 million.

Given the above background to the study, the research was conducted exploratory to determine the funding process as well as factors which influence funding of the public health sector in Gauteng South Africa by interviewing relevant officials in the province, as well as outpatients at certain public hospitals, since the funding will eventually impact of the level of service delivered.

RESEARCH METHODOLOGY

Primarily a qualitative research approach was used, whereby the researchers identified key respondents people of the provincial budgeting process, and the National Treasury, NDoH, GPT and the GDoH, and held one-on-one interviews with these identified individuals using a questionnaire[2]. The questions did not only require information and opinions of respondents, but also afforded the interviewer the opportunity to probe the depth of the participants' understanding of the issues surround the study. In addition, to interviewing treasury officials, outpatients who visited specific public hospitals were also intercepted and questioned.

Although Gauteng is the smallest province in South Africa, it remains the province with the highest number of public health institutions (Stats SA, 2012). For the purpose of this research, judgment sampling was also used, in particular to select the outpatients at the identified hospitals. The sample comprised:

- The National Treasury - four senior managers who were in the Public Finance Unit and two senior managers form the Provincial Budget Analysis Unit. Only one, Dr Mark Blecher who was the Chief Director Finance agreed that his identity may be disclosed.
- The GPT - two managers who were in the Public Finance Unit and one manager in the Budget Management Unit, one of whom, Donald Onyango, Director: Public Finance in the Social Sector, agreed to have his identity disclosed.
- The GDoH-five managers from various units were selected, including Abbey Marokoane the Acting Chief Financial Officer, who also agreed to have his identity disclosed.
- Two hundred outpatients were also interviewed from four public hospitals in the Gauteng province.

FINDINGS

It became evident that health is a provincial priority, since reference was made to the speech of the Honourable Premier of Gauteng, who in her 2013 'State of the Province' address, conceded that when she took Office in 2009, the state of Gauteng's public health institutions was unsatisfactory. This was due to various reasons, including the outsourcing of management functions which resulted in poor management of human and financial resources. To address these, highly skilled personnel were brought-in, the leadership in the GDoH was re-established,

[2] See Appendix A for the questionnaire

and a comprehensive turnaround strategy was initiated. The team was mandated to focus on restoring effective controls and systems and improving efficiencies, capacity and management in key areas (Gauteng Office of The Premier, 2013).

From the feedback received from national and provincial government officials, it was apparent that health service provision is being prioritised, since all the senior management officials interviewed agreed that public health is both a national and provincial priority and the acceptance of public health as a priority has started to show in the manner in which public health services are being funded.

The Gauteng Provincial Treasury participant indicated that in 2103 the Provincial Treasury attempted to turn around the department by stabilising the finances of the health sector, and allocated an additional budget allocation of R1.1 billion to supplement funding for the non-negotiable items that make the health institutions functional (Gauteng Treasury, 2013).

Both the Gauteng Provincial and the National Treasury participants argued that it is a legislated requirement that the health budgets are prepared according to an annual cycle, and formulated to contribute to high-quality and sustainable services. The Gauteng Department of Health does prepare its budgets within the MTEF and uses a top-down estimate of aggregate resources, determined at Head Office level, for institutional expenditure consistent with macro-economic stability, and bottom-up estimates of the cost of carrying out policies determined by public hospitals, both existing and new; and a framework that reconciles these costs with aggregate resources. The MTE is a rolling process repeated every year and aims at reducing the imbalance between what is affordable and what is demanded by line ministries. It is called "medium-term" because it provides data on a prospective basis, for the current budget year and for following years, showing estimates over three years.

During the engagements with the National Treasury's Provincial Budget Analysis, it was debated that that the National Treasury is mandated (as provided for in the Public Finance Management Act) to ensure that government in all spheres, plans and budgets within the prescripts of the MTEF. The National Treasury and the Gauteng Provincial Treasury participants stated that within the planning and budgeting processes, the health sector does take into account the MTEF by bringing together policy-making, planning, and budgeting early in the budgeting cycle, with adjustments taking place through policy changes.

The National and the Gauteng Treasury referenced a World Bank Report with regards to the implementation of the MTEF in Malawi, in supporting its arguments that the MTEF is a tested and effective tool that can address the funding gaps within the health sector. In Malawi, for example, since 1995 the four largest spending ministries (Agriculture, Education, Health, and Works) piloted implementation of the Medium-Term Expenditure Framework in preparation for their 1996-97 budgets. The pilot was confined to the recurrent budget and, within that, the non-wage and non-salary recurrent expenditure. The rationale for this was that the real test of the Government's priorities was to be found in spending in this latter category. It is worth noting, however that it has been based on the log frame approach, which facilitates the derivation of sector and organisation goals, objectives, outputs, activities, and input costs (World Bank, 1999).

With regards to the GDoH, it was clear that the recurrent and development expenditures are now integrated, and estimates are prepared for the budget year plus the two outer-years of the MTEF. At the centre, the aforementioned approach involved is the development of a macro-economic framework, the derivation of aggregate and sector expenditure ceilings, and the reprioritization of expenditure through the interaction of top-down ceilings and bottom-up estimates of expenditure, which is linked to objectives.

The Impact of the Conditional Grant allocations

It became evident that the conditional grant allocations to the Gauteng Department of Health was large, since the GDoH received, and is set continue to receive the majority share of all the conditional grants allocated to the Gauteng Provincial Government. The extent of conditional grant funding compared to other provincial departments may be interpreted differently. The National Treasury suggested that once nationally raised revenue has been divided amongst the spheres of government, the national government allocates further grants to Gauteng. These grants are made with different conditions, which the Gauteng Department of Health like any other receiving department, is expected to adhere to or to implement according to the conditions attached to such funding.

The GDoH participants also revealed that all if not most, of the national policies that are funded through conditional grants are adequately funded. The conditions that are attached to conditional grants mainly include monitoring provisions, specifications relating to the purpose for which the grants are to be used, timeframes and clearly defined outputs. An important factor that emerged from this research was that conditional grants are voted on the budgets of national departments but are spent at the provincial level. This has an important bearing on intergovernmental fiscal relations.

According to the Acting CFO of the Gauteng Department of Health, conditional grant transfers to the Gauteng Department of Health often imposed administrative costs on the department. However, Dr Mark Blecher argued that the issuance of conditional grants during the 2009 medium-term ensured that resources and priorities are protected, and stressed that these grants did not necessarily undermine the discretion of the Gauteng Provincial Legislature, but simply ensured that national policy priorities were implemented and that services were delivered to the people. The aforementioned views are supported by Donald Onyango, Director: Public Finance in the Social Sector at the Gauteng Provincial Treasury, who indicated that given the cash flow problems experienced by the Gauteng Department of Health, if all grants were to be transferred as equitable share, these funds would most likely be partially spent on addressing other critical problems facing the department, therefore, allocating funds in the form of conditional grants assisted in serving as protective mechanisms in the interest of service delivery.

It was concluded that the practice by the national government to allocate funds with specific conditions attached did not have a negative impact on service nor did it undermine the prerogative of the Gauteng Provincial Legislature to decide on where funds should be allocated.

Competencies of the Planning and Budgeting Staff

During engagements particularly with the senior officials from both the GDoH and the GPT, it became evident that the process of creating the department's budget did not involve specialists with health economics knowledge. It was admitted by both the GPT and the Gauteng Department of Health participants that the GDoH's current officials who are involved in the budgeting process are mainly from the fields of Accounting, Human resources, and traditional financial management. This admission was not to undermine the budgeting process, but to stress the important role that health economics could play in ensuring that health dynamics are taken into account from an economics perspective during the budgeting process. It was agreed that any discussion around the level of funding for health services cannot be comprehensive if it took place in the absence of critical skills that are necessary to make informed decisions.

The challenges facing the GDoH were also attributed generally to the lack of appropriately qualified and skilled human capacity within the overall provincial budgeting process to ensure that all relevant aspects of health financing are taken into account. The process also lacked the involvement of health clinicians to assist in the correct identification of key items and processes that are involved in the delivery of health services.

The funding mechanisms and processes followed were simply historical cost escalation by inflationary adjustments and incremental methods, where budget baselines were just increased without the basic information from the health institutions. The process was also weakened by the National Treasury that required the Gauteng Province to use uniform and rigid budget templates that did not require an input from clinicians who are based at hospital level.

The Planning and Budgeting Process

The Gauteng Department of Health participants had indicated that they are implementing the provincial budgeting process as issued by the Gauteng Provincial Treasury. The Gauteng Department of Health adopted the outcome-based budgeting to ensure the achievement of the set outcomes, which are with associated outputs, their related activities and inputs that were the basis for the crafting of the departments' estimates of revenue and expenditure, beginning from the year 2011. In all the key stages of the provincial budgeting process, the Gauteng Department of Health has been one of the participants and have planned and budgeted according to what the provincial budgeting process required. The issue at hand, while looking at the expenditure outcomes, according to the Acting CFO is the lack of content and credibility of the budgets submitted and finalised. The participant indicated that there is a strong prevalence of budget allocations that are not aligned to hospital plans and in other instances, budgets were allocated to wrong spending items. This was evident from the spending outcomes and the budget allocations made during the beginning of the financial year.

The GDoH was required to ensure that it also develops its own internal (hospital-based) budgeting process that is aligned with the provincial budgeting process. In the assessment of the degree of alignment between the public hospitals' processes against the provincial budgeting process, there were no clear indicators that demonstrated a significant degree of alignment. According to the Acting CFO, the Gauteng Department of Health had its own processes that were not fully aligned with the provincial budgeting process. It was mentioned that the GDoH waited for the provincial resource allocation process to be concluded by the Gauteng Provincial Treasury before they began engaging the different public health institutions. This exercise established that the Gauteng Department of Health, at Head Office level, had been for years planning and budgeting (top-down) for all their Gauteng public health institutions, with less involvement of the institutions themselves. The budget templates that were determined by the National Treasury as required by the Public Finance Management Act (PFMA), and used by the GDoH were only seen and used by the department at the Head Office and were not sent to public health institutions for them to do their planning and budgeting in line with such templates. This has consistently been one of the fundamental causes of the lack of credibility in the data that became final and published.

Challenges Affecting the Budgeting Process

During the interview with the participant from Gauteng Provincial Treasury (GPT), the issue of leadership stability was mentioned as the major challenge that influenced the implementation of the provincial budgeting process. It was mentioned that leadership instability at the level of the Head of Department, has contributed to the imbalances in the manner in which the provincial budgeting process was implemented and, this had further negatively affected the level of funding the public health institutions in the Gauteng province.

It emerged that during the 2009-2014 political term the GDoH had appointed six Heads of Department, three in an acting capacity and the other three as substantial heads The Gauteng Department of Health. The Gauteng Provincial Treasury also indicated that this trend of leadership instability had contributed to the (poor) state of the GDoH, since every Head of Department had to learn the process, and each had their own way of thinking in terms of how public health institutions should be funded. The constant change in leadership caused interruptions on the provincial budgeting process and further led to imbalances in the level of funding of public hospitals, which eventually impacted on the level of service.

The degree to which the budget correlated with the actual service delivery at the public health institution level was said to be very poor because of the lack of clinical competency to inform the correct resource allocation. According to senior officials of the Gauteng Department of Health, the involvement of clinicians was required to make a meaningful input in terms of the kind of equipment, medicines, medical supplies, for example, which should be planned and budgeted for, mainly based on the utilisation rate at hospital and clinic level.

According to Onyango and Marokoane (2013), the GDoH has not brought all key internal stakeholders on board during the planning and budgeting process. It was argued that the budget of the entire department was developed at the Head Office and only by the finance unit due to a lack of sufficient time, and lack of interest in the financial aspects (budgets) by some health officials. This was clearly a case of disregarding the provisions of the Public Finance Management Act, which provides for the financial responsibilities of non-financial managers. The budgeting process excluded those critical officials like Head of District Hospital Support, Heads of Tertiary hospitals, Heads of conditional grant programmes, and many others. This has fundamentally led to budgets that were not aligned with the actual service delivery plans.

It was established that according to the provincial budgeting process, all Gauteng provincial government departments, including the Department of Health, have four months to develop plans and budgets for the MTEF. In this way the Gauteng Department of Health was required to make the necessary adjustments to cater for policy changes and developments within the macro-economic environment. The GDoH had not effectively implemented all the principles of the MTEF during its planning and budgeting processes, hence the annual imbalances in the spending outcomes.

A total of 200 outpatients were interviewed to basically determine their perceptions of public hospitals in Gauteng. Only 40 (20%) respondents spread across all hospitals, race, age group and gender were satisfied with the quality of health services delivered by Gauteng public hospitals which they visited in the recent past, i.e. 1-2 years. Most of them sighted reasons ranging from negative attitude of hospital staff, lack of medicines and equipment, may be attributed mainly to lack of funding.

The Gauteng Province is situated strategically and easily accessible from many areas in the country and from outside the country. In addition to people from other provinces and countries, the largest burden is the tendency of people to visit Gauteng's health facilities which offer a higher level of care than the primary health-care facilities in their localities. This had in the main, resulted in higher costs because of the equipment and health professionals in the tertiary facilities, while the same services could have been offered at lower costs by the Health Department if people have visited the primary health care facilities. In some instances, patients get referred to the provincial tertiary hospitals, but the referring institutions fail to honour (partially or in full) the related financial obligations.

The general public have a tendency of going straight to provincial and tertiary hospitals for primary health care that is offered freely or at low cost in the local clinics. For example, the Chris Hani Baragwanath Hospital is a tertiary hospital that offers high level of care and also serves as a health academic institution. The hospital has a catchment population of more than 3.64 million located in and around the Soweto Township. The hospital did not have a district or provincial hospital that is strategically located within the township to serve as a referral institution. This is one of the main causes of the high financial burden facing the hospital. Regardless of the level of its funding, the hospital will continue to face budget constraints due to offering highly specialised and expensive care which should have been offered by a district hospital.

The South African government's funding system of conditional grants generally contains three types of grants; supplementary, specific-purposes and in-kind allocations. With reference to the provincial sphere of government, these types of grants are separated and classified annually in terms of schedules of the Division of Revenue Act (DORA).

The lack of budgeting and planning competency became apparent, since budgets were developed using incremental methods based on past spending patterns and inflationary adjustments. The planning and budgeting staff in the department lacked statistical and econometric skills. The absence of district health information data to inform proper and informed service delivery planning and budgeting had an impact on the final spending outcomes. Furthermore, the lack of insight on the application of economic theory that underpins economic evaluation impacted on the budgets and service delivery.

CONCLUSIONS AND RECOMMENDATIONS

This research attempted to identify the factors that have an impact on the level of funding for the Gauteng public health service. The focus was mainly on the knowledge, views and convictions of various officials from relevant government departments who are part of the provincial budgeting process, in particular the National Department of Health, the Gauteng Provincial Treasury and the Gauteng Department of Health. Key role-players were identified and interviewed to establish if the Gauteng public health is adequately funded.

It became evident that public health is considered as a constitutional requirement, and a provincial priority. Although weaknesses were identified in the budgeting and health care planning processes, funding of health care in the province continues to receive high priority. The health portfolio receives a larger share of provincial budget, and is projected to receive increased funding in the near future. However, the Gauteng Department of Health has not fully developed its technical capacity in terms of the human resource requisite skills to be able to do proper planning and budgeting for health services.

It became apparent that the provincial budgeting process did not include all key stakeholders, more especially clinicians at hospital level and health economists who are considered important. This has further undermined the importance of district health information that should be the basis for planning and budgeting for public hospitals. It is evident that the public health care funding system is flexible, in line with the South African intergovernmental fiscal relations, and provides for conditional grants from national to provinces for specific purposes. However, the onus is on the Department of Health to ensure that internal systems and processes (including capacity) are built, to enable the sustainability of health-care services even in the absence of conditional grant allocations to the province.

There was lack of effective communication of available resources and the policies to all the department's programme managers. This added to the leadership instability that also affected the assurance that funds are allocated appropriately. New leadership tended to cause erratic budget changes whenever a new Head of Department was appointed.

It was evident that budgeting was a top down process. In general, public hospitals and directorates receive their budgets which are merely an incremental increase over the past financial year's allocations, and to a large extent these 'increased' budgets were not aligned to operational plans. Budget allocations to the public hospitals were compiled late and did not adequately address the requests made at the budget committee meetings. Furthermore, it seemed that operational plans were not updated to reflect realistic activities and targets once the final budget allocation was made. Budget shifting took place between some programmes whereby under-utilised funds were transferred to areas where budgets were overspent. This practice negatively impacts on general financial management principles. There was also a lack of clear alignment between the annual performance plans and the relative financial budgets. The annual performance plans were also not updated subsequent to the allocation of funding.

The process of allocating budgets to the provincial Gauteng Department of Health is complex in that it involves funding from different sources. The Gauteng Department of Health should therefore look at implementing improvement strategies and ensure that planning and budgeting processes involve all the relevant stakeholders, inter-alia, hospital heads and all programme heads in the department. The department should gather and utilise district health data in planning and budgeting, and resource allocation should be based on data that is at clinic and hospital levels, as a bottom-up budgeting approach instead of developing the budget at Health Office level. The Gauteng Department of Health should review internal planning and budgeting process in the context of addressing inefficiencies and not anticipating additional funds to be allocated, since the problem may not be a lack of funds but the manner in which such available are allocated and utilised. The Gauteng Department of Health also needs to have more stringent internal controls to eliminate incidences of theft of state-owned assets.

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Appendix A: Questionnaire

Question No.	
1.	*Do you think in Gauteng health service delivery is still a priority?*
2.	*Who do you suggest or think should be primarily responsible to decide on resource allocation between the national and provincial treasuries?*
3.	*Is the current provincial resource allocation process effective and where do you think gaps exist?*
4.	*What is your view on the extent to which the current MTEF strives to achieve adequacy in public health sector funding?*
5.	*The MTEF seems to be working for provincial planning and budgeting, what is your view on the effectiveness of the MTEF for the health sector financing?*
6.	*What in your view and experience are the key factors that should be the basis for health sector funding? What do you suggest as the most key cost-drivers that informs health expenditure?*
7.	*In your view, would you agree that giving Gauteng Health more money will solve the current state of service delivery?*
8.	*If solutions are found to the problems facing the Gauteng Health, how long do you think it will take to restore standard service delivery?*
9.	*Do you think that Health should be given funding preference form the provincial revenues?*
10.	*If Health is funded equitably, what are the causes of the current problems that are being experienced in the public health institutions?*
12.	*What are your views with regards to the provincial process in terms of funding the Health sector in Gauteng?*
13.	*What is your view about the impact of conditionally allocating funds to the province, in relation to the legislative authority of the Provincial Legislature?*
14.	*If the provincial allocation process had full authority to allocate, do you think this would have promoted equity in allocating to the public Health in Gauteng?*
15.	*The imbalances in spending outcomes, may it have anything to do with spending decision by Health or are it due the imbalances in the provincial allocation process?*
16.	*What will be your final recommendations in terms of how adequacy should be achieved in health sector funding?*

Respondents were asked to indicate their extent of agreeing or disagreeing with each statement by marking the appropriate number using the six point scale provided for each question, where:

1. **Strongly disagree**
2. **Disagree**
3. **Partially disagree**
4. **Partially agree**
5. **Agree**
6. **Strongly agree**

No.	Actual Question (Questionnaire)	Ranking of responses					
		1	2	3	4	5	6
1.	*Does your current role have responsibilities to ensure the adequacy of funding of the Gauteng public health?*						
2.	*Would you agree/disagree that the MTEF has worked for other public sectors than health?*						
3.	*Would you say the MTEF process addresses the principle of adequacy in Gauteng health funding?*						
4.	*Would you suggest that the MTEF be reviewed as a tool used in funding health sector?*						
5.	*Does the current provincial resource allocation process takes public health as a priority?*						
6.	*Would you think that the provincial resource allocation process is addressing efficiency in Gauteng health sector funding?*						
7.	*The current state of public health sector in Gauteng is as is because of inadequate or inappropriate financing methods.*						
8	*The provincial resource allocation process is more biased towards the public health sector.*						
9.	*Would you suggest that the provincial resource allocation process be reviewed as a tool used in funding health sector?*						
10.	*Would you suggest the adoption of new allocation processes especially for the health sector?*						
11.	*If the status quo is kept, would you suggest that the health problems in Gauteng will only get worse?*						

Questionnaire for Outpatients

Hospital Name		**Answers**
Race		
Age		
Gender		
Q1	Are you satisfied with the service you get in public hospitals?	
Q2	How do you find the hospital staff attitude and services they offer to patients?	
Q3	Do you think hospitals have enough machinery and equipment to offer good services?	
Q4	Where do you think problems are in public hospitals?	
Q5	In your opinion, do you think Gauteng government hospitals are properly funded?	