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Explaining Trends and Factors Affecting Export Diversification in ASEAN and SAARC Regions: An Empirical Analysis

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Abstract:

This paper examines the role played by country-specific factors in the determination of export product diversification process. To meet this objective, the paper begins by constructing a time series data for export diversification using the Herfindahl index. Then, it applies the fully modified OLS co-integration model to a panel of selected ASEAN and SAARC countries to find out the main determinants of export product diversification. Export diversification pattern shows that since the mid-1980s the ASEAN countries have continuously witnessed export diversification and the SAARC countries embarked on export diversification journey since the early 1990s. Analysis of the determinants suggests that foreign direct investment, domestic investment, competitiveness, real depreciation of domestic currency, financial sector development and institutional strength are significantly and positively related to export product diversification in both regions. These findings have important policy implications for the two regions. They call upon the policymakers for further diversification of exports, especially in the areas of their specialization that are vital for their smooth and sustained foreign exchange earnings as well as economic development. The study also recommends improving international competitive strength via improving business environment to achieve the goal of export product diversification.

***Keywords*:** Export Product Diversification, Economic Development, ASEAN and SAARC Regions

1. INTRODUCTION

Developing countries have been experiencing export product concentration. This is mainly because they produce and export raw

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materials and semi-manufactured products. Whereas, such products, in general, do not face market access problem, they have inelastic demand in foreign markets and their close substitutes are easily available. Finished manufactured products exported by developing countries face high trade barriers in foreign markets. Consequently, exports of these countries have highest concentration upon raw materials and semi-manufactured products. Global experience reveals that countries who have failed to diversify exports have grown slower than those who have executed right policies for export diversification. Moreover, countries facing export concentration are more vulnerable to external shocks [see, De Ferranti, *et al.* (2002), Hausmann, *et al.* (2007), Herzer and Nowak-Lehmann (2006), Lederman and Maloney (2003), and Matthee and Naude (2007)].

Mindful of the negative repercussions, developing countries have been targeting export product diversification as a means to achieve the goals of export expansion and higher per capita income. Besides globalizing their economies, these countries have been striving hard to introduce structural transformation by moving away from exporting primary and intermediate products to export finished products. Consequently, they realized higher economic growth as sustained foreign exchange earnings were available.

Paradoxically, a non-linear relationship between income and export diversification exists. This is because (at low levels of income) countries tend to export a narrow range of products and are thus exposed to increased volatility in export earnings and terms of trade. This volatility exposure is mitigated through export diversification, which in turn potentially helps them achieve stability in their economic performance. Once countries achieve a certain higher level of income through export diversification, they then start producing differentiated products by internalizing economies-of-scale. With such transformation, these countries tend to move towards re-concentration in export products. Such products usually have relatively higher elastic demand in international market, which enables countries to expand their economies and achieve higher growth on sustainable basis [see, Carrere, *et al*. (2007), Hesse (2008), Imbs and Wacziarg (2003), Klinger and Lederman (2004), Koren and Tenreyro (2007)].

Export product diversification can be achieved by changing the mix in export products (adding new products or product variety in the existing export basket) or by adding value (quality) to existing export products. In this regard, developing countries have been vigorously introducing reforms. Whereas some of them have been successful, many are meeting with limited success. This is mainly because of lack of clear understanding about the main drivers and patterns of export diversification. Paying attention to the underlying pattern and determinants of export diversification should provide valuable research and policy inputs for active government intervention. Lack of studies at the regional level in the South Asian Association for Regional Cooperation (SAARC) and Association of Southeast Asian Nations (ASEAN) countries motivated us to conduct an in-depth analysis of the pattern and determinants of export product diversification.

Rest of this paper is planned as follows: Section 2 provides a brief overview of SAARC and ASEAN regions; Section 3 presents the theoretical framework; Section 4 presents the empirical model and data sources; in Section 5, empirical results are discussed; and Section 6 concludes the paper with some implications for policy.

2. OVERVIEW OF THE SAARC AND ASEAN REGIONS

In terms of population, SAARC is one of the biggest economic blocs in the world. It accommodates 23 percent of the world population. However, it accounts for merely 6 percent of the world GDP and 4 percent of the world trade. Intra-regional trade is hovering around 6 percent. All in all, the region is not very successful in terms of achieving its objectives.

Growth record of the SAARC countries has remained satisfactory despite weak performance in regional and international trade. The SAARC countries grew at an average annual rate of 6.22 percent between 1985 and 2013, whereas the GDP per capita grew at 4.17 percent during the same period. Bhutan experienced the highest growth rate of 7.89 percent during 1985-2013, followed by India 6.56 percent, Bangladesh 5.30 percent, Sri Lanka 5.29 percent, Nepal 4.59 percent and Pakistan 4.49 percent (Table 1).

Table 1. Economic Indicators of SAARC Countries: 1985-2013

Country	GDP Growth between 1985 and 2013	Exports to GDP Ratio (%)		Imports to GDP Ratio (%)		GDP per Capita Growth between 1985 and 2013
		1985	2013	1985	2013	
Bangladesh	5.30	5.55	19.54	13.23	26.76	3.34
Bhutan	7.89	15.0	40.08	51.1	62.9	6.01
Nepal	4.59	11.53	10.70	19.99	37.51	2.50
India	6.56	5.16	24.81	7.51	28.41	4.72
Pakistan	4.49	10.42	13.23	22.81	19.93	1.98
Sri Lanka	5.29	26.01	22.47	37.97	32.00	4.29
Total SAARC	6.22	6.22	23.16	10.27	27.67	4.17

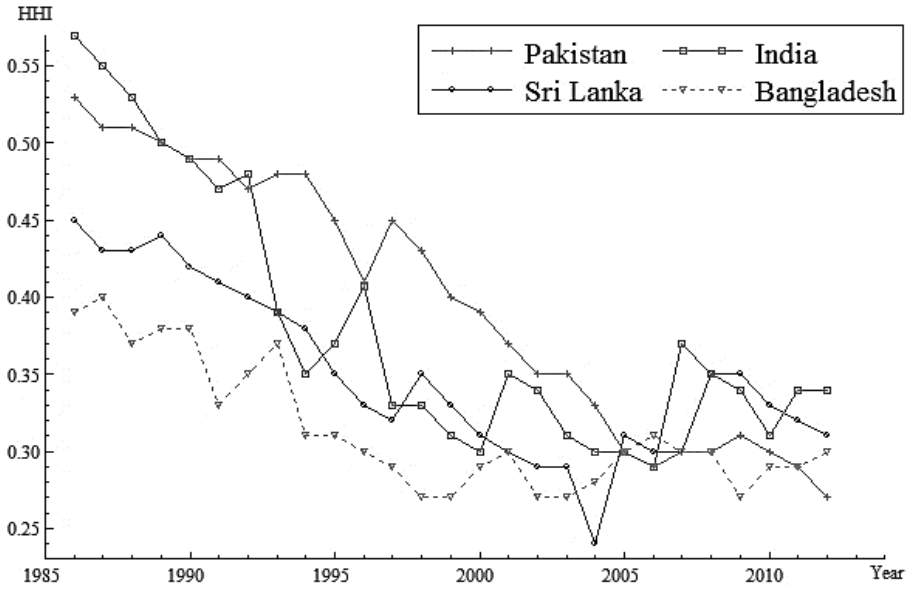
Source: World Bank (2014).

Note: Afghanistan is a new SAARC member who joined the SAARC in 2007. Due to non-availability of data we have excluded Afghanistan from this analysis.

At the time of the SAARC establishment in 1985, the degree of openness (imports and exports as a percentage of the GDP) of its members was quite low (16.5 percent). This was mainly because the SAARC countries used import substitution industrialization strategy and virtually ignored export promotion. These economies were then branded as non-trading economies. Since the late 1980s, however, almost all the SAARC countries reformed their industrialization strategies by using not only export promotion and trade liberalization policies but also focused on policies to diversify exports. These policies resulted in a significant rise in the degree of openness from 16.5 percent in 1985 to 50.8 percent in 2013 (Table 1). Concomitantly, a significant rise in export product diversification occurred. This can be noted from Table 2 and Figure 1. Both openness and export diversification have enabled the SAARC countries to stabilize their foreign exchange earnings.

Policies that facilitate export product diversification include tariff protection, subsidies, concessional export credit, technical assistance, and skill and product development. In addition, the SAARC countries introduced more flexible labour laws to assist export firms working in non-traditional industries. They also provided incentives to enhance participation of local firms in global markets. All of them also sought technical assistance from international institutions to diversify trade.

Figure 1. Export Diversification Trend for the Selected SAARC Countries: 1986-2012



Source: Based on author's calculation using UNO (2014).

Table 2. Export Diversification in Selected SAARC Countries: 1986-2012

Country	1986-1990	1991-2000	2001-2006	2007-2012
Bangladesh	0.384	0.310	0.277	0.267
India	0.528	0.375	0.322	0.338
Pakistan	0.508	0.457	0.332	0.307
Sri-Lanka	0.434	0.353	0.310	0.320
SAARC (Average)	0.464	0.374	0.310	0.308

Source: Based on authors' calculations using United Nations (2014) data set.

Note: Herfindahl index (HHI) is used here to estimate export diversification in selected SAARC countries. HHI values approaching one show complete specialization and zero show complete diversification in exports. For the estimation of HHI, we used annual exports of SAARC countries on the 4-digit level SITC-codes.

With the implementation of these policy measures, almost all the SAARC countries witnessed a structural transformation in their exports from primary commodities towards manufactured goods. For instance, the share of primary commodities in total exports of Pakistan declined from 45 percent in 1972 to 15 percent in 2013. During the same period,

the share of manufactured goods increased from 28 percent to 71 percent (GOP, 2013). Similar trends can be noted for other SAARC countries.

Table 2 and Figure 1 show that export diversification in the SAARC countries has been increasing since the mid-1980s. During 1986-1990, the Herfindahl index (HHI) value for the SAARC countries was 0.464, it fell to 0.374 during 1991-2000 and further down to 0.310 during 2007-2012 (see, Appendix for a detailed discussion on the measurement of export diversification). Fall in HHI shows that there is an increasing trend in export product diversification in the SAARC countries. The table further shows that Bangladesh experienced relatively more diversification than any other SAARC country. Bangladesh recorded a decline in HHI from 0.434 during 1986-1990 to 0.267 during 2007-2012. Whereas, in India HHI declined from 0.528 to 0.340 for the same time period; while Pakistan and Sri Lanka experienced a decline from 0.508 to 0.307 and 0.434 to 0.320, respectively.

The ASEAN countries have a collective population of about 600 million people accounting for 8.8 percent of the global population. In 2012, this region had a combined GDP of US$2.3 trillion. The ASEAN countries are considered a single entity and ranked as the seventh largest economy of the world after China, US, Japan, France, Germany and UK.

Table 3 shows that GDP in the ASEAN countries grew at an average annual rate of 5.41 percent between 1980 and 2013, whereas the GDP per capita grew at an annual average rate of 3.93 percent over the same period. The table also reveals acceleration in the GDP growth rates for Singapore and Malaysia at an average annual rate of 6.84 and 6.01 percent, respectively. The two countries are higher growth economies compared with the rest of ASEAN countries. On the other hand, major achievers in the ASEAN region, in terms of the GDP per capita are Thailand and Singapore who recorded growth rates of 4.34 and 4.18 percent, respectively.

All of the ASEAN countries are very open economies by international standards. Most of them experienced a sharp rise in their shares of exports and imports to GDP. This was achieved through the adoption of export orientation, trade liberalization and export diversification policies.

Table 3. Economic Indicators of Selected ASEAN Countries: 1980-2013

Country	GDP Growth Rate between 1980 and 2013	Exports to GDP Ratio (%)		Imports to GDP Ratio (%)		GDP Per Capita Growth between 1980 and 2013
		1980	2013	1980	2013	
Indonesia	5.53	34.18	23.74	20.21	25.74	3.76
Malaysia	6.01	56.69	81.68	54.27	72.40	3.51
Philippines	3.45	23.57	27.91	28.47	31.98	1.12
Singapore	6.84	202.05	190.22	208.98	167.51	4.18
Thailand	5.48	24.11	73.57	30.37	70.28	4.34
Total ASEAN	5.41	44.85	65.10	40.93	61.18	3.93

Source: World Bank (2014) and ASEAN (2013).

In the 1970s, the ASEAN countries experienced rapid growth when they shifted their development strategy to export-oriented industrialization. All of them used trade liberalization measures to diversify their economies. These measures included tax incentives and subsidies to export firms, incentives to attract foreign direct investment, increased public and private investment in export sectors, improved trade facilitation and reduced bureaucratic inefficiencies, bringing down of the domestic costs, and increased infrastructure investment. In addition, they provided manufacturing, financial and communications facilities for multinational firms to promote exports. They also developed labour skills by providing technical education and promoted labour-intensive activities.

With the adoption of above mentioned policies, the share of industrial sector in GDP accelerated in the ASEAN countries between 1970 and 2013: from 19 to 46 percent in Indonesia, from 23 to 43 percent in Thailand and from 27 to 41 percent in Malaysia. As a result of export diversification policies, the export share of machinery and industrial products in the ASEAN countries increased from 20 percent in 1995 to 50 percent in 2010 [Sabhasri, *et al.* (2013)].

Table 4 and Figure 2 show that export diversification in the ASEAN countries increased since the 1980s. During 1986-1996, export diversification was 0.186; it fell to 0.176 during 1990-2000 and further down to 0.152 during 2007-2012. Fall in HHI shows an increasing trend

in export diversification. The table further reveals that Malaysia experienced relatively more diversification in exports than every other ASEAN country. Malaysia recorded a decline from 0.150 during 1986-1990 to 0.128 during 2007-2012. Whereas, in Thailand HHI declined from 0.185 to 0.175 for the same time period; while, Philippines, Singapore and Indonesia recorded a decline from 0.172 to 0.160, 0.192 to 0.156 and 0.230 to 0.14, respectively. Interestingly, Malaysia and Philippines experienced a reversal in export diversification trend after the financial crisis, which lasted till 2000. However, afterwards the reversal in the trend was stemmed.

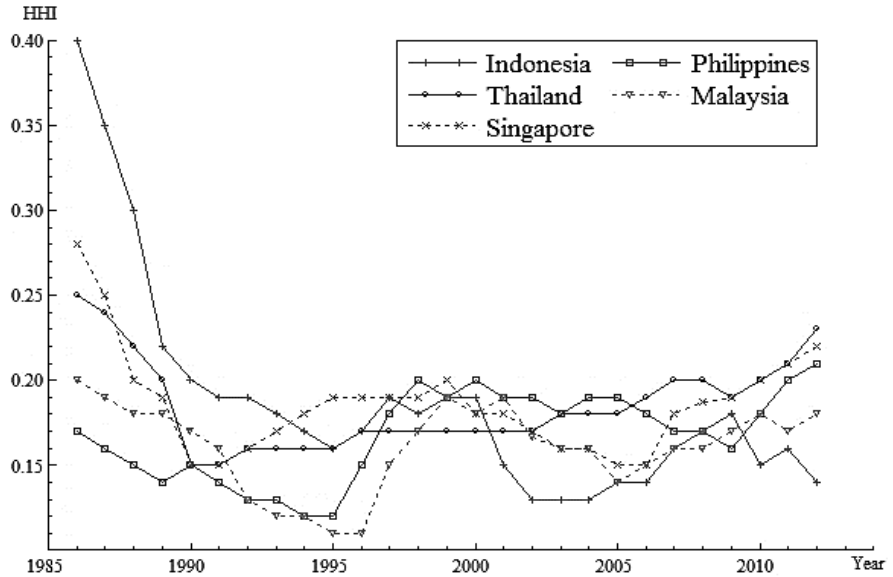
Table 4. Export Diversification in Selected ASEAN Countries: 1986-2012

Country	1986-1996	1997-2000	2001-2006	2007-2012
Indonesia	0.230	0.155	0.145	0.140
Malaysia	0.150	0.168	0.159	0.128
Philippines	0.172	0.200	0.187	0.160
Singapore	0.192	0.190	0.174	0.156
Thailand	0.185	0.170	0.176	0.175
ASEAN (Average)	0.186	0.176	0.168	0.152

Source: Based on author's calculation using United Nations (2014) data set.
Note: HHI is used here to estimate export diversification, HHI values approaching one show complete specialization and zero show complete diversification in exports. We considered 5 out of 10 ASEAN countries due to non-availability of complete data.

On the basis of discussion above, it can be concluded that policies of export diversification have enabled the SAARC and ASEAN countries to increase their exports and economic growth. Despite progress achieved by the two regions on account of export diversification, there is still room for improvement in the on-going policies. To understand the exact areas for future policy intervention, a comprehensive analysis of export diversification is needed. In this regard, this paper examines the determinants of export diversification in both regions so that future policy formulation is guided by the analysis.

Figure 2. Export Diversification Trend for Selected ASEAN Countries: 1986-2012



Source: Based on author's calculation using United Nations (2014).

3. THEORETICAL FRAMEWORK

Export diversification is one of the oldest concepts in the theory of economic development. Traditional international trade models of Smith (1776), Ricardo (1817), and Heckscher-Ohlin-Samuelson (HOS) argued that countries specialize and export according to their comparative advantage. This idea was challenged by Prebisch (1950) and Singer (1950). Both argued that the specialization in exporting products raises the dependence of developing countries on export of raw materials and agricultural products and import of consumer and manufactured products from developed countries. They argued that income elasticity of demand for primary products is lower as compared to manufactured goods. Consequently, developing countries have been missing the opportunity to grow faster. Thus, they need to diversify their export products to ensure stability and growth in their foreign exchange earnings, as diversification minimizes the risk of price volatility and decline in terms of trade.

The Prebisch-Singer hypothesis was supported by Carrere, *et al.* (2007) who stated that diversification from primary products is desirable for developing countries. Hesse (2008) also argued in the favor of Prebisch-Singer hypothesis by giving illustration from the OECD resource rich countries such as Canada, Australia and the Scandinavian countries. These economies are now more developed as a result of export diversification.

Bonaglia and Fukasaku (2003) studied the idea of Prebisch-Singer hypothesis by analyzing that real exchange rate appreciate due to specialization in the exports of natural resources. In such countries if industrialization takes place then instead of specializing in knowledge products they generally specialize in physical capital-intensive products. Consequently, human capital growth and wage equality are adversely influenced.

Matthee and Naude (2008) identified countries specializing in goods experience export uncertainty due to negative demand shocks in global markets. In such situations, export diversification makes the country less vulnerable to shocks and as a result exports become stable.

3.1. Determinants of Export Diversification

Determining the true factors of export diversification is difficult as there is no available extensive theoretical or empirical structure to cover all potential factors. There are many reasons to believe that export diversification and overall economic development level is to be positively connected. One of the most important variables for measuring the impact of export diversification is the country's GDP per capita that captures the institutional strength. As GDP per capita of a country grow, preference to consume more rises in the country, as suggested by both demand side and supply side growth theories [Aghion and Howitt (1992)].

Hausman, *et al*. (2007) found that foreign direct investment is an indicator of macroeconomic efficiency by enhancing the growth rate of the firms in the country. Theoretically, FDI through direct and indirect way has a positive impact on export diversification. Direct way is when foreign firms use advanced techniques of production to export advanced products in the host country. Indirect way is when Multinational

Corporations (MNCs) transfer advanced techniques of production to local firms. By accumulation of these advanced techniques of production and improved skills, they will be able to produce a variety of products for exports.

Devaluation in the real exchange rate of a country increases the external demand of a country's tradable goods. This increases the opportunities of producing and exporting new goods and expanding the production of existing exports. Real exchange rate and its volatility affect the production of exportable goods. Real devaluations in the exchange rate have become an important factor in the diversification of the export supply [Rodrik, (1998) and Krugman (1987)].

Theoretically, gross fixed capital formation affects the export growth in two ways either by increasing the physical capital stock in domestic economy or by promoting the technology. Recently many empirical studies estimate the positive role of gross fixed capital formation in diversifying the export [Khan and Kumar (1997)].

Lederman and Maloney (2003) estimate that the best way of improving economic efficiency for developing countries through export diversification is to focus more on industrial sector by improving its structure. They determined a positive relationship between export diversification and the share of manufacturing sector for developing countries.

Acemoglu and Zilibotti (1997) found that the private sector can also play an important role in diversification by driving innovation and economic activity in non-developed sectors. It can invest in research and development for new activities as private companies frequently stand at the frontier of new sectors and bring innovation to the economy.

4. EMPIRICAL MODEL AND DATA

Determining the real factors of export diversification is difficult as none of the available theoretical or empirical models try to capture them in totality. Nevertheless, following de Benedictis, *et al.* (2009) and Parteka (2010), we argue that the low levels of GDP per capita are associated with a low degree of relative economic structures'

heterogeneity (i.e., high overall concentration and specialization). Therefore, the basic model has the following general form:

$$HHI = f(GDPP) \quad \ldots (1)$$

where, *HHI* is the export diversification rate (Herfindahl index) and *GDPP* is the GDP per capita.

Following Parteka and Tamberi (2011) and Bebczuk and Berrettoni (2006), we further argue that the country-specific effects are relevant and important in the export diversification process. The additional variables can also determine the process of export diversification. Thus, the model (1) can be modified as:

$$HHI = f(GDPP, FDI, GFCF, CPS, REER, MANU, H\text{-}CAPITAL, EXP, R\text{-}DUMMY, FUEL) \quad \ldots (2)$$

where, *FDI* is foreign direct investment to *GDP* ratio, *GFCF* is the gross fixed capital formation to *GDP* ratio, *Manu* is manufactures exports to total exports ratio, *H-Capital* is human capital, *EXP* is export to GDP ratio, *REER* is the real effective exchange rate, *R-Dummy* is the regional dummy, *CPS* is the credit to the private sector, and *FUEL* is the fuel exports to total exports ratio.

Equation (2) provides us with the general specification, which is transformed into a behavioural equation for the purpose of estimation.

$$HHI_{it} = \alpha_0 + \beta_1 FUEL_{it} + \beta_2 GDPP_{it} + \beta_3 CPS_{it} + \beta_4 MANU_{it} + \beta_5 GFCF_{it} + \beta_6 REER_{it} + \beta_7 FDI_{it} + \beta_8 H.Capital + \beta_9 EXP + \beta_{10} R.DUMMY + \mu_{it} \quad \ldots (3)$$

where, μ_{it} is the error term, *t* represents the time period and *i* indicates countries under study.

In addition to the standard variables explaining export diversification covered in the available literature, we are also interested in analyzing the effect of several reforms, such as financial and trade liberalization, macroeconomic policies on export diversification. For that purpose, variables used in this study are: export to GDP ratio a proxy for competitiveness, manufacturing exports to total exports ratio a proxy

for the industrial sector's growth, *REER* a proxy for depreciation, per capita GDP a proxy for institutional strength, gross fixed capital formation to GDP ratio a proxy for growth in domestic investment, credit to the private sector to GDP ratio a proxy for financial sector development, net foreign direct investment to GDP ratio a proxy for macroeconomic efficiency, and fuel export to total exports ratio a proxy for *natural resource curse*. Natural resource curse negatively affects the export diversification, then potential long-term benefits of export diversification will downplay otherwise it has a positive impact on export diversification.

These variables not only indicate macro-economic efficiency and strength; they also enhance growth prospects of firms, which in turn have implications for export diversification. Several studies like Benedictis, *et al.* (2009), Parteka (2010), Ferdous (2011), Agosin, *et al*. (2012), Arawomo (2014), Elhiraika and Mbate (2014) had also used these variables. Table 5 provides expected theoretical signs for each of the explanatory variable in their relationship with the dependent variable.

4.1. Data Sources

Main data source for all aforementioned variables is World Development Indicators (World Bank). Time period of the study is 1986-2012.The dataset is a balanced panel. The data used to estimate HHI are at 4-digit level SITC-codes obtained from the United Nations Commodity Trade Statistics Database [United Nations (2014)].

Due to the non-availability of data for all the years and for all the required variables, the regression analysis is limited for the SAARC region countries to Bangladesh, India, Pakistan and Sri Lanka, and for the ASEAN region the selected countries are Indonesia, Malaysia, Philippines, Singapore and Thailand.

5. RESULTS AND DISCUSSION

To identify the long-run relationship between export diversification and each of the explanatory variables, we are required to check the order of integration for all variables in the panel dataset. A

balanced panel dataset is used, which includes five ASEAN and four SAARC countries, for a period of twenty seven years [1986-2012].

Table 5. Theoretical Expected Signs of Explanatory Variables with Export Diversification

Explanatory Variable	Abbreviated as	Proxy as	Expected sign +/-	Data Source
Fuel Exports to Total Exports Ratio	FUEL	Resource Curse	+, -	WDI, World Bank
Manufactured Exports to Total Exports Ratio	MANU	Industrial Sector's Growth	+	WDI, World Bank
Per Capita GDP	GDPP	Level of Development, or Institutional Strength	+,-	WDI, World Bank
Gross Fixed Capital Formation to GDP Ratio	GFCF	Growth in Domestic Investment	+	WDI, World Bank
Credit to the Private Sector to GDP Ratio	CPS	Financial Sector Development	+	WDI, World Bank
Net Foreign Direct Investment to GDP Ratio	FDI	Macroeconomic Efficiency	+	WDI, World Bank
Real Effective Exchange Rate	REER	Real Depreciation	+	WDI, World Bank
Human Capital	H-CAPITAL	Human Capital	+	WDI, World Bank
Export to GDP Ratio	EXP	Competitiveness	+	WDI, World Bank
Regional Dummy	R-DUMMY	Region's Differentiation	+, -	

5.1. Empirical Result of Panel Unit Root Test

As time units are sufficiently large and also greater than cross sections, it is imperative to examine the unit root properties of data. The selection of the test for examining unit root properties of data depends on the presence (or absence) of cross-sectional dependence among selected countries. For this purpose, Pesaran (2003) test is applied. This test suggests an easy way of getting rid of cross-sectional dependence than estimating the factor loading. This method with the lagged cross-sectional mean and its first difference is based on the ADF regression to

capture the cross-sectional dependence which arises from a single factor model. The result of Pesaran (2003) test is reported in Table 6.

H_0: No cross-sectional dependence
H_1: Cross-sectional dependence

Table 6. Test for Cross Sectional Dependence

	Test -statistics	Probability
Pesaran test of cross sectional dependence	1.189	0.2345

Given the acceptance of null hypothesis, we proceed towards the examination of unit root properties of data. When cross sections are independent then certain widely unit root tests options are available. For instance, see Levin, Lin and Chu (2002) and Im, Pesaran and Shin (2003). We have applied Im, Pesaran and Shin (2003) here as it avoids the limitations of LLC test such as LLC is restrictive in the sense that they do not allow for the heterogeneity within the panel as far as unit root properties are concerned. The null hypothesis of LLC is that each individual time series contains a unit root against the alternative that each time series is stationary. IPS (2003) test shares this limitation by allowing for a heterogeneous coefficient and proposes an alternative testing procedure based on averaging individual unit root test statistics. The null hypothesis of IPS is that each series in the panel contains a unit root and the alternative hypothesis allows for some (but not all) of the individual series to have unit roots. The results of IPS test are reported in Table 7.

Panel Unit Root Test: Summary

H_0: Presence of unit root.
H_1: Absence of unit root.

Kao and Pedroni tests are the most advanced form of Engle Granger. Pedroni tests investigate whether there is co-integration or not but do not provide an estimate for the long run. We have applied Kao test, as it follows the same basic approach as the Pedroni tests and also estimates a long run relationship between variables [Baltagi (2008)].

Table 7. Im, Pesaran and Shin Test

Variable	Level		First Difference		Order of Integration
	Intercept and Trend	P-Values	Intercept and Trend	P-Values	
CPS	-2.5103	0.5417	-11.5310	0.0000***	I(1)
REER	-0.0591	0.4764	-4.449	0.0013***	I(1)
Manu	-3.5103	0.534	-9.6341	0.0001***	I(1)
FDI	-1.2573	0.1042	-4.3571	0.0023***	I(1)
GDPP	-3.7505	0.9991	-7.3124	0.0000***	I(1)
EXP	-3.723	0.2147	-9.6431	0.0000***	I(1)
GFCF	-1.30371	0.3021	-2.5543	0.0011***	I(1)
FUEL	-2.0173	0.4593	-7.3114	0.0000***	I(1)
H. capital	-1.5371	0.4371	-3.5121	0.0021***	I(1)
HHI	-3.1036	0.0016	-5.3672	0.0001***	I(1)

*** shows statistical significance at 1%.

Table 8. Kao Residual Co-integration Test Estimation

Kao Residual Co-integration Test Included Observation: 107 Null Hypothesis: No co-integration				
Variable		t-statistic		P-value
ADF		-3.0113		0.0031***
Augmented Dickey-Fuller Test Equation (Dep. Variable: D(RESID)				
Variable	Coefficient	Std. Error	t-statistic	P-value
RESID(-1)	-0.257	0.07137	-3.711	0.0001***

*** shows statistical significance at 1%.

Kao ADF-t test shows that there is a long-run relationship between the variables at the 1% level of significance (Table 8). Thus, the possibility of spurious regression is ruled out.

Based on the Kao (1999) co-integration test, we established that there exists a linear combination. In view of this, OLS estimators will be biased and inconsistent if applied to a co-integrated panel and thus an alternative method needs to be adopted. For this reason, we run the panel by using the Fully Modified OLS (FMOLS) developed by Pedroni (2000).

FMOLS can be used which uses a correction approach to deal with the nuisance parameters and thus gives the long-run coefficients for the estimated model free of endogeneity and serial correlation. The major advantage of FMOLS is that it allows for estimation of common co-

integration vectors while allowing for heterogeneity both across time and cross-sections.

Thus, to obtain long-run impact of the variables free of serial correlation we use FMOLS estimations. These estimations not only generate the consistent estimates of the parameters with small samples but help controlling for the serial correlation and accommodate considerable heterogeneity across individual members.

5.2. Empirical Results of Fully Modified Least Squares

Explanatory variables are one-year lag values under the sensible presumption of a delayed impact on diversification. Results of fully modified ordinary least square model show that export diversification is significantly and positively dependent on explanatory variables included in the model for the selected economies of SAARC and ASEAN regions (Table 9).

Negative sign of export to GDP ratio indicates a positive relationship between export diversification and competitiveness of the economy for both regions in the global market (Table 9). Results support the hypothesis that increases in competitive strength of the SAARC and ASEAN countries in global markets enable them to diversify their exports. This statistically significant and positive relationship between competitiveness and export diversification is also supported by the findings of Lewis (2004), Bolivian (2009) and Lim (2012).

Negative sign of credit to private sector to GDP ratio supports the hypothesis that financial development in the two regions reduces export product concentration (Table 9). In other words, financial developments assist regional countries to diversify their exports. The estimated relationship supports the findings of Acemoglu and Zilibotti (1997).

Foreign direct investment and export diversification are positively associated in both the regions (Table 9). The relationship shows that as FDI bring in macroeconomic efficiency and production diversification. Consequently, countries experience export diversification. In this regard, Moran (2010) argued that since FDI brings new ideas and best knowledge and practices for starting new activities; therefore, it is expected that with FDI inflows export diversification will take place. Besides, FDI can easily build up networks and promote forward and

backward linkages with firms in their home countries. Moreover, by providing technological spillover, it can enable host countries to diversify production and exports base. Studies by Ekholm, *et al*. (2007), Hausmann, *et al.* (2007) and Gourdon (2010) support the findings of our study.

Table 9. Fully Modified Ordinary Least Square (FMOLS) Results

Dependent Variable: HHI
Method: Fully Modified Least Squares (FMOLS)
Sample (adjusted): 1986-2012Period included: 26 Cross- sections: 9
Included observations: 234

Variable	Coefficient	Std. Error	t-Statistics	p-values
CPS	-0.000545	0.000273	-2.9937	0.0047*
REER	-0.000961	0.000317	-3.0319	0.0002*
FUEL	0.002275	0.001127	2.0178	0.0588**
FDI	-0.004826	0.005319	-3.1020	0.0071*
GDPP	-0.001847	0.001934	-5.9548	0.0000*
GFCF	-0.001722	0.000122	-2.9121	0.0051*
R-DUMMY	-0.077288	0.019536	-3.9562	0.0001*
H-CAPITAL	-0.005226	0.005577	-4.0541	0.0018*
MANU	-0.000146	0.000371	-3.9562	0.0001*
EXP	-0.000112	0.000151	-3.0421	0.0009*
C	0.259022	0.038861	6.6654	0.0000*
R-squared	0.835107	Mean dependent variable		-0.169692
Adjusted R-squared	0.815077	S.D. dependent variable		0.052147
S.E. of regression	0.05052	Sum squared residual		0.007585
Durbin-Watson stat	1.87574	Long-run variance		0.000979

*, ** significant at 1% level and 5% level, respectively.

Note: Here, 'export diversification' increases as we move from 1 towards 0, hence a negative sign of a coefficient indicates an increase in export diversification say because of increase in credit to the private sector.

In almost all regions of the world, the pattern of trade has changed from primary exports to manufactured exports and hence increases export diversification. As export diversification becomes essential for effective participation in the global trading system and development, ASEAN economies also diversify their manufactured sector by taking structural reforms aimed to improve economic performance [Ferdous (2011), Arip, *et al.* (2010), Matthee and Naudé (2007)]. ASEAN economies are more developed than SAARC economies by giving high priority to export diversification in their

development strategy [Shepherd (2009), Voon (1998) and Wu (1991)]. Results of our study are also consistent with these findings. Regional dummy is included in the estimated model reported in Table 9, which represents an arbitrary benchmark to the ASEAN region. A positive and significant impact shows higher and relatively better process of export diversification in ASEAN region than SAARC region.

Growth in domestic investment result shows positive and significant relationship with export diversification (Table 9). Khan and Kumar (1997) support our findings.

Human capital and export diversification shows a positive and significant relationship for both regions (Table 9). Agosin, *et al.* (2012) support our findings.

GDP per capita captures the institutional strength of countries. Results show that GDP per capita is positively and significantly linked with export diversification in SAARC and ASEAN economies (Table 9). Results of our study are consistent with the findings of Acemoglu and Zilibotti (1997), Aghion and Howitt (1992) and Imbs and Wacziarg (2003).

The results suggest that manufacturing export to total export ratio is favorably and significantly related to export diversification (Table 9). These results are supported by the studies of Agosin (2007), Lederman and Maloney (2003), Lim (2012) and Carrere, *et al.* (2007).

Positive sign of the real effective exchange rate coefficient indicates that real depreciation of domestic currencies motivates SAARC and ASEAN countries for export product diversification (Table 9). This is because depreciation by improving competitive strength promotes exports and induces even non-exporting firms to export, and thus reduces specialization. Results of this study support the findings of Rodrik (1998) and Krugman (1987).

The sign of coefficient for *FUEL* is positive and the relationship is significant, which indicates a negative outcome of natural resource exports on export diversification. This basically confirms the presence of 'resource curse' paradox, where natural resources create lethargy or goofing-off effect in countries; as a result, they do not make efforts to improve export diversification. Similar results are found by Lederman

and Maloney (2003), Bebczuk and Berrettoni (2006), and Qaiser and Mahmood (2016).

6. CONCLUSION AND POLICY IMPLICATIONS

This paper has analyzed the role played by country-specific factors in the determination of export diversification process. We were particularly motivated by the fact that earlier studies presented single country analysis. They did not use a panel of countries (SAARC and ASEAN) to identify country-specific factors driving changes in export diversification. Specifically, we analyzed the effect of institutional strength, competitiveness, growth in domestic investment, financial sector development, natural resource curse and macroeconomic efficiency on export diversification.

Empirical findings of fully modified OLS co-integration model show that all factors are positively and significantly associated with export diversification in both the regions, with the sole exception of the fuel-intensity variable, which shows that as the ratio of fuel exports to total exports increases the diversification of exports decline. In other words, dependence on export of natural resources reduces intensives for diversifying exports. Thus, for the ASEAN countries we found the presence of natural resource curse.

An important finding of the analysis is that the institutional strength enables countries to fast diversify their exports. In other words, a country is in a better position to diversify its exports if it has a well-developed soft and hard infrastructure and viable institutions.

Inflow of foreign direct investment, which creates macroeconomic stability and contributes to economic efficiency by transferring knowledge and know-how, also facilitates export diversification. Likewise, growth in domestic investment, which provides required domestic resources to diversify production base in turn helps economies to diversify export. At the same time, financial sector development, which provides required credit to private establishments, becomes a facilitation source to diversify exports.

Real effective exchange rates have also played an important role in the export diversification. The empirical findings suggest that the real

depreciation of national currencies is profitable as it strengthens competitiveness required for export diversification.

Based on the above conclusion, we can draw implications for policymaking in the SAARC and ASEAN regions, these are as follows:

- Reform institutions and strengthen their mechanisms to facilitate export diversification. This should include strengthening of institutional capacity to develop right policies and create conducive business environment.
- Attract FDI by providing appropriate incentives and policies aimed at simplifying tax structure, flexible labour markets, and improved infrastructure.
- Further develop financial markets to fulfill the credit and financial products needs of private industries especially diversifying exports.
- Policy makers in natural resource rich countries need to be cautious in efficiently managing resources for their inevitable use to restructure economies and exports instead of misusing them. They must ensure macroeconomic stability and strengthen all the sectors of the economy to diversify exports.
- Stabilize domestic currencies as well as inflation to gain competitive strength in international markets for attaining the objective of export diversification.

APPENDIX
Measurement of Export Diversification

There are different ways to measure the degree of export diversification. The choice of a measure usually depends on different definitions, dimensions, forms, and levels of diversification. Measures of diversification or specialization can be obtained through determining different variety of specialization/concentration indices. The most typical in this respect are Herfindahl, normalized-Hirschmann and overall difference measures [Petersson (2005) and Pineres and Ferrantino (1997)]. The export diversity of different regions is measured through these three types of indices. The first diversity index is the

Herfindahl index, which defines the changes in export revenue or concentration of the regions. Following Petersson (2005), it can be calculated as:

$$SPEC_{jt} = \sum_i \left(\frac{E_{jit}}{\sum_j E_{jit}} \right)^2 \quad \ldots \text{(A-1)}$$

where, E_{jit} is the exports of the jth country in the ith product (sector) in a given period t. Index value ranges between zero and one. Where index value one shows full degree of export concentration (or specialization), while zero value indicates complete degree of export diversification.

Following Al-Marhubi (2000), the normalized-Hirschmann index can be calculated as:

$$H_{jt} = \frac{\sqrt{\sum_{i=1}^{n} \left(\frac{x_{it}}{X_{jt}} \right)^2} - \sqrt{\frac{1}{n}}}{1 - \sqrt{\frac{1}{n}}} \quad \ldots \text{(A-2)}$$

where, x_{it} is the value of exports of industry i located in country j and X_{jt} is the total exports of country j in a given period t. The number of industries is shows by n. An index value of one shows complete concentration whereas the values nearer to 0 indicate high diverse mixture of exports [Al-Marhubi (2000) and Naqvi and Morimune (2005)].

A third technique to calculate the export diversification is the total deviation of the country's share of the world's overall exports [e.g., Al-Marhubi (2000)]. This can be measured as follows:

$$S_{jt} = \frac{\sum_i |h_{ijt}| - |h_{it}|}{2} \quad \ldots \text{(A-3)}$$

where, h_{ijt} is the share of industry i in total exports of country j and h_{it} is the share of industry i in world exports in a given period t. The calculated value of the index ranges from 0 to 1. Where, 1 indicates

complete concentration and 0 designates complete diversification [Al-Marhubi (2000)].

Following Matthee and Naude (2007), Bebczuk and Berrettoni (2006), we use Herfindahl index to examine the degree of export diversification in SAARC and ASEAN regions. This is because this index is useful when export diversification is apparent due to changes in export composition within sectors. Besides this index allows catching both the intensive[1] and the extensive[2] edges of diversification.

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[1] Different quantities of the same products, i.e., the intensive margin.
[2] Different quantities of different products, i.e., the extensive margin.

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Economic Efficiency and Distortions to Incentives in Production of Cotton and Rice Crops in Punjab

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Abstract:

The study based on crop budgets, for 2010-12 crops, was, inter alia, designed to examine economic efficiency and distortions in incentives to production of cotton and basmati rice, long grain aromatic rice, crops in Punjab. The analysis has confirmed the competitiveness of their production in Punjab as farmers' gross revenues from these crops exceeded their total costs, enabling farmers make some profit. The competitiveness, nevertheless, is sensitive to changes in prices of the produce and those of the inputs. The analysis conducted at economic prices have indicated economic efficiency and comparative advantage of Punjab in producing both basmati rice and cotton. The domestic resource cost coefficients for basmati as well as cotton were consistently less than one, confirming Punjab's comparative advantage and economic efficiency in their farming. The estimation and analysis of nominal projection coefficients and effective protection coefficients for basmati and cotton crops have indicated implicit taxation as well as some protection to domestic producers. The results of economic efficiency and comparative advantage, of both basmati and cotton, are quite sensitive to the fluctuations and developments in world markets with spill over to the domestic market, impacting their competitiveness.

Keywords: Domestic Resource Cost, Effective Protection, Agriculture Policy Matrix

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Authors' Note: The crop budgets forming the basis of analysis reported in this paper were adapted from the policy analysis reports of the Agriculture Policy Institute (API).The authors would like to express their gratitude to the officers of API for providing the policy reports, sharing unpublished data on prices and sparing time to discuss many issues that arose during the course of this study. The authors gratefully acknowledge the comments of Professor Dr. Zafar Mahmood and referees of this Journal on an earlier draft, which were useful in improving the manuscript. However, views expressed are sole responsibility of the authors.

1. INTRODUCTION

Cotton and rice are the most important export crops of Pakistan. Annually planted over an area covering three million hectares, cotton is the 2nd largest and principal cash crop of the country. Cotton farming is the main source of raw material and mainstay for the textile sector— the major source of employment in large scale manufacturing in Pakistan. With annual production of cotton averaging over 2 million tons and ranking 4th in world cotton production, Pakistan is an important player in cotton markets. An important by-product of cotton production is cotton seed, which is widely used in the domestic vegetable oil and ghee industry to produce cooking oil. Cotton seed cake, obtained as a by-product of processing cotton seed in vegetable oil industry, is a valuable feed for livestock and dairy farming. Exports of cotton and its made-ups account for over 60 percent of the foreign exchange earned from exports of merchandize goods. Rice, with annual area exceeding 2.5 million hectares, is the 2nd most important food grain and the 3rd largest crop of the country. Pakistan is famous the world over for its production and exports of long grain aromatic rice-basmati. Pakistan also exports substantial quantity of coarse rice with total rice exports averaging 2.5 million tons in recent past [GoP (2012)]. Pakistan with its share of 11 percent in world rice trade of about 30 million tons per year is an active player in rice markets, ranking at 4-5 on world rice trade map. A good harvest of cotton and rice is imperative not only for the performance of agriculture in Pakistan but also for the robust growth in manufacturing and healthy balance of trade.

In view of their economic importance, production and marketing, rice and cotton have been subjected to several policy interventions in Pakistan, ranging from restrictions on their cultivation in certain districts/areas to zoning, and monopoly procurements in domestic markets and exports. There were also restrictions on the movement of basmati rice, requiring a permit from the Punjab Food Department for its movement. In 1974, Rice Export Corporation of Pakistan (RECP) was set up in the public sector and it had monopoly in rice exports. It also acted as the government agency for implementing official price support for rice through procurement operations [UCGL (1989)]. Rice Mills

were nationalized in 1976 and denationalized in 1977. Similarly, cotton ginning was nationalized in 1976 and denationalized in 1977 [Hamid, Ijaz and Anjum (1990)]. Cotton Exports Corporation (CEC), established in the 1974 had the monopoly over cotton exports which lasted until 1986-87 [Salam (2008)]. When CEC was formed it worked at two levels: as the main agency for the purchase of cotton from the farmers and as the exporter to international traders at government regulated prices [Altaf (2008)]. Cotton and rice exports were also subjected to export duty and other taxes [Salam (2008) and Altaf (2008)]. All these interventions in domestic marketing and trade of cotton and rice created many distortions in the cotton and rice sectors, impacting the structures of incentives and investments in these important sub-sectors of economy. Under the economic reforms initiated under structural adjustment program in 1985, many of these restrictions on marketing and trade of rice and cotton along with the RECP and CEC have been phased out and private sector fully taken over the marketing and trade in cotton and rice.

With their extensive forward and backward linkages production, processing and marketing of cotton and rice crops play a crucial role not only in agriculture but also in industrial growth, employment generation and balance of trade. Thus, it is important to examine and analyze their economic efficiency and ascertain incentives in their domestic production. The subject is of critical importance and interest for policy planners and those interested in the development of agriculture. There are not many studies on the subject and some of these are dated. Dorosh and Salam (2009), and Salam (2010)] in their analysis of economic protection and taxation of agriculture and important crops in Pakistan had, inter alia, examined the distortions in incentives to cotton and rice production and so did Hamid, Ijaz and Nasim (1990). Appleyard (1987) in his assessment of the comparative advantage of important crops in the 1980s also addressed the issue of protection to cotton and rice crops in Pakistan. Other recent studies relating to the topic are those by Akhtar, *et al.* (2007), Chaudhry, *et al.* (2009) and Quddus and Mustafa (2011). The present study has been designed to ascertain the efficiency of cultivation of cotton and rice and estimating distortions to incentives, if any, in the course of their production in the Punjab -- the largest producer of these crops in the country. Punjab with 84 percent of the cotton area

contributes about 75 percent of its total production. Its contributions in case of rice are estimated at 67 and 55 percent in area and production, while cultivation of long grain aromatic basmati rice is confined to Punjab only [GoP (2013)].

The organization of remaining paper is as follows: The Policy Analysis Matrix (PAM), the main plank of the analytical frame work used here to evaluate the economic efficiency and distortions in incentives to production of cotton and rice is explained in section 2. The data requirements of PAM are also discussed in section 2. The empirical results emerging from PAM are described at length in section 3. The paper sums up main results and their policy implications in section 4.

2. POLICY ANALYSIS MATRIX: METHODOLOGY AND DATA

2.1. Methodology

Enterprise budgets, providing details of various inputs used, their prices, outputs and prices thereof form the building blocks of policy analysis aimed at estimating their efficiency and related measures. These data are nevertheless to be transformed into various summary measures and indicators of profitability and efficiency. In this context Policy Analysis Matrix (PAM), developed by Monk and Pearson (1989), comes handy. The way PAM, given in Table 1, has been designed and constructed provides a detailed analytical framework, outlining its requirements of data and their arrangement, to estimate various indicators of financial and economic viability of given enterprises. PAM is also helpful in estimating various measures of protection such as nominal and effective protection coefficients, manifesting the impact of various interventions in input-output markets, providing clue to the nature of distortions in incentives to the enterprises under examination.

The indicators of private and social profitability, used to ascertain the efficiency and profitability of basmati rice and cotton and other measures of their comparative advantage are explained below:

Table 1. Policy Analysis Matrix (PAM)

Item	Revenue	Costs		Profit
		Tradable Inputs	Domestic Factors	
Private Prices	A	B	C	D
Social Prices	E	F	G	H
Divergence	I	J	K	L

Source: Monke and Pearson (1989).

- **Private Profit,** D = A – (B+C), measures the private profitability and competitiveness of a given enterprise at market prices of inputs and output. A positive value of D is indicative of the enterprise's private profitability and its financial viability.
- **Output – Input Ratio** = Gross income / gross costs = A / (B+C). It is an overall measure and indicator of relative efficiency and profitability of the enterprises under reference.
- **Profitability Ratio.** In terms of the symbols used in Table 1, it is: C / (A-B), providing an estimate of cost of domestic factors per unit of value added at private prices. It is a useful measure for ranking private profitability and financial viability of different crops and other farm enterprises.
- **Social Profit** for a given enterprise is evaluated at social / economic prices of inputs and outputs. For economic viability of a given enterprise its social profit: as indicated by H = (E-F-G), in Table 1, must be positive.
- **Domestic Resource Cost:** It is the cost of domestic factors used in production of a commodity per unit of the foreign exchange earned from its increased exports or saved through its import substitution. DRC is the ratio between cost of domestic factors and value added at social prices, G / (E-F). In case DRC > 1 the country does not have comparative advantage in domestic production of the commodity and when DRC < 1 the country enjoys comparative advantage.
- **Nominal Protection Coefficient (NPC):** It is the simplest measure of protection. It is calculated by dividing the domestic market prices of a commodity by its international prices adjusted for domestic marketing costs, or P_{di} / P_{wi}, where P_{di} is the domestic price of the commodity and P_{wi} is the corresponding social (world) price. In

terms of the symbols used in Table 1, it is obtained by calculating the ratio between A and E, i.e., dividing total revenue estimated at actual market prices by the total revenue evaluated at social prices. When NPC > 1, domestic production enjoys protection and a value of NPC < 1 implies implicit taxation and discouragement to domestic producers.

- **Effective Protection Coefficient (EPC):** It measures the net effect of interventions in factor inputs and output markets. It is calculated by taking a ratio between the values added by an enterprise at private prices and at social prices, i.e., (A – B) / (E- F). The interpretation of EPC is similar to that of the NPC discussed earlier.

The formulae for estimating different coefficients as given above are based and adapted from the discussions in Scandizzo and Bruce (1980) and Monke and Pearson (1989).

2.2. Data for Constructing PAM

Data for filling in various cells of PAM, as outlined in Table 1, were adapted from the cost of production estimates of basmati rice and cotton crops reported in the respective Policy analysis reports of the Agriculture Policy Institute. These data were supplemented, where needed, from the analysis and information presented in the unpublished M. Phil thesis of Tufail (2014). Data on output prices were also supplemented with the information provided in the Statistical Appendix of Pakistan Journal of Agricultural Economics January 2012 issue and some of the economic prices were estimated by the authors from the data on international prices of cotton and rice reported in Pakistan Economic Survey. Based on these data, as explained above, PAM for basmati rice and cotton were constructed and are given at Annexes 1-3. Data used in the study relate to 2010-2012 crop years, which are characterized by considerable variation in input and output prices, the main reason for selecting period of study.

Farm inputs used in production of rice and cotton for use in constructing PAM are divided into tradable and non-tradable. The prices of inputs and outputs for use in policy analysis matrix were

categorized into market / private and social / economic prices as explained below:

- **Tradable Inputs:** They include all those inputs which were either purchased or can be traded in the international market. In our analysis these are seed, chemical fertilizers, pesticides, services of farm machinery, i.e., tractor, thresher, tube well, etc.
- **Non-Tradable Inputs/Domestic Factors:** They include land, labour, and farm yard manure and canal water.
- **Private Prices** are the market prices actually paid by the farmers for their purchases of inputs and received for their produce.
- **Social Prices of Inputs and Outputs:** These were worked back from the actual international prices of various inputs and outputs accounting for costs and margins entailed in their marketing and distribution.

3. RESULTS FROM POLICY ANALYSIS MATRIX

From the data in Annexes 1-3, indicators of private profitability, economic efficiency and comparative advantage and distortions to incentives, as detailed above, were estimated. These indicators are explained here under along with their implications for distortions in incentives in cotton and rice farming in Punjab.

3.1. Private Profitability and Competitiveness

The market prices reflect the underlying economic costs and valuation and the effects of all policies and market failures [Monke and Pearson (1989)]. The private profitability of rice and cotton crops in the Punjab is reflected by the positive values in the second column of Table 2, showing their competitiveness all along for the period under reference. As the gross revenues accruing to the producers from the sale proceeds of each crop were higher than the total costs entailed in the use of tradable and non- tradable factors producers received above normal returns to their investment in producing these crops.

In view of the varying use levels of farm inputs and differences in durations of growing periods of cotton and rice, resulting in a lot of

variation in their overall investment, absolute values of profits may not be appropriate for comparing their profitability. To overcome this limitation, we estimated the ratio of the domestic factors' costs to the value added at private prices in production of cotton and rice. The ratio between the costs of domestic factors and value added at private prices shows how much a given enterprise can afford to pay domestic factors and still remain competitive [Monke and Pearson (1989)]. Assuming cost minimization behavior of farmers, lower the ratio between cost of domestic factors and the value added, higher the profitability ranking of that crop / enterprise. The input-output coefficients may also change on account of technological development and result in changing use level of inputs and resulting output. But this is more likely to happen in the long run or in period of rapid technological changes. Thus, to account for the impact of varying levels of total investments on crop profitability we have estimated the ratios between total revenues and total costs, i.e., output–input ratio to estimate the relative efficiency and overall rate of return to the costs incurred in the process. To account for the impact of price fluctuations on profitability and relative positions output input ratios were calculated for three crop years. The results of these estimate-ions are also given in Table 2.

During 2009-10 crop year, cotton farming experienced higher ranking in terms of domestic factors' cost per unit of value added as compared to basmati rice. The analysis based on the ratio between total revenue and total costs also confirmed this ranking and indicated higher returns to investment in cotton farming as compared to those of basmati rice. During 2010-11, there was a dramatic improvement in the ranking of cotton as the ratio of domestic factors' cost to value added at domestic prices declined from 0.45 in 2009-10 to 0.21 in 2010-11. There was a marginal improvement for basmati rice as well. The output input ratio for cotton also increased from 1.57 in 2009-10 to 2.76 in 2010-11, while that of rice improved from 1.18 to 1.22. The situation in 2011-12 crop year witnessed a significant change in the economics of both cotton and rice, as the prices received by cotton growers fell sharply; from Rs.4,003 per 40 kg in 2010-11 to Rs.2,558 in 2011-12 while those of basmati paddy increased from Rs.1,320 per 40 kg to Rs.1,424. As the input prices of various inputs were on the rise profitability of both cotton and rice are

estimated to have declined during 2011-12 crop year. These results of profitability and competitive analyses suggest only the absolute values of profits accruing from these crops and their relative rankings being also quite sensitive to the fluctuations in output prices.

Table 2. Private Profitability and Competitiveness of Basmati and Cotton Crops: 2010 to 2012

Crop and Crop Year	Private Profit	Private - Cost Ratio	Output - Input Ratio
	Rs. / acre	C/(A-B)	A/(B+C)
2009-10:			
Basmati	3,981	0.75	1.18
Cotton	12,045	0.45	1.57
2010-11:			
Basmati	5,585	0.70	1.22
Cotton	43,774	0.21	2.76
2011-12:			
Basmati	768	0.96	1.02
Cotton	13,916	0.50	1.46

Note: (1) Private profit = Gross revenue at private prices minus total costs; (2) Private cost ratio is the ratio of non-tradable costs to the value added at private prices; and (3) Output - input ratio is the ratio between gross revenue and total costs, both estimated at private prices.

3.2. Economic efficiency and Social profitability

Social profits defined as social revenue less social costs, measure efficiency or comparative advantage of a production system or farm enterprise [Monke and Pearson (1989)]. Data relating to social profits from cotton and rice production and their domestic resource cost coefficients are set out in Table 3. The economic or social prices as used in the analysis presented in this paper are based on the actual respective export prices of basmati rice and cotton. In addition, as cotton has been imported in large quantities in the recent past, its economic prices were also calculated from its actual import prices. There is a substantial difference in the economic prices, as calculated from the export or import prices of cotton and both were used to ascertain the economic efficiency of cotton. The results of this analysis are presented in Table 3 and discussed in the following paras.

Table 3. Social Profits and Domestic Resource Costs of Basmati and Cotton : 2010 to 2012

Crop and Crop Year	Social Profit Rs. /acre	DRC
2009-10:		
Basmati – export price	9,197	0.64
Cotton – export price	1,294	0.92
Cotton – import price	18,923	0.43
2010-11:		
Basmati – export price	3,614	0.84
Cotton – export price	46,013	0.27
Cotton – import price	67,875	0.20
2011-12:		
Basmati – export price	(6,549)	1.38
Cotton – export price	(7,414)	1.44
Cotton – import price	23,696	0.51

Note: (1) Social profit = Gross revenue - total costs of tradable and non-tradable inputs, all estimated at social/economic prices; (2) Social prices of basmati and cotton export were estimated from their actual export prices; (3) As large quantity of cotton has been imported, its social prices also estimated from import prices and used here; (4) Data in cotton export and cotton import rows based on its export and import parity prices; and (5) The values in parentheses are in negative, indicating negative profitability.

The respective values of social profits, for both cotton and basmati rice, for the 2009-10 and 2010-11 crop years, were positive. Thus, cultivation of these crops was economical from the national perspective. In other words, Punjab enjoyed economic efficiency and had comparative advantage in cultivation of both cotton and rice during these two crop seasons. However, the absolute values of social profits of rice and cotton, as reported in Table 3, reflect vast differences. This is mainly on account of the varying intensity of factor inputs use and varying periods of crop duration, resulting in varying levels of farm investment values. To overcome this problem we have estimated domestic resource cost coefficients for both cotton and rice. The DRCs measure the country's international comparative advantage in production and foreign exchange generating capacity of specific production activities [FAO (1991)]. Appleyard (1987) noted since DRC coefficient shows the domestic resource costs incurred per unit of foreign exchange earned or

saved, when DRC for a given commodity is less than 1, (DRC < 1), the country has comparative advantage in its produc-tion and vice versa.

The DRCs estimated for both cotton and rice, for 2009-10 crop year, were less than one (<1), thus Punjab had a comparative advantage in their production. These results also indicated economic efficiency of Punjab in the cultivation of these export crops. However, there was wide difference in the DRC coefficients of the two crops, impacting their economic rankings. During the next crop season, 2010-11, the world prices of cotton witnessed a significant increase that translated into much higher economic prices in relation to the last season; (Rs. 4, 647 / 40 kg in 2010-11 as compared to 1,709 in 2009-10). However, export parity price of basmati paddy in 2010-11 declined, (from Rs. 1,511 per 40 kg in 2009-10 to Rs. 1, 480 in 2010-11) due to lower export prices of basmati rice obtaining in export markets (Table 4). Accordingly, economic position of cotton as reflected in its higher social profits in 2010-11 was strengthened over that of 2009-10 but that of basmati rice weakened. Nevertheless, rice continued to enjoy economic viability and social profitability as reflected by its positive values of social profit. In view of the contrasting changes in their economic prices during 2010-11, as explained above, comparative advantage of cotton as reflected in its declining domestic resource cost coefficient also improved over that of basmati rice. Although, DRCs for both cotton and rice in 2010-11crop year, estimated at 0.27 and 0.84, respectively, indicative of their comparative advantage in export markets their relative positions vis-a-vis each other had changed considerably due to the varying developments in international markets. In view of these DRC estimates, cotton had a much higher comparative advantage as it required 66 percent less domestic resources to earn one unit of foreign exchange as compared to that of rice.

For the 2011-12 crop, the economic position of both cotton and rice, deteriorated sharply as their international prices precipitated and translated into much lower economic prices in relation to the last year (cotton Rs.2,416 and basmati paddy at Rs.1,392 per 40 kg). The social profitability of both cotton and rice when evaluated at export parity prices was negative as the gross revenue at social prices was less than the total costs expended by the society in their farming. The DRC

coefficients of cotton and rice, as estimated from their respective export parity prices, during 2011-12 were 1.44 and 1.38; exceeding one (DRC >1) by a substantial margin and reflecting comparative disadvantage in world trade/markets. This dramatic turnaround in the economic fortunes of two of the most important cash and export commodities of Pakistan was primarily triggered by the sharp fall in their export prices.

Table 4. Prices of Output and Important Inputs

Item	2009-10	2010-11	2011-12
Seed Cotton: (Rs / 40 kg):			
Market price	1,916	4,003	2,558
Import parity price	2,746	5,933	4,264
Export parity price	1,709	4,647	2,416
Basmati paddy:(Rs /40 kg):			
Market price	1,097	1,320	1,424
Export parity price	1,511	1,480	1,392
Input Prices:			
Labour wage rate: Rs./ day	220	250	300
Urea : Rs./ bag	784	878	1,182
DAP: Rs./ bag	1,896	2,629	4,067
Ploughing: Rs./ acre	300	400	500

Note and data sources: (1) Market prices of seed cotton and paddy adopted from API's Policy reports and Pakistan Journal of Agricultural Economics issue of January 2012; (2) Export parity price of paddy for 2009-10 and 2010-11 from Pakistan Journal of Agricultural Economics issue of January 2012 and that for 2011-12 estimated by the authors from the exports data. Prices rounded off to whole numbers; (3) Export and import parity prices of seed cotton estimated by the authors from the actual exports and import prices of cotton; and (4) Input prices from the crop budgets as reported in API Policy reports.

As Pakistan in the recent past has inter alia imported large quantities of cotton we have also estimated its import parity prices, besides export parity, from the actual import prices to reflect the opportunity cost of its domestic production. It may be pointed here that in such a situation, export parity price is always less than its import parity price and thus use of import parity prices in the economic analysis, when so warranted, will improve the economic position of the commodity under reference.

The results of comparative analysis, as discussed above, are sensitive to the changes in international commodity prices. The comparative advantage and economic efficiency of Punjab in production of basmati rice and cotton, though well established and robust for 2009-10 and 2010-11, was threatened during 2011-12 when export prices fell

sharply. Thus, here is a lesson for all those concerned with agricultural development in general and cotton and rice in particular. The lesson is to keep a continuous watch on the developments in international markets and monitor and analyze the commodity prices and advise the concerned quarters of the emerging policy challenges facing the country in world markets.

The results of empirical analysis presented here are in line with those published by Appleyard, based on crop budgets of the 1980s [Appleyard (1987)]. The comparative advantage of both rice basmati and cotton in Punjab-Pakistan was ascertained on the basis of their social prices, estimated as export parity prices from their corresponding export prices. Thus, increasing production and exports of cotton and basmati rice in the province is an economic proposition and in the country's interest. These results are similar to those reported by Chaudry, *et al.* (2009) in their study of cotton in Punjab.

3.3. Distortions to incentives

To examine the situation of incentives to domestic production of cotton and rice and distortions thereof, their nominal and effective protection coefficients were estimated. These coefficients are presented in Table 5. The nominal protection coefficient for seed cotton for 2009-10 crop was greater than one, (>1). Thus, domestic market prices of seed cotton as received by growers were higher than the corresponding world prices. The producer prices of seed cotton in domestic market, on the average, exceeded export parity prices by about 12 percent. The effective protection coefficients for cotton, which reflect the net effect of v interventions in factor inputs and output markets, also endorsed the contention of protection and incentive to cotton producers. It needs to be mentioned here that there is a vast domestic market for cotton feeding the domestic textile industry and competing with exports for quality cotton, offering attractive prices for the produce. Nevertheless, producer prices of seed cotton were considerably less than its corresponding economic prices worked back from the actual import prices of lint. The NPC and EPC for seed cotton based on its import parity prices worked

back from its actual import prices were respectively 0.70 and 0.66, indicating implicit taxation of domestic production.

The NPC for basmati rice during 2002-10 crop year, estimated at 0.74 was less than one, (<1), indicating 26 percent implicit taxation of domestic production. Taxation of basmati as estimated from its EPC increased to 36 percent, reflecting the net outcome of government interventions in farm input and output markets. The implicit taxation of basmati rice and resource transfers from basmati farmers have also been reported by the earlier studies on the subject; Appleyard (1987), GoP (1988) Hamid, Ijaz and Nasim (1990), Akhtar, *et al.* (2007), Chaudhry, *et al.* (2009), Dorosh and Salam (2009), Salam (2009 and 2010), and Qudus and Mustafa (2011).

Table 5. Nominal and Effective Protection Coefficients in Rice and Cotton Production:
2010 to 2012

Crop and Crop Year	NPC	EPC
2009-10:		
Basmati paddy	0.74	0.64
Seed cotton 1	1.12	1.42
Seed cotton 2	0.70	0.66
2010-11:		
Basmati paddy	0.90	0.84
Seed cotton 1	0.86	0.88
Seed cotton 2	0.68	0.65
2011-12:		
Basmati paddy	1.02	1.05
Seed cotton 1	1.06	1.66
Seed cotton 2	0.61	0.58

Note: Coefficients of basmati paddy based on economic prices estimated from export prices of long grain aromatic rice.
Seed cotton 1 coefficients are based on export parity prices of cotton as estimated from its export prices.
Seed cotton 2 coefficients are based on import parity prices of cotton as worked base from its actual import prices.

The NPCs and EPCs calculated from the PAM for cotton for the 2010-11 crop year, based on its import parity prices, like the ones discussed for the previous crop, indicate continued implicit taxation of domestic production. As the international prices of cotton scaled new heights, its export parity prices experienced a quantum jump. The domestic prices of seed cotton also rose in tandem with the world prices

but were considerably less than the corresponding export parity prices. Thus NPC of seed cotton was estimated at 0.86 while its EPC was 0.88. As these estimates of NPC and EPC, both based on export and import parity prices, were less than one, domestic production of cotton during 2010-11 crop year was subjected to implicit taxation, ranging from 12 to 35 percent. The, NPC and EPC for basmati paddy estimated at 0.90 and 0. 84 respectively, being less than one, (< 1), indicated continued taxation of basmati producers during 2010-11. However, incidence of implicit taxation of rice basmati, as reflected by the higher values of its NPC and EPC in relation to previous crop year, declined to 10-16 percent as compared to 26-36 percent in 2009-10 crop year.

The situation of incentives for basmati crop during 2011-12 season as reflected by its NPC and EPC estimates of 1.02 and 1.05 reflected marginal protection to domestic producers as the prices received by them were somewhat higher than the corresponding economic price as worked back from export prices. Thus there was a qualitative change from previous years of its high implicit taxation. For cotton crop with NPC and EPC estimates of 0.61 and 0.58, calculated from the import parity prices, the implicit taxation as observed in previous years continued. Nevertheless, the situation of implicit taxation of domestic cotton production changed into protection when economic prices of domestic cotton were worked back from its actual export price as the NPC and EPC calculated at 1.06 and 1.66, respectively, from the 2011-12 crop data were greater than one. These results are similar to those reported by Qudus and Mustafa (2011) for cotton in their study of comparative advantage of major crops in Punjab.

Both cotton and rice are important export crops of Pakistan. There is also an active domestic market for both cotton and rice as substantial proportion of the domestic production of cotton is processed into various products in domestic textile industry. Similarly, a considerable proportion of domestic production of long grain aromatic basmati rice is consumed domestically. Accordingly, there is active trading of these commodities in domestic market, and competition between domestic and export markets for cotton and rice aligning the trends in domestic market prices with the developments in world markets. This is amply borne out by the wide fluctuations in the values

of protection coefficients estimated from the annual data. These fluctuations in prices add to the risk and uncertainty, hallmark of agriculture and crop production and underline the need for adopting such measures as to minimize the adverse effects on domestic production emanating from the price fluctuations in world markets.

The results of PAM as reported in this paper depend not only on the technical efficiency of farmers but also on the structure and functioning of inputs and output markets. The construction of PAM is also quite demanding in terms of its data, requiring a good understanding of the technical details of the enterprises under examination and conceptual issues entailed in classification of various inputs and estimation of economic prices. The results are also sensitive to the trade orientation of a given commodity, whether imported or exported as it impacts on the level of resulting opportunity cost of the domestic produce which is also influenced by the supporting infrastructures in the domestic markets. The results, as highlighted by the changes in the annual estimates of different indicators, are quite sensitive to the developments in international and domestic markets, thus need to be interpreted with care, keeping in view the organization of domestic markets and their linkages with the commodity markets at large.

4. CONCLUSION

Analysis of crop budgets for basmati rice and cotton, 2010 to 2012 crops, has confirmed competitiveness of their production in Punjab. The degree of competitiveness however remains sensitive to fluctuations in input and output prices. Farmers' total revenue exceeded their gross costs incurred in the production of cotton and rice. The surplus revenue however fluctuated from year to year, impacting the extent of competitiveness. The domestic resource cost coefficients, for both the crops, though varying from year to year, were consistently less than one. Thus, results of economic analysis confirm their comparative advantage and economically efficient production in Punjab.

The estimation and analysis of NPCs and EPCs for basmati and cotton crops have indicated implicit taxation as well as some protection to domestic producers. Nevertheless the extent of taxation and protect-

ion, as manifested by varying size of the NPC and EPCs, keeps on changing with the developments in world commodity markets and their spill over to domestic market. The comparison of domestic prices of seed cotton with corresponding world prices, worked back from export prices of lint has indicated some protection to cotton production during some of the crop years but implicit taxation when comparison is based on economic prices estimated from actual import prices of cotton.

As per results of the analysis presented in this paper, basmati rice and cotton have been generally subjected to implicit taxation, intensity varying from year to year due to changes in domestic and world prices. The earlier studies by Appleyard (1987), Hamid, Nabi and Nasim (1990), GoP (1988), Dorosh and Salam (2009), Salam (2009), Chaudhry, *et al.* (2009), Qudus and Mustafa (2011), had also reported significant implicit taxation of basmati and cotton crops. Much water has since passed under the bridge. Economic reforms and policy initiatives resulting into dwindling role of the public sector and increasing role of private sector in farm output and input markets have been undertake. Nevertheless, domestic producers of basmati and cotton continue to be implicitly taxed, resulting in large resource transfers, adversely impacting producer incentives, farm investments and efforts aimed at alleviating rural poverty.

Punjab has a comparative advantage in production of both basmati rice and cotton, important export crops. Their producers and production need all the encouragement through research and development efforts. Implicit taxation of domestic production and resource transfers from farmers need to be arrested.

Under the 18th Amendment, in 2011, agriculture as a subject has been devolved to the provinces [GoP (2011)]. Since basmati rice and cotton are the two most important export crops of the Punjab, the provincial Department of Agriculture should make all-out efforts to ensure competition in the markets, improve marketing infrastructure and market intelligence to help farmers get better prices for their produce. Efforts also need to be directed to improve the processing of paddy and ginning of seed cotton so as to fetch higher prices in the world markets. Since basmati rice and cotton are two most important exports, their domestic prices are bound to reflect the developments in world markets.

Excessive fluctuations in market prices, however, would have adverse implications for resource use and productivity, farm incomes and household welfare. Ways and means ought to be found and steps taken to insulate domestic producers from excessive fluctuations in market prices. However, this is predicated on the availability and development of institutional capacity to continuously monitor and analyze the developments in the domestic and world markets.

ANNEXES

Annex 1: Policy Analysis Matrix for Basmati Paddy: 2010-12

Crop Year	Gross Revenue	Tradable Inputs Cost	Domestic Factors' Cost	Profit
		Rs./Acre		
Private Prices	25,634.00	9,392.00	12,261.00	3,981.00
Social Prices	34,742.00	9,374.00	16,171.00	9,197.00
Transfers	(9,108.00)	18.00	(3,910.00)	(5,216.00)
2010-11:				
Private Prices	30,840.00	12,295.00	12,960.00	5,585.00
Social Prices	34,360.00	12,385.00	18,361.00	3,614.00
Transfers	(3,520.00)	(90.00)	(5,401.00)	1,971.00
2011-12:				
Private Prices	33,828.00	15,635.00	17,425.00	768.00
Social Prices	33,124.00	15,756.00	23,917.00	(6,549.00)
Transfers	704.00	(121.00)	(6,492.00)	7,317.00

Note: Basic data used in these calculations are adopted from the crop budgets as reported in API's Policy reports, prices data supplemented with other sources as indicated in the text.

Annex 2: Policy Analysis Matrix for Seed Cotton Based on Its Export Parity Prices: 2010-12

Crop Year	Gross Revenue	Tradable Inputs' Cost	Domestic Factors' Cost	Profit
		Rs./Acre		
2009-10:				
Private Prices	33,032.00	11,121.00	9,866.00	12,045.00
Social Prices	29,513.00	14,056.00	14,163.00	1,294.00
Transfers	3,519.00	(2,935.00)	(4,297.00)	10,751.00
2010-11:				
Private Prices	68,626.00	13,179.00	11,673.00	43,774.00
Social Prices	79,574.00	16,733.00	16,828.00	46,013.00
Transfers	(10,948.00)	(3,554.00)	(5,155.00)	(2,239.00)
2011-12:				
Private Prices	44,186.00	16,136.00	14,134.00	13,916.00
Social Prices	41,772.00	24,855.00	24,331.00	(7,414.00)
Transfers	2,414.00	(8,719.00)	(10,197.00)	21,330.00

Note: Basic data used in these calculations are adopted from the crop budgets as reported in API's Policy reports, prices data supplemented with other sources as indicated in the text.

Annex 3: Policy Analysis Matrix for Seed Cotton Based on Its Import Parity Prices: 2010-12

Crop Year	Gross Revenue	Tradable Inputs' Cost	Domestic Factors' Cost RS/Acre	Profit
2009-10:				
Private prices	33,032.00	11,121.00	9,866.00	12,045.00
Social prices	47,142.00	14,056.00	14,163.00	18,923.00
Transfers	(14,110.00)	(2,935.00)	(4,297.00)	(6,878.00)
2010-11:				
Private prices	68,626.00	13,179.00	11,673.00	43,774.00
Social prices	101,436.00	16,733.00	16,828.00	67,875.00
Transfers	(32,810.00)	(3,554.00)	(5,155.00)	(24,101.00)
2011-12;				
Private Prices	44,186.00	16,136.00	14,134.00	13,916.00
Social prices	72,882.00	24,855.00	24,331.00	23,696.00
Transfers	(28,696.00)	(8,719.00)	(10,197.00)	(9,780.00)

Note: Basic data used in these calculations are adopted from the crop budgets as reported in API's Policy reports, prices data supplemented with other sources as indicated in the text.

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Can Econometrics Rescue "The Economics"?

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Abstract:

Economists disagree; this is a matter of fact. Economics has an empirical methodology to verify whatever theories economists from different schools of thought advance in order to explain the economic phenomenon. This empirical methodology lends economists the confidence that most of the differences among them can be reconciled overtime by employing this methodology. If not today, future development either in economic theorization or estimation techniques may help them settle their internal conflicts. This paper argues that disagreements among economists are deeper than they are usually conceived of. These disagreements are spread over the entire spectrum of scientific theorization, i.e., explanation, prediction and control aspects of economics. Economists disagree neither because their understanding about economic functioning is imperfect nor because their econometric tool-kit of verifying their theories is limited; instead several deeply rooted reasons leave them divided on matters of economic theory and policy. It is argued that disagreements among economists are so deep that they become almost irreconcilable. Economics will continue as a rhetoric activity where different economists make use of authorities, stories, logic and metaphor to persuade each other.

Keywords: Political Philosophy, Scientific methodology, Value judgment, Econometric techniques, Rhetoric

1. INTRODUCTION

Economists disagree, this is a matter of fact, and they disagree so much that there are jokes around economic profession expressing this fact. The disagreements among economists spread over the whole spectrum of scientific theorization, i.e., explanation, prediction and control (policy). We see economists disagreeing over issues revolving around explanation of the underlying phenomenon (i.e., which theory is the right one), predictions (i.e., how changes in some aspect of economic

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reality is going to affect some other) and policy (i.e., how can we control and mould the underlying phenomenon to achieve the desired end). Economists even interpret the existence of these disagreements differently; one researcher can see these disagreements as a sign of crises while another [e.g., Klamer (1988)] as an expression of diversity of a mature scientific discipline that should be celebrated.

Economists like Friedman (1953 and 1968), Machlup (1965), Thurow (1982) and McCloskey (1985) try to argue that disagreements among economists are apparent not fundamental. Malchlup (1965) says that economists disagree over applications not fundamentals. Friedman (1968), to illustrate this point, gives the example of minimum wage law about which economists (both proponents and critics of this policy) agree that it creates unemployment; they disagree over the desirability of this policy (i.e., on the normative domain). As put by Thurow (1982), minimum wage law is not a disagreement about economics, rather a political dispute. Friedman (1968) also concludes that most disagreements among economists (other than those involving value-judgments) are related to scientific judgments that can be empirically resolved (e.g., the 1960s and 1970s debate between Keyenesian and Monetarists boiled down to the slopes of IS (investment-saving) and, largely, LM (money demand-money supply) curves which could be empirically tested under any given scenario for any country). These authors thus try to suggest that disagreements among economists are mis-specified, the core of economic theory is shared. Thurow (1982) asserts that "economists disagree much less about economics than the general public thinks. Most of the disagreements are about non-economic aspects of economic problems" (p. 176). However, this statement of his presumes a definition of economics that strictly separates it from political economy. This specification of disagreements among economists gives a hope that future developments in economic theorization, more complicated modeling of the economy and employment of advanced estimation techniques to gather empirical results will diminish the scope of disagreements among economists accordingly.

However, the assertions of Friedman and Malchlup, as compared to Thurow, are partly plausible, given the theoretical context that they were trying to rationalize in their times. It was the time of 1950s and 1960s when the debate of Keynesians and monetarists was converging on a 'neoclassical synthesis'. However, the analysis of disagreements by these two does not accommodate the issues resulting from the famous 'war over capital' fought between the two Cambridges (i.e., capital controversy). In contrast, Thurow's optimism expressed in 1980's seems more like an understatement of the state of economic diversity prevailing even within neoclassical economics at that time. It was the time when not only some new debates came forth within the neoclassical synthesis in the background of the Philip's curve controversy, role of expectations and search for micro-foundations, but some alternative approaches to this synthesis had also emerged or reemerged with new ideas. These alternative schools do not debate over the slopes of the curves nor do they talk about underlying assumptions of 'mainstream macroeconomics' (such as price stickiness and rational expectations). They even question the very concepts like equilibrium-based models of economy, value-free conception of economic theory, methodological individualism, Friedman's instrumentalist account of science and many more. The disagreement has now grown stronger and wider in scope.

This paper argues that the disagreements among economists are much deeper than they are usually conceived of. Economists disagree neither because their understanding about economic functioning is imperfect nor because their value-judgments are heterogeneous, even a perfect understanding of economic phenomenon will leave them divided for several deeply rooted reasons. Moreover, developments in econometrics can also not help reduce these differences among economists. It is only after analyzing the nature of the underlying reasons of disagreements that one would be in a position to judge if they are reconcilable.

2. THE FOUNDATIONS OF DISAGREEMENTS

As economics is one of the branches of Enlightenment Epistemology [see, Ansari (2004) for detailed discussion], underlying these disagreements among economists are some of the philosophical and epistemological strains that characterize this epistemology. Therefore, we start with the reason that creates a deeper and wider gap among economists and then move on to the relatively mild ones.

2.1. Conflict over Relationship between Individual and Society

The concept of human nature has remained one of the primary conflicting issues among Enlightenment philosophers. This concept plays a vital role especially in liberal ideological discourse. After rejecting the authority of religion, philosophers were interested in developing a moral science that would identify a course of events to which things tend to gravitate unless interfered with by an external body. But this conceptualization of society presumed establishing what were the sentiments and capabilities inherent in human beings *before* entering into the social contract or becoming member of a civil society. They believed that human nature can be known by considering how people behave in the absence of political and social institutions.[1] One such recent attempt is Rawls' (1971) conception of the 'Original Position' of man 'behind the Veil of Ignorance'. One expression that this asocial self assumes among liberal thinkers is in the form of 'utility maximizing agent'[2] — the homo-economicus of neoclassical economics. This particular liberal conceptualization of human self and its resulting social order is articulated in neoclassical economics which is based on the ideology of methodological individualism — the idea that all social and political institutions can and should be reduced to and understood in

[1] "to derive the laws of nature…, one must consider a man before the establishment of societies. The laws he would receive in such a state would be the laws of nature" (Montesquieu).

[2] "Nature has placed mankind under the governance of two sovereign masters, pain and pleasure. It is for them alone to point out what we ought to do as well as to determine what we shall do" [Bentham (1789)].

terms of autonomous self-interested individual's preferences and choices [Boland (1982)].

Many thinkers have attacked the idea of 'man before society' needed to establish human nature in the above neoclassical type of theorization. Communitarian philosophers [e.g., Sandel (1982), Raz (1986), Taylor (1990)] have argued that the isolated individual cannot be a viable analytical starting point for understanding societies. To these thinkers, the idea of methodological individualism presumes that men could exist before the establishment of societies — an idea which is quite implausible. Ferguson (1776) attacked such an asocial and ahistorcial conception of human being (used, for example, by Rousseau) as:

> "if we would know him (man), we must attend to himself, to the course of his life, and to the tenor of his conduct. With him the society appears to be as old as the individual … If there was a time in which he has his acquaintance with his own species to make and his faculties to acquire, it is a time of which we have no record, and in relation to which our opinions serve no purpose and are supported by no evidence" (p. 9)

He further argued that "how can man come to know himself as nature made him once he has undergone all the changes which the succession of time and things must have produced in his original constitution, and so distinguish that which belongs to his own essence from that which circumstances have added to, or altered in, his original state". Methodological individualism takes people to be distinct from their ends and embodies a view that peoples' ends are formed independent of or prior to society which is seen merely as the outcome of contract between individuals whose ends are already given. This involves a mistaken relation between the individual with his society because it is the kind of society that affects peoples' understandings both of themselves and of how they live, argue communitarians.

Two distinct approaches, in opposition to neoclassical economics, can be identified based on this disagreement over relationship between individual and society. Marxism explicitly takes the individual's consciousness as an outcome of the material conditions he is exposed in a specific historical epoch. Hence, Marxism takes an opposite view to neoclassical economics when it comes to defining the

place of the individual in society. Neoclassicals and Marxists disagree over the very nature and desirability of market order. To the one, the market is a freedom and welfare-enhancing mechanism while to the other it is an instrument of perpetuating exploitation and subjugation of the masses. Underneath this disagreement between Neoclassicals and Marxists is their difference over the concept of what constitutes an ideal or desired social order to realize human autonomy. This disagreement in economics has a long history and is expected to continue endlessly at least in the academic world.

Another notable differing view comes in the form of Institutional Economics. Institutional economists, following the opinions of Veblen, argue that neoclassical type general equilibrium models of economy are static and takes social institutions (social norms and rules) for granted within which individual actors interact with each other and make choices. These critics of methodological individualism point out that in order to explain the origins of social institutions; one always has to presume individuals acting in a specific context. For example, game theory presumes a set of rules and constraints regarding the behaviour of individuals at the very outset. The standard economic assertion that economies take the form by virtue of millions of individual human actions is misleading because 'interaction requires accepted rules, practices, customs and language understanding' [Mayhen (2005)]. Even if we take individual as given, the rules of their interaction cannot be explained in terms of individual's behaviour. For example, standard economic theory traces back money to market exchange hypothesizing that money originated as individuals' voluntary cost-minimizing innovation to replace barter, but the neoclassical economic theory cannot explain how individual utility maximizers settled on a single numeraire [Gardiner (2004)]. In fact to present the haggling of the market process as support for evolutionary development of money presupposes a fairly high degree of specialization of labour and resource ownership—but this pre-market specialization is itself hard to explain. These economists ask for an evolutionary approach to economics to take account of the process of how institutions emerge, persist and then wither away. For this, they present the idea of methodological holism to take account of both individual as well as group behaviours. Obviously, general equilibrium

type modeling of society in neoclassical economics is hard to be made compatible with institutional economic methodological holism.

2.2. Differences over Assumptions Regarding the Nature and Working of the Market Economy

Scientific theorization is a complex phenomenon starting from pre-supposed (or pre-scientific) presumptions, hypothesization of the relevant phenomenon to be examined, laying down the test conditions or assumptions regarding the relevant features of phenomenon to be held constant (by assuming for example their initial positions, values and behavioural rule, etc) and then moving on to developing some testable propositions to be then tested empirically. One of the primary reasons why scientists disagree over the explanation of some underlying phenomenon is due to the differences in their assumptions or test conditions. Change in one or some of the assumptions of the theory can lead to different explanations or descriptions of the phenomenon. Similarly, a given predictive aspect of the theory can also be generated using two different assumptions. These aspects lead economists to disagreements which are unresolvable in the sense that those assumptions are usually not directly testable, rather the building blocks of the theory.

Many notable disagreements among economists can be explained in this light. (New) Classical-(new) Keynesian macroeconomic debate is one such example. Both of these schools agree that markets are needed to allocate resources, but disagree over how markets actually function. The new classicals see markets as self-adjusting equilibrating processes where prices fully and instantaneously adjust to accommodate the full implications of decisions made by all economic agents in the system. With this theoretical underpinning, they see no role of government policy in enhancing economic growth or fighting unemployment. New Keynesians, on the other hand, see market as stagnated or even dis-equilibrating process because of staggered price movement, adaptive expectations, speculative nature of investment etc. Keynesians demonstrated that supply does not create its own demand and under consumption and over production were systemic tendencies nurturing

crises. Keynes, therefore, asserted that the state had a crucially important role to play in sustaining full employment, equilibrium and steady state growth. The state is supposed to use countercyclical fiscal and monetary policy to influence expectations and expenditures and correct market failures. The differences in the policy prescriptions of the two are the direct results of *how* (i.e., under what conditions) the system works. The policy debate between monetarists and Keynesians is more like the same where both groups fundamentally disagree over the slopes of IS and LM curve; i.e. over assumptions regarding the how variables in the goods and money markets are interrelated with each other and by how much.

In the above examples we saw how differences in the underlying assumptions are leading to differences in the description and prescription given by the economists. The debate between new classicals and new Keynesian, in addition to the above dimension, reflects a good example of how a given observed phenomenon can be predicted using two different assumptions within the same framework. Keynesian economists explain the inflation-unemployment trade off largely in terms of market rigidities. But after the break down of the Philip's curve relationship, new-classicals theorized the same phenomenon of breaking down the Philip's curve relationship in the long run but effective in short-run under the assumptions of mis-perception theories and unanticipated policy shocks within rational expectation models. In other words, what was seen by one group of economists as an outcome of market rigidities, the other explained it in terms of the expectation formation process. Again, it is not an easy task to decide which side of the coin is the right one because their differences lie not in the predictions generated by their theories, but in the underlying premises that generated it (i.e. differences in its explanation). Empirical testing of their theories will not help resolve this debate because testing is conducted for the verification of predictions generated by the theories.

Orthodox/mainstream and heterodox (Post Keynesian, Circuitist) theories of money is another case in point in this regard [see, Gnos (2006) and Realfonzo (2006) for description of circuit theories of money and Davidson (2006) for its Post-Keynesian version]. Orthodox theorists depict the market economy as fundamentally a barter exchange system where money enters into the system exogenously as a facilitating

numeraire. This gives birth to money neutrality, classical dichotomy and policy irrelevance hypotheses. On the other hand, heterodox economists see the modern monetary economies as credit economies where money is determined endogenously in the process of production and exchange in this system [Graziani (2006)]. Post-Keynesain attack on mainstream economics can also be listed in this thread. The Post-Keynesians have argued that mainstream [especially monetary and (new) Keynesian] economic theory fails to take account of two fundamental insights of Keynes—the endogeneity, and hence its associated non-neutrality, of money on the one hand and the role of uncertainty and expectations in the determination of market outcomes on the other. Post Keynesians also analyze distributional issues and attempts to take account of the political context and implications of macroeconomic policy making. Like Keynes, the Post Keynesians accept the basic postulates of mainstream economics but qualify its predictions by reference to market reality—Post Keynesians pride themselves on their scientific realism—the aspect discussed in the next section. They argue that Keynes developed a theory of the economy that *exists* in reality, not what is presented in equilibrium methodology of neoclassical economists. Fundamental Keynesian concepts, such as time, uncertainty, price rigidities, contracts, endogenous nature of money, etc., do not exist in general equilibrium theory. Thus, Post Keynesians mainly attack some of the underlying assumptions of neoclassical economists about the working of the market economy. In other words, they can be seen as revisionists who insist that changed conditions require a reinterpretation of economic orthodoxy and a reformulation of economic methodology to take account for example of accelerated financialization, persistent unemployment, globalisation etc. [for a description of Post Keynesian economics, see Davidson (1998) and Lawson (1998)].

Debate over the reasons behind reoccurring business cycles is another example in this regard. Historically speaking, it was probably Marx (1898) who first tried to develop a systematic explanation of crises (though Ricardo had theorized the state of stagnation before him) in a market economy emerging due to a tendency towards decreasing rates of profit and increasing tendency of exploitation. But his ideas were treated as an outsiders' observation. Schumpeter (1943) also presented the idea

of creative-destruction to describe the dynamic essence of market order that produces a continuous tendency of business activities to go up and down over and again. Traditionally, Keynesians have been explaining these cycles largely in terms of demand shocks resulting either due to 'animal spiritedness' of the investment component of aggregate demand or due to some other reasons. Lately, real business cycle theory has come up with an explanation of this phenomenon by referring to supply shocks generated by technological innovations and intertemporal labour substitutions [Lucas (1977), Kydland and Prescott, Edward (1982)]. Post-Keynesians like Minsky [see, Antoni (2006)] have singled out financial market speculations and bubbles as the underlying cause of this 'evil'. All of these groups have their internal theoretical logic and some empirical support to believe that 'they are on the right track'.

It should, however, be noted carefully that the above economic differences are neither about the desirability of the market economy nor about any of its related value-judgmental issues; rather about *how* the market economy *actually* functions. In other words, 'how markets function' is a debatable and conflicting issue among economists that result in many of the differences among them.

2.3. Differences over Scientific Methodologies

How science works and what *type of* explanation should we expect from science is another side of the argument that causes disagreement among economists. The '*how*' here refers to the internal logic of the theory, i.e., the way a given theory links up different aspects and parts of reality with each other to explain it. Usually, a theory's logic is reflected in its conception of cause-and-effect. Two kinds of approaches can be identified in this regard, one employed in neoclassical economics while another in Marxism. The neoclassical approach to doing science is what is termed as *reductionist* methodology. Here, it is assumed that every event (called dependent variable) has specific causes (called independent variables) that are essential for its occurrence. Explanation here refers to uncovering those underlying 'cause(s)'; hence the name reductionism—reducing the explanation of an event to a set of key causes. The wide use of "functions" in neoclassical economics is an

expression of its commitment to this reductionist approach. Marxists, on the other hand, in general reject this reductionist approach to explaining a phenomenon. They employ a *dialectical* methodology [termed 'over-determination' by Wolff and Stephan (1987) to distance it from other notions associated with the term 'dialectics'] of inquiry. This method presumes that an event happens because of *everything else* happening around it and that happened before it. Events go hand in hand together having relationships with each other. This means that formal cause-and-effect conception does not apply in Marxist economics because here an event is treated as cause (of something) as well as effect (influenced may be by that something or something else) simultaneously. No explanation of an event is rendered as complete in this conception of causality because knowledge evolves with practice, as argued by Mao (1966). Thus; if two economists carry different conceptions of scientific methodology (i.e., how it works), they would disagree with each other even on the very notion of *explanation* of something.

The second aspect of scientific methodology (apart from the internal logic of theories to link up different aspects of the phenomenon) that creates rifts among economists is their differences over the truth-status requirement of their theories. Are theories meant for depicting reality or are they merely an instrument of explaining it with the help of predicting the course of events by those theories? This debate is known as Realism-Vs-Instrumentalism in philosophy of science. The realists insist that scientific theories should be explanatory not merely in the sense that they allow us to predict the observed phenomenon but also in the sense that the concepts used in those theories should also depict or refer to the observed phenomenon. In other words, they expect that scientific theories should be *true* as well. In contrast, instrumentalists believe that concepts used in theories are merely instruments of explaining the observed phenomenon, they are neither true nor false rather only more or less adequate to explain the given problem. The adequacy of theories is reflected in their predictive power, i.e., how well the theory is confirmed by the data. They deny the realists' demand that theories and theoretical terms should make correspondence to reality as it is not possible to settle the truth-status of those concepts. Friedman (1953) employed instrumentalism to defend neoclassical economics

from the perennial criticism that it theorizes the economic phenomenon (say the utility maximizing problem of a consumer) under unrealistic assumptions. Friedman defended neoclassical economics by asserting that 'the only relevant test of the validity of a hypothesis is comparison of its prediction with experience' and that 'ultimate goal of a positive science is the development of a theory or hypothesis that yields valid and meaningful (not truistic) predictions about phenomenon not yet observed'.

But economists who do not agree with this instrumentalist account of science and look for factual explanations of phenomenon disagree with *a priori* neoclassical theories and try to develop theories around observed behaviour of economic agents. One such attempt is known as Bounded Rationality approach to economic agent's choice problem [see, Conlisk (1996)]. First, these economists criticize the traditional rationality hypothesis on philosophical grounds. Sudgen (1991) provides a review of the state of rationality hypothesis, as presented in Savage's *The Foundations of Statistics*, and argues that neither of the two axioms of rationality, *completeness* and *transitivity* of choices, can be defended from the view point of rationality as presented by economists. Similarly, Fullbrook (2005) provides a number of situations (e.g., social being, reciprocal imitation, self-referential goods, spontaneity, adventure, etc.) in which a consumer clearly violates neoclassical axioms of rationality. He emphasizes that 'rather being obscure or far-fetched exceptions to the general rule, they characterize mainstream economic practice' of modern consumer society (p. 83). Apart from these considerations, it has been argued by psychologists that individuals are not rational as proposed by economists. Rather, there are many obstacles to being rational in this sense. Simon (1979) says that human beings have a *cognitive limitations* (the limited processing capabilities of human being, the lack of knowledge of alternatives in the choice) which are a source of bounds in their rational decision-making. He discovered that when people confront a puzzle, they rarely reach a solution in a neat, linear fashion. Rather, they search in a haphazard way for potentially relevant facts and information, and usually quit once our understanding reaches a certain threshold. In Simon's terms, humans are *satisficers* not *maximizers*. Their conclusions are often inconsistent or

even incorrect. Kaufman (1999) extends *emotional arousal* (the idea that high emotional intensity prevents optimal human performance) as another source for bounded rationality. These theories borrow a lot from psychological research which asserts that individuals make systematic errors by using decision *heuristics* (biases) or *rules of thumb* which fail to accommodate full logic of a decision, as when a person makes systematic errors by using adaptive rather than rational expectations. Equipped with the above ideas of bounded rationality, there is a fast growing field in economics, called *experimental economics*, designed to do research in the field of economics [Kahneman and Tversky (1979), Looms and Sugden (1982), Tversky and Thaler (1990), Kahneman and Tversky (1991)]. For the extension of bounded rationality in macro models, see Akerlof (1982), Akerlof and Yellen (1985a) and (1985b).

Thus, we find that differences in scientific methodologies can divide economists on very fundamental issues such as how to relate events with one another and what is the desirable criterion (predictability or realism) to seek while theorizing a given phenomenon. Again, these deeply rooted differences can be reconciled by no amount of empirical testing of those theories as the reason of these differences lie in the pre-empirical stage of theorization.

2.4. Differences over Value-Judgements

Needless to emphasize is the widely stressed reason of disagreements among economists that they disagree due to normative value-judgmental reasons. Even if we assume that economists have no disagreement due to any other reasons and have fully described some economic aspect, such a perfect understanding of economic phenomenon will leave them divided the moment we raise the practical question *how to use* this agreed 'fact' or knowledge? For example, suppose it is agreed by all economists that the 'gold standard will result in stable foreign exchange rates provided wages and prices are flexible'. The question arises: is this an argument against unions or against (or in favour of) the gold standard? The disagreement here rests in 'what goal ought to be achieved?' And even when a set of goals are agreed upon, disagreement may emerge over how to rank these different goals in order of priority.

Is this more important to ensure a minimum living standard to the workers by setting minimum wages or is it more important to minimize unemployment by not doing this?

One particular digression of thought that can be traced back to this specific source of disagreement is social democracy. Social democratic economists like Sen (1977 and 2001) have argued in favour of state provision of social or welfare rights (such as right to minimum education, health and income, etc.). They assert that in social calculation, placing all the weight on 'how much output is produced' (i.e., GDP) is ill-placed, equal weight should also be given to 'how it is distributed' because it is the later question that allows us to evaluate whether or not goods produced are generating real freedom (ability to choose life one values) for the masses. To them, development is good not for its own sake, rather because it allows people to choose the lives they value. In this line of argumentation, equity (provision of social rights) itself becomes a 'developmental issue' even if it does not guarantee more efficiency. Hence, the nature of disagreement between strict libertarians and social democrats is that of assigning appropriate weight to different aspects or goals. This, of course, is not an easy question to settle as there is no ready-made agreed upon criterion available to assign weights to these goals.

Finally, and unfortunately, even if we pretend to have settled all of the aforementioned disagreements among economists including those of value-judgments (in the sense that a set of goals have been agreed upon by economists as representative ones), yet economists would disagree about how best to achieve this end? Suppose a libertarian and a social democrat agree over the provision of free public education. Still they can disagree about what is the best way of rendering this end: should the state provide this education through public sector schooling and universities or by giving coupons to the deserving students to pay their fee at private institutions? The answer will most likely be different between libertarian and social democrat.

3. SCOPE AND LIMITS OF ECONOMETRICS IN SETTLING DISAGREEMENTS

The ability to explain data (i.e., observed behaviour) is said to be the eventual test of any scientific theory that it must pass. Economists also take pride in the scientific nature of their subject and hence subject their theories to empirical testing for verification to see if they work or not in reality. This view creates a hope that probably better and precise econometric testing of theories can help bridge differences by comparing them against *actuals*.

3.1. The Scope of Econometrics

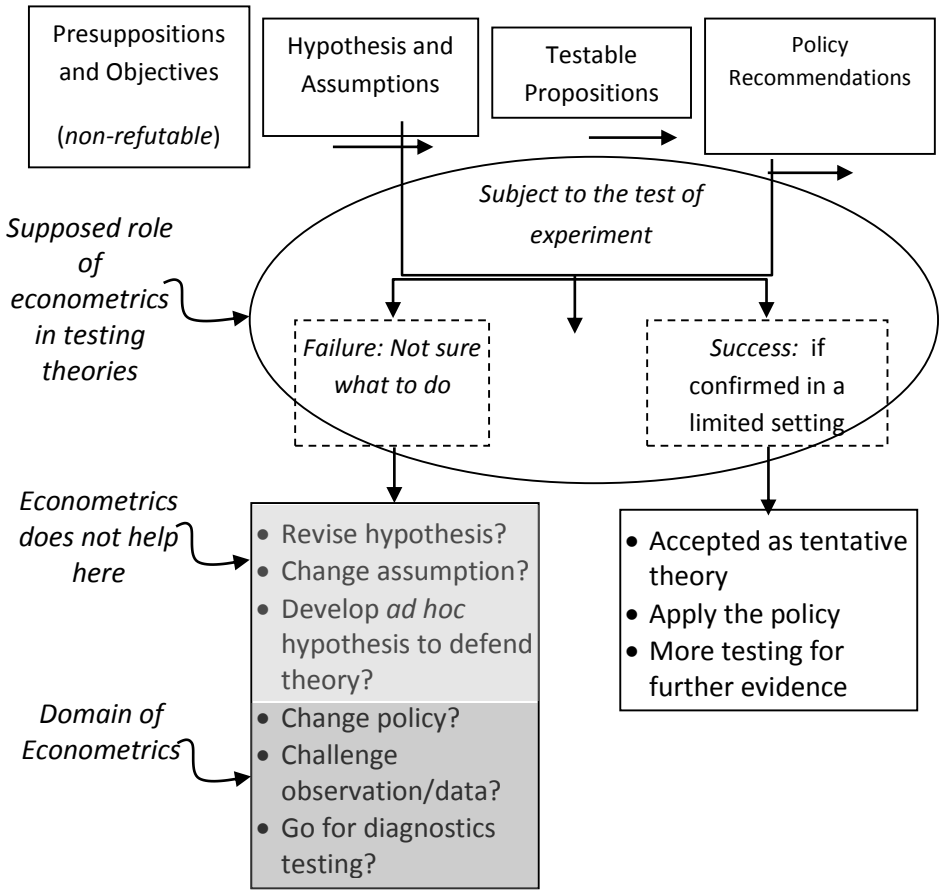
To see why this is hoping against hope, Table 1 explains as to which of the above disagreements can in principle be addressed using econometrics. It is clear to see that it is only the third kind of disagreements that can, if at all, be addressed (not necessarily settled) using econometric approach to economics. The remaining 3/4 are even beyond this so called methodology of testing against the *actuals*.

When considered in addressing this third kind of disagreements, the 'harmonizing role' that is expected from econometrics is quite limited even in this domain. Figure 1 depicts the typical process of developing theories (from objectives to policy) in economics.

Table 1. Scope of Econometrics in Settling Disagreements

	Kind of Disagreement	Nature	Econometric Role
1.	Differences over Social Theory	Pre-experimental	No
2.	Differences over Scientific Methodologies	Pre- experimental	No
3.	Differences over Assumptions	Partially experimental—Subject to the test of experiment	Yes
4.	Differences over Value Judgment	Normative in nature	No

Figure 1. Role and scope of econometrics in testing theories



The role of econometrics is supposed to be within oval-shaped circle—testing theories in the light of *actuals*. Empirical testing can result either in 'success' (which is usually the desired call of each school of thought) or 'failure'. However, when economists face 'failure' in validating their theories empirically (i.e., data speak against their theory), it does not lead to the simple and linear conclusion of 'falsification' of the theory in question and hence need to look for an alternative one. Instead, things are much more complex even after this apparent failure as it is not clear 'what went wrong' and 'where'. Interestingly, the researchers, even under this case of failure, have available many roots to do away with this failure without involving econometrics (e.g., by adding some *ad hoc* hypothesis, or declaring it a policy failure, or assuming it

to violation of rationality postulate on the part of agent, say, due to lack of information, etc.) as shown in the lowest left hand box of Figure 1). Hence, this figure illustrates that when it comes to settling disagreements about modeling assumptions among economists, econometrics cannot necessarily bring economists to agreement.

3.2. The Limits of Econometrics

Not only that the harmonizing role of econometrics is quite limited in settling even very limited range of economic disagreements, it can itself be a potential source of disagreement in this restricted domain due to its very inherent nature. Several issues in this regard, ranging from the choice of definitions of the variable, choice of modeling the theory or choice of the estimation techniques not only leave them unable to reconcile theoretical disagreements, but also create further disagreements among them.

Availability of valid and relevant data is first requirement for testing of economic theories. However, applied economists and econometricians usually do not collect data required for testing their theories; rather have to rely on data collected by national and international institutions. This data is prone to shifts in political regime, financial innovations and definitional disagreements. What is the incidence of poverty in any country? The answer depends upon how one defines 'who is poor'. Is income inequality increasing or decreasing over time in a country? Again answer depends upon which measure of income inequality (Gini coefficient, ratio of income share of the bottom to top 10 percent, mean-wage divided by median-wage) one uses. Apart from these, there are measurement errors in data. *Model specification* is another challenging issue. What are the key relevant variables to be included in the model and in which mathematical form? Omitted and unobserved variables and choice of instruments pose problems in model specification. Leamer (1983) shows how different specifications can lead to different outcomes by considering an example of impact of death penalty on murder rate. The result shows that controlling for different variables changes the effect of death penalty by significant extent. *Choice of econometric technique and tests* can also create unsettled

issues. Should the underlying phenomenon be treated as independent equations model or as simultaneous equation system? Which econometric test should be selected among the many available to select the relevant variables (different tests may favour different results)? In order for data to speak for itself, should we construct a vector autoregressive (VAR) type model to analyze the long run dynamics of the economy by studying the co-integrating properties of the variables in the model or develop the long run model of the economy first and then look for co-integration analysis?[3] Or should we abandon the traditional estimation techniques and rely on the parameters generated by model simulation and calibration? Above all, *lack of unifying theory* in economics also poses issues as economic theory does not consist of a set of unifying equations which can simply be selected and estimated.

All of these are not only tricky issues but also inconclusive in the sense that answers depend upon several underlying assumptions regarding test statics, probability distributions and many other highly technical and probabilistic issues. It is for this reason that using the same data set, by modeling the same phenomenon a bit differently, or by using a different sample (may be across countries or over the same country for different time period), or by choosing a different estimation technique, different economists may end up verifying a different reality

Phillips (2003) explains general weaknesses and limitations of econometrics by outlining six operating laws of econometrics. He elaborates that significant developments has taken place in econometrics in the theory of identification, estimation of simultaneous equations system and examination of jointly determined variables through co-integration techniques. But he concludes that these methods are not sufficient for formulating relationship among variables that follow nonlinear patterns, hence, some methods would work sometime but not others. Phillips and Xiao (1998) explain that unit root tests, widely employed by applied econometricians, are always troublesome due to their nonstandard limit distributions. Unit roots are also defective because it is difficult to discriminate between stochastic and

[3] Pesaran (1997) and Pesaran & Smith (1995) argued why a priori co-integration type approach to modeling long run path of economy is problematic and why behavioural theory must be developed before applying any econometrics.

deterministic trends. These problems get multiplied while applying unit roots on panel data [see, Phillips and Moon (1999) for details]. Examination of trends is considered very important aspect in macroeconomics. However, Phillips (2003) details out that no matter which estimation formulation one employs to capture data trend, one cannot justifiable assume that these formulations *explain* the process that make those trends in the real world. Spurious regression is one consequence of data with trends because any trend function turns out can be statistically significant in large sample. Above all, even if one can develop a model to represent a data, one cannot be sure that there is or can be a corresponding true data generating process.

Determination of causality among variables is crucial for appropriate understanding of affairs, good policy making and development in economic theory. Zaman (2009) argued that the prevailing approaches to determine causality in econometrics are problematic and do not give required results. Freedman (2005) shows that though several articles use regression analysis, however, the underlying causality claims of the researchers are not more than claims based on observed correlations in non-experimental data. Freedman (1997) writes: "For nearly a century, investigators in the social sciences have used regression models to deduce cause-and-effect relationships from patterns of association. …. In my view, this enterprise has not been successful" (p. 113). For almost any causal relationship among variables in economic theory, there are researchers arguing about causality in both directions. For example, a generally accepted belief is that money supply growth causes inflation. But Hendry and Ericsson (1991) dissented with this belief that showed that the causality is other way round. Similarly, estimation of consumption function has remained at the heart of macroeconomics, however, Thomas (1993) says: "Perhaps the most worrying aspect of empirical works on aggregate consumption is the regularity with which apparently established equations break down when faced with new data. This has happened repeatedly in the UK since the 1970s. … the reader may be forgiven for wondering whether econometricians will ever reach the stage where even in the short run their consumption equations survive confrontation with new data" (p, 284). The foundation for this lack of understanding about causality is

much deeply explained by Hume who identified that only co-occurrence of events (i.e., correlation) is observable, not 'cause'. These econometric difficulties and forecast failures led some economists from assessing theory on the basis of data. Real Business Cycle (RBC) is one such approach that puts much emphasis on theory and attempts to calibrate theoretical models. Zaman (2012) explains that underlying methodology behind econometric is logical positivism which lost appeal back in mid of twentieth century. He shows how this positivist methodology led econometricians to a meaningless quest of finding patterns in the data.

Table 2 provides a summary of issues in disagreement among different schools of economics based on the underlying causes of disagreements. For learning from data about many crucial aspects of the real world" (p. 40). Had economic theory been capable of providing reliable relationship among variables, this may not have been a point of much concern for researcher. However, this luxury is not available to economists as outlined in the previous sections.

This takes us to what is stated in the philosophy of science as: conclusive verification or falsification, both are impossible to conduct in science'.[4] The above discussion presumed that it is somehow possible to test a single hypothesis independently. Duhem and Quine showed that testing a single hypothesis is never possible; it is always a system of interrelated hypotheses that is tested while testing any given hypothesis. In other words, econometric testing of a hypothesis is possible within a holistic model [Curd and Cover (1998)]. If the hypothesis under examination is rejected, it is never clear which aspect of the model is rejected. This confusion is illustrated in the colored box of figure 1 that describes the domain of econometrics that even after the rejection of hypothesis, one cannot be sure what it tells researchers?

4. CONCLUSION

The paper analyzed the major reasons behind the apparent disagreements among economists. These reasons cover almost the whole spectrum of

Table 2. Summary of the Causes of Disagreements among Economists

Reason of Disagreements	Resulting Issues of disagreement	The debating schools
1. Differences in social-and-political philosophy	• Relationship between individual and society; i.e., is it possible to conceive of an asocial self-interested individual? • The role of institutions in defining individual behavior	• Neoclassicals Vs Marxists • Neoclassicals Vs Institutional economics
2. Differences in assumptions about functioning of market economy	• Is market a stable equilibrating process or chaotic in nature? • Choice between monetary or fiscal policy—slopes of IS and LM curves • Short run policy relevance due to structural rigidities or agent's informational imperfections? • Reoccurring business cycles come across—due to supply-or-demand shocks or due to financial bubbles?	• Classicals Vs Keynesians • Keynesians vs Monetarists • (New) Keynesians vs (New) Classicals • Marxists, Keynesians, Real business cyclists, Post-Keynesians
3. Differences over scientific methodologies	• How science works—reductionist or dialectic? • Nature of scientific explanation—instrumentalist in generating predictions or description of reality	• Neoclassicals vs Marxists • Neoclassicals vs Post-Keynesians and Experimental economics
4. Differences in value judgments	• What goals ought to be valued? • How different goals ought to be ranked? • How best to achieve a set of agreed upon goals?	• Libertarians vs Social democrats
5. Differences over modeling and testing approaches	• Choice of definition of variables • Choice of modeling technique • Choice of estimation techniques	• All of them

Source: Developed by the Author.

economics, i.e., the objectives of the process of theorization, the very object to be theorized, the assumptions regarding the functionality of the object of theory, the logic of relating different parts of the object of the theory to generate its explanation, the issues of ranking different aspects of explanation to put them into any use and the tools to be employed to verify the validity or truth-status of the theory. These differences, as put by Wolff and Stephan (1987), leave economists divided on selecting different objects for attention of theorization, using different vocabulary to define the same objects,[5] applying different rules about how to connect different objects of theory, prioritizing different ends and finally differing about how to compare and test the competing theories. The deeper problem is that the objects of theories of any school of thought do not exist out there independent of their theories, their views of the world (observation of the objects) is affected by theories they use to explain them. Therefore, not only do their theories explain the world differently, but they also influence them to see an altogether different world to explain. This makes communication across economists difficult because the world they see is not the same for each of them as they disagree not on how to explain the given world, but also on what they perceive that world to be. The whole discussion, thus, takes to the agreed interpretation of economics by the otherwise rivals McCloskey (1988 and 1990) and Klamer (1983 and 1988) that economics is more of a rhetoric activity where different economists make use of authorities, stories, logic and metaphor (e.g., models) to persuade each other.

Given this wide and deep spectrum of disagreements among economists, it is unexpected that any future developments in economic theorization can eliminate these disagreements—thus, no hopes against the hope.

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[5] For Example value, price, wage, profit, etc., have different meanings in the neoclassical and Marxist economics.

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Teaching English Grammar through Animated Movies

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Abstract:

This study seeks to examine how various components of English grammar can be taught through animated movies. The study demonstrates the use of gerunds in a sentence or a discourse through an animated feature film Tangled. The data for this research was taken from the students of grade eight. The students were shown various video clips, comprising dialogues and songs, from the movie and asked to identify the use of gerunds. Later, the students were given various worksheets containing tasks, based on the use of gerunds in a sentence. The students remained very responsive during the whole lesson and effectively learned the use of gerunds and the difference between gerunds and the present participle. The study concluded that animated movies in grammar teaching classes can serve as a positive reinforcement tool for the language learning process as the animated movies considerably increase the learning speed and proficiency of the students.

Keywords: Gerunds, Teaching English, Animated Movies, Grammar, Tangled

1. INTRODUCTION

The use of technology in students' lives has increased so much that the students of the contemporary era should aptly be called digital-natives or the net-generation [Pransky (2001)]. There is an obvious need to teach students with the help of modern technology. Accordingly, the purpose of this research is to teach the use of gerunds in a sentence or a discourse through the animated feature film *Tangled.* The term 'gerund' is a derivative of a Latin word, which means 'to carry on'. A gerund is derived from a verb which ends in *-ing* form and its purpose in a sentence is to function as a noun. The word '*verbal'* specifies that a gerund is built

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upon a verb and hence it demonstrates action. For example, in a sentence, "You will get in trouble for faking an illness to avoid work", the word 'faking' is a gerund. As the purpose of a gerund is to function as a noun, it has the same position in a sentence that a noun normally has (*Oxford Advanced Learners Dictionary*).

Describing the gerunds, Kolln and Funk state that we consider gerunds to be nouns because they are like nouns though they do not name things, persons, places which mean they do not function like nouns. Gerunds function like verbs while naming behaviours, activities or states of mind (1998). Teaching grammar with the aid of movies and feature films is very appealing and exceedingly motivating. In learning and teaching a language, four aspects of language are very important, which are grammar, vocabulary, pronunciation and spelling. These features are also taught in teaching and learning process for the English language. According to Celce Maria (1987), the research in language acquisition recommends that preliminary and early teaching priorities in the areas of any language should be grammar, vocabulary and pronunciation. Consequently, here in this study, the focus is on the teaching of English grammar, specifically gerunds, with the help of movies, as the era of technology is gaining popularity day by day.

The mode of teaching grammar with the help of visuals and movies has been in practical use of teachers for teaching any language, for years. Sarah and Patricia (2009) hold that the audio and imagery of movies has the capability to develop awareness and provoke intellectual thinking in such a way that words are unable to do. Xing (2011) has demonstrated the use of English movies in order to improve the listening and speaking skills of students in English as a Second Language Culture learning classes. In his research, he cited Kim (1996), who stated that movies can be used by the instructors in lecture rooms to aid students develop their grasp of a certain aspect of the language. Xing (2011) also indicated that a movie has practically a distinctive advantage in familiarizing a foreign language. It could show the actual situation and a real demonstration of the cultural background of any language. The influence and vividness in all these feature films is exceptional as compared to any other methods.

A Film can be a very useful mode of teaching grammar as well as vocabulary of any language to the students. According to Hu (2006), feature films and movies also offer auditory and graphic materials equally, which benefit the students to comprehend the language without much effort. When viewing any movie, the learners listen to the characters and also observe their actions. The scenes of a movie make the communication real in such a way that by seeing the feature film, students can relate to the happenings in the movies and thus are likely to learn in a natural way, picking up language in the process. Similarly, talking about using movies in English teaching classrooms, Xu and Guo (2007) assert that, for almost all the films, students find the moving images to be very eye-catching, fascinating, and inspiring, as compared to the conventional material produced in books, due to the pictorial nature and convenience of the medium. These movies can significantly intensify the eagerness and resourcefulness of the students.

Movies can be very effective in teaching grammar and syntax of any language. Wu (2002) holds that the objectives of teaching and learning through motion pictures are to build up interpretation, listening, speaking, grammar, and vocabulary skills of any language. In the same way, Zhao (2009), in a research article, signifies that an innovative motion picture can be extremely inspiring and thought-provoking and can make language learning more pleasant.

Schirta (2011) in her article "Teaching Grammar and Critical Thinking through YouTube" states the benefits of using movie clips in grammar classes. She suggests that visuals involve students in collaborating activities and kindle their thoughts, memorization and creativity. She also asserts that the video clips enable students to discuss language issues and learn grammar structures. She maintains that a film is administered in the brains of the students to accelerate learning and asserts that movie clips employ both hemispheres of our brain; the left one that handles the discourses, plot, rhythm, and words, and the right one which processes images based on visuals and sound effects. Ishihara and Chi (2004) state that feature films fascinate students and capture their attention with dazzling and mind-blowing Hollywood special effects. They reveal reliable usage of the target language forms because they are not premeditated for instructional motives. In features films, the

prolonged setting, fascinating content, rich graphic imagery, usually embellished actions and exaggerated gesticulations offer students with multi-sensory involvement that is near to what they would discover in their daily communication [Arcario (1993) and Lonergan (1984)]. This real-life setting in films is appealing and inspiring to language learners and helps the students to comprehend the linguistic usage present in the movies [Chapple and Curtis (2000)].

In this research, the major concern is to teach the students how to differentiate between a gerund and a present participle though showing them various movie clips which includes the use of gerunds.

1.1 Research Question

How can clips of animated movies be used in English language pedagogy to boost language learning in EFL classrooms?

1.2 Purpose and Significance

The purpose of this research is to teach the students the effective usage of gerunds in a discourse through the animated feature film *Tangled.* Teaching students how to differentiate between a gerund and a present participle can be a challenging task. Therefore, the mode of instruction should be such which can keep the interest and concentration of the students towards what is being taught. For this purpose, the genre of teaching through movie clips was selected in this study. Animated movies like *Tangled* are generally meant for the purpose of entertainment and amusement of younger students who like to watch movies, and if these feature films function to teach the students as well as entertain them, a double purpose is served. Students tend to learn more when they are taught using visuals i.e. movies, video clips, etc., than by regular mode of verbal teaching. Their vocabulary and pronunciation can be improved through the use of movies in language classrooms. Through movies, students can better recall what they have learnt and apply it to everyday life situations. Hence, the purpose of this research is to develop a better understanding of teaching gerunds through the use of animated

films, so that they can acquire a constructive approach towards learning grammar.

2. PROCEDURE

Quantitative and qualitative research methods were used for the current study. The research was also experimental in nature. The data for this research was taken from the students of grade eight. The students were shown various video clips from the movie *Tangled* with the help of a multimedia projector in an allotted time of one hour. The clips containing dialogues and songs helped students identify and understand the use of gerunds. After showing the movie clips to the students, they were given various worksheets which consisted of a number of tasks, based on the use of gerunds in a sentence. In the beginning, the students were taught how to differentiate between a present participle and a gerund by using movie clips which included the examples of these grammatical terms. Then, they were asked to complete their worksheets which included various tasks established on the basis of correct use of gerunds. The tasks that students had to do during the class are appended below:

1. Identifying gerunds in the dialogues spoken by various characters and the songs included in the movie.
2. Making gerunds out of common verbs used in the movie.
3. Making new sentences out of the gerunds used in the movie.
4. Writing short paragraphs on images of various characters of the movie, using at least five gerunds.

The purpose of worksheets was to assess what the students had learnt about gerunds and the present participles. The students were assessed through their performance in the tasks provided through the worksheets.

3. ANALYSIS

The study found that teaching gerunds to the students can be very problematic. Robinson and Klassen (2010) assert, "using gerunds and infinitives correctly in English is one of the … challenges for ESL

writers" (p1). Conti and Pozzo (2011) state that most foreign language learners find it confusing to choose between an infinitive verb and a gerund. For example, they cannot decide between "do you like skiing?" and "do you like to ski?" (p3). This problem can be resolved effectively if gerunds are taught through visual graphics like the movie clips of animated movie *Tangled*. In this movie, like any other animated movie, a lot of gerunds are used in the dialogues spoken by the characters. Gerunds occur more frequently in various songs present in the movie which can be taught through carefully planned activities. Students often get confused when it comes to distinguishing between a gerund and a present participle. Therefore, this study resolved the issues regarding the use of gerunds by taking help from an entertaining mode of teaching.

During the one-hour lesson, it was noted that the students themselves picked out gerunds from the movie clips and were able to separate them from present-participles. By watching selected portions of the movie, the students were able to learn gerunds through various examples shown in the dialogues and songs while enjoying the light and entertaining mode of study. All the students scored 85% or above marks in the tasks provided to them through the worksheets. The data, containing gerunds used in the movie, on which the tasks and worksheets were based is given in the table below. Macwan (2015) in this regard strongly asserts the usefulness of the use of movies and other visual aids in teaching English language. She believes that though the idea of using visual aids in EFL classrooms is new, it has great potential as it "can get unflinching attention and interest of the learners" (p91). She is very optimistic about the use of visual aids in English language labs in the near future and proclaims that "the advent and advancement of technology has made it possible to transform English language lab into a mini theatre where visual clips or films can be shown" (p91).

Some of the instances where gerunds were exhibited in the animated film *Tangled* are listed below:

Timings in the movie	**Use of Gerunds in the dialogues/songs**	**Gerunds**
2:03	Instead of sharing	Sharing
6:03	The song of Rapunzel (baking, candle-making)	Baking, candle-making

7:33	I'll keep wondering	Wondering
10:26	Looks absolutely exhausting	Exhausting
10:40	Just teasing	Teasing
11:56	Stop with the mumbling, …, it's very annoying	Mumbling, annoying
16:07	You guys look amazing	Amazing
22:39	I hate leaving you	Leaving
25:43	Struggling … struggling is pointless	Struggling
26:37	How's your day going?	Going
26:45	Gallivanting through the forest	Gallivanting
31:34	I could go running and racing and dancing and chasing and leaping and bounding and hair flying and heart pounding and splashing and reeling and finally feeling. That's when my life begin (song)	Running, racing, dancing, chasing, leaping, bounding, hair flying, heart pounding, splashing, reeling, feeling
33:05	Part of growing up	Growing
33:15	You are way overthinking this, trust me	Overthinking
37:04	Don't you want scaring and giving up on this whole endeavor	Scaring, giving
39:39	Tickling the ivories till they gleam	Tickling
40:32	Rowing in a row boat down the stream	Rowing
40:47	Though my face leaves people screaming	Screaming
40:49	There's a child behind it dreaming	Dreaming
50:31	Perhaps you want to stop acting	Acting
53:07	Bring back what once was mine	Bring
58:18	If he is lying, don't come crying	Lying, crying
1:07:14	Watching from the windows	Watching
1:07:22	All that time never even knowing	Knowing
1:09:06	All that time never truly seeing	Seeing

The students were first taught the definition of a gerund and then shown short video clips taken from the movie *Tangled*, which included numerous examples of gerunds. Students successfully identified these gerunds and remained very excited and focused during the activity. After showing the movie clips to the students, they were asked to fill in worksheets, for testing and evaluating their understanding of gerunds. All fifteen worksheets were filled by the students and were checked by

the researchers to evaluate their grasp on the use of gerunds. All the students scored more than 85 percent marks which was a significantly high score to conclude that they had learnt and absorbed the concepts. Nation (2014) asserts that language can be learned very effectively through listening activities including watching a movie, particularly a movie containing subtitles of the target language. Students, however, need to have a lot of vocabulary before watching a movie as "to follow most of the words in a movie without any preparation, you need to have a reasonably large vocabulary – at least 3,000 words and preferably around 9,000 words" (p.18). That is why, in case of children, use of animated movies is more helpful because of the obvious fact that these movies make use of easier vocabulary. The current study remained successful in teaching grammatical concepts to the students due to the fact that it used a famous animated movie with easier vocabulary items and the students were also made familiar with the difficult vocabulary items beforehand. Hayati and Hashemy (2013) also agree with researchers like Nation that the use of technologies in teaching is extremely helpful in speeding up the learning process and improving the effectiveness of teaching in the long run. They claim that the use of technology in teaching process is useful as it "simulate real-life situations" and assert that "computer assisted language learning opens up vistas of expansion in the field" (p.181). Movies, games, images and a mixture of many other visual effects facilitate language learning process to a great degree also due to the colourful content they offer together with striking audio effects. The current study also came up with similar conclusion and further asserted the usefulness of the use of visual aids in English language classrooms.

After marking and evaluating the worksheets of the students, it was found out that all the students understood the use of gerunds very well. It was decided that the students getting marks below 50 percent would be considered weak, and it will be assumed that all the students getting marks above 75 percent have successfully learnt the concept. However, all the students got 85 percent and above marks which suggested that all the students had learnt the concepts well. All the students showed high level of interest in the pedagogical process during the whole lesson. They focused on both words and images and paid a

great deal of attention as compared to traditional learning activities. Thus, the students during the current study remained enthusiastic about their lesson due to the fact that they were told to watch the movie and pick out gerunds from the dialogues; this process kept them absorbed and attentive towards what was being taught to them. The process of teaching gerunds to the students by making use of the movie clips from *Tangled* allowed the students to learn grammar in an exciting way and stimulated their learning capabilities.

4. FINDINGS AND CONCLUSION

Movies in grammar teaching classes can serve as a positive reinforcement for the education of the students, and can help in increasing their learning speed and proficiency. Macwan (2015) asserts that the use of movies in English language classrooms has no parallel; Movies have a great impact on the psyche of the students as they have the power to "thrill, motivate, shock, entertain and render the masses powerless to resist the temptation of the silver screen" (p.94). Macwan posits that the most powerful way of teaching language is teaching it through the visual media including English movies as "movies…exercise an appeal on the collective imagination of youth across countries and cultures" (p.93). Apart from this, since movies do not change over time, they provide a consistent source that can be consulted again and again for rehearsal or repetition of the learned concepts. Likewise, during the research, it was observed that the students remained interested in the learning process throughout the lesson due to the pleasant and entertaining environment of the class. The use of clips from the movie *Tangled* in teaching gerunds to the students resulted in their enhanced performance in learning grammar.

The study concluded that animated movies are a very effective mode of teaching English grammar since they provide entertainment and add pleasure to the learning process. Students learn on both conscious and unconscious levels while enjoying the movie clips. The process also helps them recall the learned concepts more efficiently due to the link between the learned concepts and the animated images in the movie. The main target of this research was to explore the usefulness of movie clips

in teaching gerunds to the beginners. The study also revealed that the use of movie clips to teach students can be an exciting process of enhancing learning capabilities of language students. Animated movies provide very high language learning prospects to the students, if the teachers select appropriate films which are focused on the learning needs of the language students. Animated movies provide significant content from which students can learn different aspects of grammar, thus facilitating learners through interesting content while at the same time encouraging them to acquire English language.

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BOOK REVIEWS

James Rickards. *The Road to Ruin: The Global Elites' Secret Plan for the Next Financial Crisis*. London, Penguin Books Limited. November 15, 2016. 352 pages. (Paperback): £10.49.

Standing at the precipice of the year 2016, global, political, economic, and financial landscape deserves groundbreaking change in financial crises models. But the current literature including the three available currency crisis models are mere frameworks to understand past financial crises rather than usable to predict the next crisis. This is akin to history repeating itself - each currency crisis model was developed post-currency crisis and none was successful at portending its respective financial crisis. So while the past castigates against fiscal imbalances, herding behaviour, and financial system vagaries, predicting the next financial crisis is reduced to educated guess work at best and conspiracy theories at worst.

The title of James Rickard's book, 'The Road to Ruin: The Global Elites' Secret Plan for the Next Financial Crisis', leaves us stunned. It is double edged since it is steeped with both conspiracy theories and econometric support. Divided into nine chapters, the text is driven by the straitjacket of Rickards' perceptions whilst compelled by theoretical discourse and historical references. Two financial events which almost broke down international monetary system are described in detail. The first event is the Long Term Capital Management (LTCM) crisis in 1998 and the second episode is the Global financial crisis 2007-8 triggered by the default of Credit Default Swaps (CDS). The global financial system was saved around the world by injecting and stimulating liquidity through lowering interest rates and quantitative easing. But Rickards goes as far as saying that this cure was an artificial solution since it never addressed the underlying debt loops or fixed the tenuous domestic and international financial architecture. It seems true that we are still reeling from the repercussions of the global crisis, including the ongoing Euro sovereign debt crisis, and the highly indebted U.S. economy, when Rickards jolts us. The author predicts that another global crisis is looming on our heads. If we analyze his claims, they seems onerous, especially against the changing economic and political

backdrop of the world. This includes facts such as the unrecovered British Pound even months after BREXIT, uncertain future of America under the current political leadership, and snowballing debt crisis of the Eurozone.

However fragile they might, the global financial markets seem to be stable and running. In such circumstances predicting another global crisis without any precarious signs seems more of a controversy theory than a prediction supported by orthodox fundamentals. The author shows that the governments around the world are preparing for the next big crisis which seems inevitable. And the reason is that the solution to the last crisis was weak and fascist. But the author's claims, though debutante, have weight and the book does not focus on abstract theories and rather employs statistical tools. The book dismisses static tools of classical economics as Rickard's remarks, "complex systems behave in a completely different manner from equilibrium systems". Bolstering the book's claims, the book employs Bayesian probability which is also used by CIA to predict next terrorist attacks. The author defends that intelligence analysis works with scarce information, so Bayes' theorem can be credibly used to predict the next financial crisis. This means that his book parts ways with the major four schools; classical, Keynesian, monetarist, and Austrian. And so, Rickards engages with novice complexity theory, Bayesian statistics, scaling matrices, density functions, and behavioural psychology for studying and projecting economic and financial fundamentals.

After establishing that a major breakdown of the international monetary system is imminent, Rickards turns to the aftermath of such a catastrophic event. The author swiftly gears his attention towards donor agencies such as IMF, and labels it as the permanent secretariat of the G20. So its activities warrant some attention including importance of (Special Drawing Rights) SDR, should another crisis strike. According to Rickards, since the governments are putting clauses in financial agreements, they would be legally allowed to react to any crisis as it seems fit. Only this time, IMF would not bailout troubled economies by injecting liquidity but governments around the world would unify for a lockdown. This is called the Ice-9 plan where all requests to withdraw cash from the banks would be denied. And so when the crisis strikes,

banks would be closed, ATMs would not respond, negative interest rates imposed, exchange markets shut, and currency intermediaries asked not to engage in selling. In flesh, should such a situation arise, the only medium of currency would be IMF's existing currency, SDR; swappable with other currencies in the SDR basket of currencies.

Going further, liquidity in the form known to the world for decades would cease to exist. This means paper currency would lose its value and only gold and hard assets retain their intrinsic values. Rickards vows that global elites have already started preparing by hoarding these valuables since establishing SDR as the world numeraire seems inevitable. In the last few months, IMF has produced several studies on the increasing role of SDRs in world trade and finance. This, according to the book, supports that SDRs would emerge as the next fundamental medium of exchange.

In all, it seems that one some level Rickard's views are warranted. For instance, the increasing importance given to SDR by IMF insinuates some global change. But such a change might be as benign as a move towards introducing SDRs in competition against major currencies such as U.S. dollar, Pound Sterling, Euro and Yen. The reason to such a conspicuous decision could be as obvious as the tenuous state of respective economies. This might actually be an ingenious, pre-emptive solution to shoulder the fall of any of the significant currencies. Moreover, governments all over the world might be including the discussed clauses to discourage moral hazard to avert another financial crisis, similar in footing to the last crisis. Nonetheless, we cannot ignore that it were similar exit routes instead of required adjustments, both pre crises and post crises, which worsened moral hazards. By giving them unbridled liquidity, bankruptcies of main culprits of the crises were not allowed and protagonists such as Goldman Sachs still operate at the heart of the global financial world. So it is highly likely that they are still involved in activities as chequered as before the global crisis.

Despite alternative explanations and possibilities, current composition of the global financial world adjunct with unexplained legal covers, pending economic adjustments, egregious political leaderships, and plans on abandoning prevailing numeraires cannot be ignored. In such a scenario, governments seem warranted to plan covert painful

adjustments and cannot be expected to issue any public warnings lest they should spark mass panic. Rickards' views, even with a doomsday tone and econometric tests unverified by past events or existing currency models, seem to carry weight. Hence, it seems only reasonable to regard this book as a significant and credible addition to analyze past financial crisis while serving as a reliable tool kit to prepare for the aftermath of the next financial crisis.

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Rainer Maria Rilke. *Letters to a Young Poet*. New York: W.W. Norton & Company, Inc. 1954. 60 Pages. (Paperback): $7.12.

Letters to a Young Poet is a collection of letters written by the great Austrian poet Rainer Maria Rilke. The letters were written as replies to Franz Xaver Kappus, who asked Rilke to assess his poems. Kappus was a young cadet at that time (1903) and had later gone on to become a military officer. He also pursued his hobby as a professional poet, writer and a journalist. The letters were a remarkable source of motivation, guidance, and encouragement for a novice like Kappus. This book is a must read for anyone who aspires to enter in the field of literary or creative writing. Rilke has given sound advice for beginners that can come in handy. The book collects Rilke's philosophy and his way of thinking about how to cope with twists and turns of life.

The best part of his first response to Kappus is that he did not give him a clear yes or no; rather he encouraged him to decide for himself and first be sure whether this is what he really wants to do. For Rilke believed that the stronger the urge one has for something the more likely it is that he will succeed at the task. Rilke's letters also serve as a guide for someone who is facing a task of mentoring a novice in any field. It is important to note that Rilke did not hold Kappus' hand and take him to the destination; instead he helped him to find the path himself.

The point Rilke stressed throughout the letters and that forms the crux of his philosophy about art is that introspection in solitude is the key to find inspiration for creativity. The originality of idea will come only when one ask questions from no one but himself. Every individual more or less face similar circumstances in life and that provides them inspiration for their ideas and thoughts. However the themes that are already exhausted are the most difficult domains to be creative about. He believed that the most creative inspiration comes from our deepest felt experiences which we usually feel alone and thus can only be found by ourselves. Therefore, even if people have similar circumstances, there will still be difference in how they see and cope with everything. That's what make same experiences very different from each other; and all this will be transformed into something extraordinarily creative while

looking deeper into them. That is why Rilke stressed on solitude in all his letters.

The trademark of his letters presented in this book is his realistic, honest, and straightforward yet encouraging guidance which is the desire of every beginner. He shared his own favorites and explained that the great pieces of existing literature were worth reading again and again as they offered new experience every time just like a journey that offers something different to cherish every time you take it.

One of the best lessons from this book which anyone can apply in life is the author's advice to remain patient and have the right attitude. He said that everyone extracts what he looks for and every piece of art (or life event for that matter) reveals its secrets according to the caliber, mind-set, humility and most importantly, patience of the reader. Patience is something that helps people learn the most valuable lessons in life, specifically for artists. Continuing on the importance of patience, Rilke advised Kappus to not rush towards conclusions but to live the moments to extract the most out of them.

The fourth letter carries particularly well-articulated pieces of advice for a youthful boy who was high on energy and impatient to explore the world around him. Rilke did not brush off Kappus' anxiety and concerns about his desires but asked him to conceive clarity in life about every humble thing around. The point was to observe and ponder on small details and live through pain as it would help in personal growth. The purpose was to collect all the love and avoid those who would make him doubtful and not be afraid of solitude for it would be the best remedy for every problem faced in life.

Rilke has stressed on observing the minute details for he believed that our surroundings have influence on our mood and the place we live in affect our creativity as an artist. This is something anyone with some sort of creative instinct can relate to. This might seem as a contradiction to what Rilke was stressing all along that one needs to look within for inspiration. According to my understanding, Rilke was trying to form a link between one's inner self and the outer world. Everything that surrounds a person has an impact on his thoughts; this link can be found by a conscious effort. Here, he is motivating Kappus to sit in solitude and dig deep inside to find the changes that have been made by outside

forces. This would make a seemingly secluded place (our solitude) that we find a source of inspiration.

Another letter in the book talks about love at length. Rilke's philosophy about love is very pragmatic. According to him, love is not what young souls perceive; a mere convention or union. It is deeper. It needs patience. There is no rule or formula for love just as there is no rule for death. Everyone goes through his own experience. In the same letter, he very objectively makes his point about gender equality by holding the opinion that the time is near when relationships will no longer be defined as between man and his opposite gender, rather it will be between two human beings; complete in themselves. This will solve a lot of relationship problems that youth of today faces.

In one of the letters where Rilke is trying to sympathize with Kappus, he did not say words that would give him false hope; rather he tried to bring the positivity. He is of the view that sadness and difficulties in life make us what we are. In one of the letters where Rilke was appreciating Kappus' sonnet, he made a point that if something is difficult, it is just another reason to do it. Uncertainties help us to grow and to learn the secrets of life that we would have never understood if we were living a life on bed of roses. Then Rilke beautifully hinted towards his own life difficulties and said that only those who have been through rough patches can become the voice that can solace others. That is how one writes words that touch hearts and souls of others. He thus asked Kappus not to lose hope but take his difficulties as blessing in disguise.

The last letter is powerful for any reader who is trapped in some profession that he thinks is not for a creative mind. Rilke's advice is that art is a way of living and an artist just portrays his real life experiences through his work; and that to be an artist you need not to be in a certain profession rather an artist could be in any profession (like military in case of Kappus) but the only requirement is that he finds himself after a patient and long search in solitude.

Overall the book is a treat to those who are looking for motivation in life. It is an old piece but the words are powerful and well-crafted that no reader can avoid the influence it creates. Each letter is a complete motivational read in itself and reveals new secrets every time you read

it. It is definitely a kind of book that one gets back to while looking for some motivation in life and it will never disappoint. The book has so much to offer that a onetime read would be an injustice to the immense insights it has to offer. The young should read this collection of letters to broaden their horizon and to understand life.

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