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INVESTIGATION OF EXPORT-LED GROWTH AND GROWTH-LED EXPORT HYPOTHESES: A STUDY ON PAKISTAN EXPORTS TO USA, UAE AND UK

MUHAMMAD AZHARIKRAM AHMAD
ZAHID AHMAD
SHAFAQATMEHMOOD†
Faculty of Commerce, University of Central Punjab, Lahore, Pakistan

ABSTRACT

This article is about investigation of export-led growth and growth-led export hypotheses in case of Pakistan exports to top three exports partners namely: USA, UAE and UK. Time series data over the period of 1975 to 2012 has been used. Augmented dickey- fuller test has been used to check unit root within data. Co-integration among the variables has been explored by employing the Johansen's co-integration technique. Granger causality test has been used to investigate nature causality among variables under investigation. Johansen's co-integration test revealed the presence of co-integration among variables. As major portion of Pakistani exports approximately 30 percent is towards the top three exports partners, so the investigation of export-led growth and growth-led export hypotheses in case of Pakistan's exports to USA, UAE and UK can helpful for policy makers to adopt a suitable policy prescriptions which finally could lead to enhancement and improvement of exports relations with USA, UAE, and UK. This research can lead towards understanding about the dependency of exports and economic growth on each other.

Keywords: Export-led Growth; Growth-led Export; Export Relations.

INTRODUCTION

The aim of this article is to analyze the Export-Led Growth (ELG) and Growth-Led Exports (GLE) hypotheses in case of Pakistan exports to top three exports patterns namely: USA, UAE and UK. Here, ELG states that an increase in exports leads to an increase in

† Corresponding author E-mail: shafaqatphd@gmail.com

Gross Domestic Product (GDP) and GLE means that an increase in GDP leads to increase in exports.

Relationship between economic growth and exports is main area of international trade, which has received a great attention by researchers (Bahmani-Oskooee & Economidou, 2009). Furthermore, from past to now, the nature of relationship between growth and exports considered a vital question among economists around the world. There are four possible propositions in context of link between exports and growth namely: ELG, GLE, bidirectional relationship, and not any relationship (Safdari, Mahmoodi, & Mahmoodi, 2011).

An Overview of Pakistan Export to USA, UAE and UK

According to Pakistan (2012) USA, UKE, and UK are top three exports partners of Pakistan. These top three export partners contribute approximately 30 percent in Pakistan total exports. Industry sector of Pakistan contribute 23.6 percent in GDP. Agriculture sector of Pakistan contribute 26 percent in GDP and services sector contribute 54.6 percent GDP. GDP of Pakistan increased from 103,557 million rupee to 19,436,825 million rupee over the period of 1975-2012. During same period, Pakistan total exports increased from 10,286 million rupee to 2,309,443 million Rupees.

Pakistan total exports to top three exports partners increased from 1,547 million rupee to 6, 60,009 million rupee during the period of 1975-2012. During the same period Pakistan's export to USA, UAE, and UK increased from 384 million rupees, 476 million rupees and 687 million rupees to 362537 million rupees, 176608 million rupees and 120864 million rupees respectively.

Problem Statement

If a country has better or outstanding export performance then it can improve economy growth and vice versa (Afzal, Rehman, & Rehman, 2008). This statement raises an important question in context of nature of relationship between exports and economy growth. Further ELD and GLE hypotheses totally depend on the nature of link between growth and exports. USA, UAE and UK are major three exports partners of Pakistan, so present research paper could leads towards the understanding nature of link between economy growth and exports.

This research work could also leads to explore the presence or absence of ELD and GLE hypotheses.

Research Questions

Following are some main research questions of this study:

- Is there co-integration between Pakistan economy growth and its exports to USA, UAE, and UK?
- Is there Export-Led Growth, in case of Pakistan exports to USA, UAE, and UK?
- Is there Growth-Led Exports, in case of Pakistan exports to USA, UAE, and UK?

Research Objectives

Following are the main objectives:

- To explore the co-integration between Pakistan economy growth and its exports to USA, UAE, UK country wise and overall
- To investigate the ELG hypothesis, in case of Pakistan exports to USA, UAE, UK country wise and overall
- To investigate the GLE hypothesis, in case of Pakistan exports to USA, UAE, UK country wise and overall

LITERATURE REVIEW

The link between economic and export growth in developing countries has been of continuing interest both in theoretical and empirical literature. In case of Pakistan, Alam (2012) investigated the ELG, GLE, import-led growth, growth-led imports hypotheses. The study of Alam documented the presence of GLE in long and short run period.

Hye (2012) explored the link between trade liberalization and economy growth of Pakistan by using the time series data. Hye study concluded that a negative and significance link exist between trade liberalization and economic growth. Mehmood (2012) explored the link between exports and economic growth at regional level in case of Pakistan's exports to

SAARC. Mehmood sued Augmented Dickey- Fuller (ADF) test to check unit root, Johansen's co-integration technique used to explore the co-integration among the variables and granger causality test applied to check the nature of causality. Mehmood documented the absence of GLE hypothesis at regional level export in case of Pakistan's exports to SAARC, further documented the presence of short-term relationship. The study of Naz (2012) found that ADF test most appropriate to check the unit root in time series data before exploring the link between variable by employing the granger causality test.

Alam (2011) investigated the empirical relationship between economy growth of Pakistan and Pakistan's total exports. Alam's study outcomes were in line of strong relationship between economy growth of Pakistan and Pakistan's total exports. Tang & Lai (2011) made an attempt to check the ELG hypthesis in case of Asiam countries. Their study used panel data and confirmed the validility of ELG hypothesis.

Ullah et al. (2009) reinvestigated the relationship between growth and exports in case of Pakistan. Their research used time series data and applied econometrics tools namely: Granger Causality test, (ADF) test and Co-integration test. They documented the existence of positive and strong relationship between growth and exports. The study of Afzal, Rehman and Rehman (2009) investigated the link among debt, servicing exports, and GDP in case of Pakistan. They concluded the absence of ELG hypothesis in case of Pakistan.

The research work of Cetintas & Barisik (2009) expored the ELD hypothesis by taking a sample of thirteen countries including the Pakistan. They found presence of ELG hypothesis, and existence of bidirectional relationship among exports, imports and economy growth.Pazim (2009) documented the absence co-integration between economy growth and exports. Galimberti (2009) confirmed validity of ELG hypothesis in case of taking a sample of seventy-two countries including the Pakistan. The empirical study of Omisakin (2009) found a strong and positive relationship among economy growth, imports and exports.

DATA AND METHODOLOGY

In this article secondary data has been used and time series from 1975 to 2012 were taken economy survey of Pakistan various Issues. Whole analysis has been conducted on

Pakistan economy growth and its exports to top three exports partners namely: USA, UAE, and UK. The following variables have includes in this article based on the objectives:

- Gross Domestic Product of Pakistan (GDP)
- Pakistan Total Exports to Top Three Exports Partners (PTETTEP)
- Pakistan Exports to USA (PEUSA)
- Pakistan Exports to UAE (PEUAE)
- Pakistan Exports to UK (PEUK)

Hypotheses

This study has the following alternative hypotheses:

H_1: Variables namely GDP, PTETTEP, PEUSA, PEUAE and PEUK are co-integrated

H_2: There is ELG in case of Pakistan total exports to USA, UAE, and UK

H_3: There is GLE in case of Pakistan total exports to USA, UAE, and UK

H_4: There is ELG in case of Pakistan total exports to USA

H_5: There is ELG in case of Pakistan total exports to UAE

H_6: There is ELG in case of Pakistan total exports to UK

H_7: There is GLE in case of Pakistan total exports to USA

H_8: There is GLE in case of Pakistan total exports to UAE

H_9: There is GLE in case of Pakistan total exports to UK

Objectives of this research paper have been achieved by using some statistical and econometrics tools namely: ADF test, line graphs, Johansen's co-integration technique and Granger causality test

Whole analysis has been completed by using the E-View 6. First of all, unit root test used to explore the stationarity condition of time series data. According to Mehmood and Ahmad (2012) and Mehmood (2012) various test can be used to check the unit root condition of time series data but among these ADF is considered most appropriate. So, in present article ADF test has been used. Secondly, co-integration among the variables has been

explored by employing the Johansen's co-integration technique. Granger causality test has been used to investigate ELG and GLE hypotheses.

RESULTS AND DISCUSSION

Results of Augmented Dickey-Fuller (ADF) Test

Table 1 reports ADF test results of variables under investigation. Results revealed that all variables contain the unit root at level because their test statistics fails to exceed the critical value at 1% as well at 5% level of significance. Further, results revealed that variables are free from the unit root at first level because their test statistics exceed the critical value at 1% as well at 5% level of significance. So, variables transformed to stationary at first difference.

TABLE 1

Results of Augmented Dickey-Fuller (ADF)Test

Variables	ADF Test	Test Stat	1% C. V	5% C.V
GDP	At Level	0.820889	-3.62102	-2.94343
	At 1st Difference	-5.65069	-3.62678	-2.94584
PTETTEP	At Level	-0.53181	-3.62102	-2.94343
	At 1st Difference	-6.15182	-3.62678	-2.94584
PEUSA	At Level	-1.50328	-3.62678	-2.94584
	At 1st Difference	-11.6862	-3.6329	-2.9484
PEUAE	At Level	-0.80829	-3.62678	-2.94584
	At 1st Difference	-10.1357	-3.62678	-2.94584
PEUK	At Level	-0.97657	-3.62678	-2.94584
	At 1st Difference	-7.33693	-3.62678	-2.94584

Visual Representation of Variables under Investigation

From Figure 1, visual representation of variables under investigation revealed that variables contain up-ward and down-ward slop over the time period 1975 to 2012. It

indicates variables under investigation have unit root problem at level. From Figure 2, visual representation of variables under investigation revealed that time series data contain a mixture of up-ward and down-ward slop over the time period 1975 to 2012. It indicates variables under investigation have not unit root problem at first level.

Results of Johansen's Co-integration Test

Table 2 indicates the results of Johansen's co-integration test which has been employed to inquire the medium & long-run relationship among the five variables under investigation namely: GDP, PTETTEP, PEUSA, PEUAE, and PEUK. Johansen's co-integration technique has been tested at the lag interval 1 to 1 with assumption a linear deterministic trend in five variables under investigation. The trace test has exceeded the 5% critical value which indicates that variables under investigation contain 1 co-integration equation at 5% critical level. Further results report the long-run relationship among variables under investigation.

TABLE 2

Results of Johansen Co-Integration among variables under investigation

Series: GDP PTETTEP PEUSA PEUK PEUAE
Lags interval (in first differences): 1 to 1
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.681506	76.48979	69.81889	0.0133
At most 1	0.380591	35.30034	47.85613	0.4322
At most 2	0.324698	18.05673	29.79707	0.5619
At most 3	0.090847	3.923299	15.49471	0.9096
At most 4	0.013645	0.494592	3.841466	0.4819

Trace test indicates 1 cointegratingeqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

Results of Granger Causality Test

When two or more variables are considered to be correlated but the causal relationship was not known, Granger causality test has been employed to test the causality relationship among the variables. In present article, there are five variables on which we employed pair wise granger causality test to inquire which variable cause to whom. Swartz criterion is considered as an appropriate tool to select the lag length.

Table 3 indicates the results of Granger causality among variables under investigation at lag 1. In case of GDP and PTETTEP; GDP and PEUAE; GDP and PEUSA, there are unidirectional causal relationship, and causality runs from GDP to PTETTEP, GDP to PEUAE, and GDP to PEUSA.

TABLE 3

Results of Granger Causality Test among variables under investigation at lag 1

Pairwise Granger Causality Tests
Date: 01/02/13 Time: 05:43
Sample: 1975 2012
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
PTETTEP does not Granger Cause GDP	37	0.05302	0.8193
GDP does not Granger Cause PTETTEP		2.26834	0.1413
PEUAE does not Granger Cause GDP	37	0.02410	0.8776
GDP does not Granger Cause PEUAE		26.8059	1.E-05
PEUSA does not Granger Cause GDP	37	0.04361	0.8358
GDP does not Granger Cause PEUSA		10.9733	0.0022
PEUK does not Granger Cause GDP	37	0.00026	0.9872
GDP does not Granger Cause PEUK		1.74267	0.1956

CONCLUSIONS

In this article an attempt has been made to investigation the ELG and GLE Hypotheses in Case of Pakistan Exports to top three exports patterns namely: USA, UAE, and UK. ADF test has been used to check unit root within data. Johansen's co-integration technique has been used to explore co-integration among the variables. ELG and GLE hypotheses based nature of causality have been investigated by using Granger causality test. Johansen's co-integration test revealed that variables under investigation contain 1 co-integration equation at 5% critical level which shows the presence co-integration and long-run relationship among variables. Granger causality revealed that in case of GDP and PTETTEP; GDP and PEUAE; GDP and PEUSA, there are unidirectional causal relationship, and causality runs from GDP to PTETTEP, GDP to PEUAE, and GDP to PEUSA. As a major portion of Pakistani exports 30% approximately is towards the top three exports partners, so the investigation of GLE or GLE hypotheses in case of Pakistan exports to USA, UAE and UK can helpful for the policy makers to adopt a suitable policy prescriptions which finally could lead to enhancement and improvement of exports relationship with top three exports partners namely: USA, UAE, and UK. This research can helpful for make clear about the dependency of export growth and economic growth on each other.

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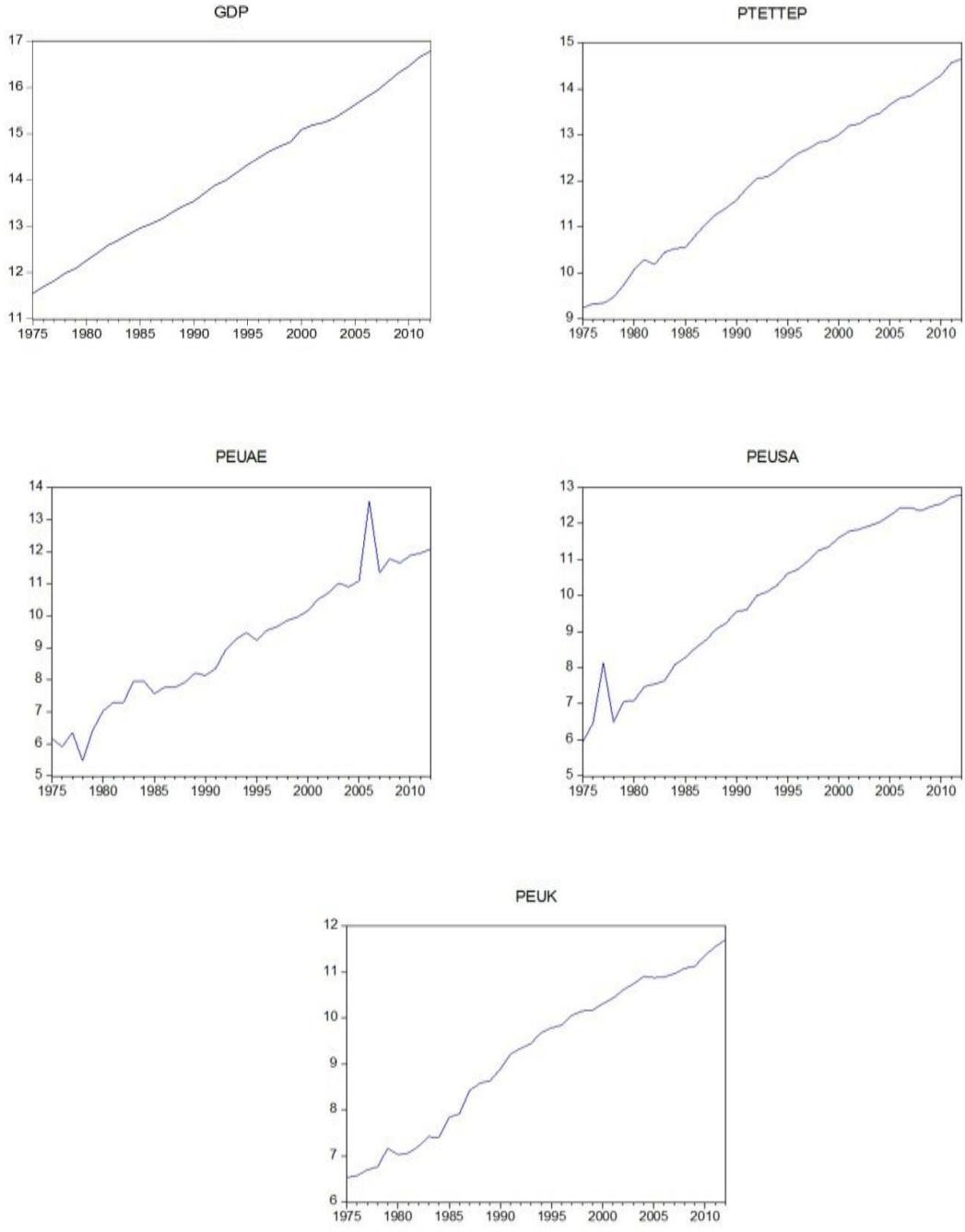
ANNEXURE 1

FIGURE 1

Visual Representation of Variables at Level



ANNEXURE 2

FIGURE 2

Visual Representation of Variables at First Difference