I J A B E R, Vol. 12, No. 1, (2014): 39-49

THE IMPACT OF DEMAND AND PRICE VOLATILITY IN PAKISTAN: CO INTEGRATION APPROACH FOR COMPENSATION HYPOTHESIS

HIRA MUJAHID* AND SHAISTA ALAM**

Abstract: The important modification of the compensation hypothesis rests on the principle; increased trade openness increase the domestic economic volatility. The economic theory recommend increase of international trade require integration into huge, even markets, and involve risk diversification, in fact it may support rather than reduce stability. By the same indication, however, economic theory also suggests that smaller economies should familiar with greater levels of volatility than larger economies, this study quantify the relationship proposed in case of Pakistan containing dataset since 1966-2009. The verification presented here suggests that the level of domestic economic volatility is not only because of international trade integration, there are some other factors too; however trade integration may have eased rather than emphasizing on creating domestic economic volatility.

JEL Classification: F43, E31

Keywords: Volatility, Trade Openness, Compensation Hypothesis, Demand, Price

1. INTRODUCTION

Cameron (1978) began with compensation hypothesis which explained "the trade openness put forward greater economic volatility" also drive greater economic insecurity (Ruggie, 1982; Rodrik1997). Globalization increases the international integration, as well as symbol of welfare development and the political climate on national state Down (2007). On the other hand globalization acquires negative implication among politicians, media and sometimes among business community. As it disturbed global market forces for all kinds of political and economic problems hence globalization turn out to be reason of unlikable labor market conditions.

In liberal economy the possibility of international jolt can improved through both explicit and implicit insurance Rodrik (1997). Since then it is one of the debatable issues which explain the effect of global economic integration on state welfare. At the same time there are numerous discussions on global trade integration, which increase the economic volatility Karras (2006), Liberati (2006), Alesina, spolare and wacziarg (1997, 98), Rodrik (1998), Alesina & wacziarg (1997), Allen (1995). On the other hand, little concentration has been paid to the behavior in which such integration might decrease volatility Down (2007).

* M. Phil student at Applied Economics Research Center, University of Karachi, Karachi-75279, *E-mail: hirathesis@gmail.com*

** Assistant Professor/ Research Economist at Applied Economics Research Center, University of Karachi, Karachi-75279, *E-mail: shaista_aq@yahoo.com*

Cameron (1978) explained the international exposure arise the risk from domestic demand to the global demand, as the import penetration and export dependence transmit shocks to the home country. In addition large domestic volatility is not only because of trade openness, there are some other factors too. In case of Pakistan there has been little endeavor to estimate the effect of trade integration on economic volatility, whether economic volatility actually increases with greater trade openness or not. Therefore this study will bridge the gap between trade liberalization, country size, inflation GDP per capita, volatility of price and domestic in case of Pakistan.

In table 1 the comparison of demand volatility among SAARC country; domestic demand volatility is the standard deviation of GDP per capita of purchasing power parity is illustrated. In 1980 Bangladesh has the lowest demand volatility means that the deviation of GDP per capita with respect to PPP is smallest compare to the rest of SAARC countries whereas Sri lanka has the greatest deviation of GDP in 1980. In 1990 demand volatility of India is 39.59 which is lowest compare to the rest countries. Since 2000 the globalization increases so the demand volatility shot periodically and in 2010 Sri lanka's economy has more fluctuation then rest of the countries.

Table 1
Demand Volatility of SAARC countries

Countries	*1980*	*1990*	*2000*	*2010*
Pakistan	58.68986	47.37615	24.74874	61.51829
Bangladesh	24.04163	16.26346	35.35534	96.16652
Sri Lanka	77.07464	67.88225	43.84062	363.4529
India	39.59798	14.14214	60.10408	195.8686

Note: Standard deviation of GDP per capita PPP, real GDP Data: Penn World Tables

This study discusses economic theory effect that greater trade integration subject in greater economic volatility as economic theory exhibit economic volatility is the role of country size, intensity of market and trade openness which bring risk diversification. The purpose of this study is to find the significance of compensation hypothesis in case of Pakistan. The recent contribution for the hypothesis investigation is Down (2007). The study ordered as follows: Section II present review of evidences. Section III represents the data sources and explanations, and methodology. Section IV discusses the empirical findings. And Section V presents conclusion.

2. REVIEW OF EVIDENCE

The empirical findings that studies compensation hypothesis for macroeconomic volatility is wide and it has absolutely not reached clear consensus. As regard literature respect to empirical compensation hypotheses testing for OECD countries done by Down (2007) which was initiated by Cameron (1978), and still is one of the center of concentration later numerous studies found Rodrik (1996) Allen (1995), Fiaschi (2003), Loayza & Ventura (2007) Haddad & Saborowski (2010), Giovanni & Levchnko (2010, 2009), Down (2007), Easterly & Kraay

(2000), Razin & Coury (2002), found the impact of trade liberalization on increase in volatility.

Down (2007) has acknowledged the relationship of trade openness and macroeconomic volatility, for that he used cross sectional data on developed countries and gave details the size and depth of market depends on the macroeconomic volatility. The small countries are more volatile because of greater market amalgamation and openness. Cameron (1978) has documented that each and every country somehow relying on the international markets because of globalization. The degree dependency depends on the country size so that smaller countries depend more than the large country. However, for more open economies their domestic industries faces external shock, the more open economy the more risk bear Rodrik (1998). Cameron (1978) explained that it's easy for large countries government to generate more revenue with increase in tax on public good because non rivalry in nature. Government of small countries could get more revenue from trade openness. Cameron (1978) and Rodrik (1996) exhibited that inadequate performance of state distorts trade openness and government could use variety of policies to protect the exporters and domestic industries.

Giovanni and Levchenko (2010) acknowledged with help of cross sectional data there was positive relationship between trade openness and economic volatility. But free trade reduces the economic volatile in some countries. Also, discovered more volatility reveal when country is more trade openness, specialization increase trade openness. Allen (1995) showed 50 countries country size was negatively related with the volatility and positively related with investment with consumption and output. Fiaschi (2003) outcome suggested negative relationship between growth rate of volatility with level of development which was captured as GDP per capita and economy size explained as total GDP.

Loayza & Ventura (2007) recommended that macroeconomic volatility is fundamental problem of developing countries which is indication of underdevelopment. These countries attain instability for the reason of external shocks, unstable macroeconomic policies, inflexible microeconomics and frail institutions. Moreover, proposed that macroeconomic volatility can control on three main bases; first by maintaining inflation and evade price inflexibility, second increase the ability to absorb shock through fiscal policies and save in good times and through administer the external shocks. At the overall level, Easterly & Kraay (2000) found for small economies term of trade is important driver for increase in macroeconomic volatility. Moreover they also argued that small economies typically experienced the high income volatility is due mainly to their trade openness and small role of that export concentration. The gains from trade openness and economic integration could achieve by economies of scale either in the production technologies Razin & Coury (2002).

3. DATA & METHODOLOGY

This study test the expectation of the two macroeconomic principle for dataset of 1980-2009 against measures of price and demand volatility defined by Cameron (1978) as area under discussion large economic fluctuations are the result of great amount of trade openness. Rodrik (1997) and Iversen (2001) employed the measure of volatility as standard deviation

of a aggregate economic. Demand volatility is measured as the standard deviation of GDP per capita PPP (real GDP) and price volatility is captured by standard deviation of GDP deflator. However, the level of international trade integration is calculated as the import plus export as a percentage of GDP. The country size (LPOP) is measured as population size (in millions) to represent the market depth. Numerous studies has been found for the calculation of volatiles through standard deviation e.q. (Akhtar and Hilton 1984; Baum, Calagyan and Ozkan 2002 and Mustafa, 2004).

For our model volatilities are calculated as:

$$\text{LSDG} = \text{Ln}\left[\sqrt{\frac{1}{n-1}\sum_{k=1}^{n}(X_{it}-\bar{X}_1)^2}\right]$$

Where X represents GDP per capita, real GDP or GDP deflator and $\bar{X}_1$ represents averages of GDP per capita, real GDP or GDP deflator of considered year. The study will investigate the compensation hypotheses proposed by Cameron (1978) in case of Pakistan considering demand and price volatilities. For this purpose the following models will be estimated with the methodology of unit root test & co integration approach.

$$\text{LSDG} = \rho_0 + \rho_1\,\text{LPOP} + \rho_2\,\text{LO} + \rho_3\,\text{LGDP}_{t-1} + \text{U}_1 \qquad (1)$$

$$\text{LSTDP} = \rho_0 + \rho_1\text{LPOP} + \rho_2\,\text{LO} + \rho_3\,\text{LGDF}_{t-1} + \text{U}_2 \qquad (2)$$

This study will follow the co integration test the reason of popularity of this technique it gives the background of short run and long run relationships of variables. The co integrated variable must have VECM representation, Engle & granger (1987) it also provides the problem of spurious correlation. For short run analysis VECM represents as:

In case of demand volatility:

$$\Delta\,\text{LSDG} = \chi_0[\gamma_1\,\text{LPOP}_{t-i} - \gamma_2\,\text{LO}_{t-i} - \gamma_3\,\text{GDP}_{t-i} - \gamma_6] + e_1 \qquad (3)$$

$$\Delta\text{LPOP} = \chi_1[\gamma_4\,\text{LO}_{t-i} - \gamma_5\,\text{GDP}_{t-i} - \gamma_6\text{LSDG}_{t-i} - \gamma_7] + e_2 \qquad (4)$$

$$\Delta\text{LO} = \chi_2[\gamma_8\,\text{LPOPO}_{t-i} - \gamma_9\,\text{GR}_{t-i} - \gamma_{10}\text{LSDG}_{t-i} - \gamma_{11}] + e_3 \qquad (5)$$

In case of price volatility:

$$\Delta\,\text{LSTDP} = \theta_0[\rho_1\,\text{LPOP}_{t-i} - \rho_2\,\text{LO}_{t-i} - \rho\gamma_3\,\text{GDF}_{t-i} - \rho 4] + e_5 \qquad (6)$$

$$\Delta\text{LO} = \theta_1[\rho_5\,\text{LPOP}_{t-i} - \rho_6\,\text{GDF}_{t-i} - \rho_7\,\text{LSTDP}_{t-i} - \rho_8] + e_6 \qquad (7)$$

$$\Delta\text{LPOP} = \theta_2[\rho_9\,\text{LO}_{t-i} - \rho_{10}\,\text{LGDF}_{t-i} - \rho_{11}\,\text{LSTDP}_{t-i} - \rho_{12}] + e_7 \qquad (8)$$

4. EMPIRICAL FINDINGS

Table 2 represents the unit root test of all six variables which indicates that each series is stationary at first difference at level also at intercept and trend (for that null hypothesis; series is non stationary) Table 3 & 4 indicate the co integration results of demand volatility and price volatility respectively, results are judged by Trace and Max Eigen statistic and the hypothesis is there no co integration exist among variables. The lag selection is based on VAR lag selection with value of Akaike info criteria. The test statistics of table 3 for

demand volatility explains the critical value of both trace and Max Eigen are greater at maximum 4 variable which means there is Co integration exist among four variables at most. Also the normalized equation depicts that country size and gdp has negative ahs significant effect on demand volatility. As one million increases in country size the demand volatility decreased by 1.5 million similarly as one percent increase in the lag of GDP deflator demand volatility of Pakistan decreased by 3.7% in long run. However, trade openness has significant and positive relationship with demand volatility, as one percent increase trade openness in long run demand volatility of Pakistan increased by 9.89%.

Table 2
Unit Root Test (AD Approach)

	Intercept		*Intercept & trend*	
	Level	*First Difference*	*Level*	*First Difference*
LGDP	-1.7809	-5.8551*	-1.7214	-5.9479*
LGDF	-1.7809	-5.8551*	-1.7214	-5.9479*
LO	-1.4445	-6.9008*	-3.0399	-6.7810*
LPOP	-1.9884	-4.6702*	0.7449	-5.0435*
LSDG	-2.3202	-3.8181*	-2.2755	-3.7611**
LSTDP	-2.0275	-4.01495*	-2.2161	-3.6859**

Note : Critical values for intercepts are -3.59, -2.93, -2.60 significant level is 1%, 5% , 10% respectively. And critical values for intercept and trends are 4.18,-3.51, -3.18 (significant level is 1%, 5% , 10% respectively, where *,**and *** represents the level of significance at 1%, 5% and 10% respectively.

Table 3
Johenson Co Integration for Demand Volatility

Hypothesis	*Trace*	*Critical Value*	*Hypothesis*	*Max-Eigen*	*Critical*
H0	Statistic		H0	Statistic	
r = 0	124.3229	47.8561	r = 0	60.9049	27.5843
r≤1	63.4180	29.7971	r≤1	42.7045	21.1316
r≤2	20.7135	15.4947	r≤2	16.6179	14.2646
r≤3	4.0957	3.8415	r≤3	4.0957	3.8415
Variables	LPOP		LO	LGDP(-1)	
Coefficients	-1.5846*		9.8972*	-3.7608*	
Standard -Error	0.5760		1.1606	0.6418	
t-statistic	-2.7512		8.5274	-5.8600	

Note: Trace test & Max-eigenvalue test indicates 4 coi ntegrating eqn(s) at the 0.05 level. * represents significant at 1%

Table 4
Johenson Co Integration for Price Volatility

Null Hypothesis	*Trace*	*Critical Value*	*Null Hypothesis*	*Max-Eigen*	*Critical Value*
	Statistic			Statistic	
r = 0	55.1603	47.8561	r = 0	24.8336	27.5843
r≤1	30.3266	29.7971	r≤1	16.5014	21.1316
r≤2	13.8253	15.4947	r≤2	10.7325	14.2646
r≤3	3.0927	3.8415	r≤3	3.0927	3.8415
Variables		LPOP	LO	GDF(-1)	
Coefficients		0.8876*	-1.1541*	-0.5866*	
Standard -Error		-0.1856	-0.3062	-0.2183	
t-statistic		-4.7833	3.7697	2.6873	

Note: Trace test indicates 2 co integrating eqn(s) & Max-eigenvalue test indicates no co integrating at the 0.05 level. * represents significant at 1%

For price volatility in table 4 trace test exhibits there are 2 co integrating equations whereas Max-eigen value test exhibits that there is no co integrating equation exist at the 0.05 critical level. Although, the study consider Trace statistic results most, the normalized co integrating equation depicts that trade openness and PPP converted GDP per capita have significant and negative effect on price volatility in Pakistan. As one per cent trade openness increases 1.15% price volatility decreases however one percent increase in inflation reduces 0.58% of price volatility in long run. On the other hand, country size has positive and significant effect on price volatility as one million increases in country size cause increase in price volatility by 0.88% in long run.

The short run casual relationship demand- price volatility through vector error correction model is exhibit in Table 5 & 7 respectively. In table 5 the values of ECM suggested speed of adjustment large values depicted the high percentage of disequilibrium so the speed of adjustment is fast vice versa. The coefficient of ECM of demand volatility is negative and significant at 1 % level of significance, implies that demand volatility diverge from equilibrium by 0.95% in short run due to the disturbance in system. However the trade openness coefficient of error correction has positive and significant sign; implies that due any change in system the trade openness diverge from equilibrium by 0.19% in short run. Similarly in table 8 depicts that vector error coefficient of price volatility has negative sign and significant impact in short run implies that 0.13 percent disturbance appears in short run due to change in system. However, the PPP converted GDP per capita coefficient of error correction has significant and negative effect in short run means the speed of adjustment in short run is 0.20%.

In order to analyze the short run causal relationship between demand volatility, trade openness, country size and GDP deflator for each equation in VECM the study applied bi

lateral granger causality test. However, results of Wald test (table 5.6) depict that country size and trade openness has significant effect on demand volatility and GDP, also demand volatility and lag of GDP has significant effect on trade openness. Yet, results of Wald test (table 8) for price volatility depicts that country size, openness has significant effect in short run on price volatility, trade openness has significant short run effect on country size, price volatility has significant short run effect on trade openness and GDP deflator, uni lateral causal relationship with lag of GDP deflator. On the other hand, the short run bi lateral causal relationship between price volatility, trade openness, country size and PPP converted.

Table 5
Vector Error Correction for Demand Volatility

Error Correction:	*D(LSDG)*	*D(LPOP)*	*D(LO)*	*D(LGDP(-1))*
ECM	-0.9569*	-0.0028	0.1936*	0.0144
D(LSDG(-1))	0.3526	-0.0001	-0.2274*	-0.0065
D(LSDG(-2))	0.3967	-0.0050	-0.1407*	-0.0076
D(LSDG(-3))	0.3788	-0.0052	-0.0614	-0.0373
D(LPOP (-1))	-1.9361	0.1657	2.4149	-0.5148
D(LPOP (-2))	-12.7539	0.1435	0.2998	-0.6519
D(LPOP (-3))	-8.1930	0.1586	1.9199	0.6478
D(LO (-1))	-0.1377	-0.0050	-0.1569	-0.0035
D(LO (-2))	0.9768	-0.0151	-0.0996	-0.0606
D(LO (-3))	0.4469	-0.0030	-0.1117	-0.0493
D(LGDP (-2))	-0.9794	0.0246	1.8295*	0.1650
D(LGDP (-3))	-1.0450	-0.0212	-0.1238	0.2158
D(LGDP (-4))	-4.1343*	0.0216	-0.2000	0.0525
C	0.7141	0.0136	-0.1260	0.0275
R-squared	0.4894	0.2401	0.6060	0.2433
Adj. R-squared	0.2239	-0.1550	0.4011	-0.1502

Note: * representing significant values

Table 6
Wald Test for Demand Volatility

		Dependent Variables (P Values)		
Independent Variables	*LSDG*	*LOG(POP)*	*LOG(O)*	*LOG(GDP(-1))*
LSDG	0.3801	0.5671	0.0084*	0.2372
LOG(POP)	0.0396**	0.5823	0.5322	0.07155***
LOG(O)	0.0391**	0.7711	0.06505	0.06472**
LOG(GDP(-1))	0.1525	0.8783	0.0021*	0.5246

Note: *significant at 0.01, ** significant at 0.05 & ***significant at 0.10 level of significance.

Table 7
Vector Error Correction for Price Volatility

Error Correction:	*D(LSTDP)*	*D(LPOP)*	*D(LO)*	*D(LGDF (-1))*
ECM	-1.3487	-0.0141	0.3454	-0.2045
D(LSTDP(-1))	-0.3043	0.0046	-0.1951	0.1210*
D(LSTDP(-2))	0.1689*	-0.0010	0.0920*	0.0112
D(LSTDP(-3))	0.1708*	-0.0004	0.1171*	-0.0094
D(LPOP(-1))	-0.9031	0.2419	0.1968	-0.3775
D(LPOP(-2))	-0.6957	0.0600	-2.1610	-0.8550
D(LPOP(-3))	2.2966	0.1807	-0.2000	0.6255
D(LO(-1))	-0.5173	-0.0029	0.1281	-0.1080
D(LO(-2))	-0.4147	-0.0080	-0.0555	-0.0550
D(LO(-3))	-0.3904	-0.0060	-0.1006	-0.0857
D(LGDF(-2))	0.4575	0.0400	0.5788	0.2771
D(LGDF (-3))	-0.9639	-0.0353	-0.0737	0.0513
D(LGDF (-4))	-1.2279	0.0201	-0.2549	-0.1697
C	0.0647	0.0133	0.0611	0.0394
R-squared	0.9814	0.1426	0.8064	0.4285
Adj. R-squared	0.9717	-0.3032	0.7057	0.1313

Note: * representing significant values

Table 8
Wald Test for Price Volatility

	Dependent Variables (P Values)			
Independent Variables	*LSTDP*	*LOG(POP)*	*LOG(O)*	*LOG(GDF(-1))*
LSTDP	0.0001*	0.9743	0*	0.0164**
LOG(POP)	0.09071***	0.3864	0.0347	0.4944
LOG(O)	0.01703**	0.09616***	0.347	0.2759
LOG(GDF(-1))	0.282	0.8072	0.471	0.4085

Note: *significant at 0.01, ** significant at 0.05 & ***significant at 0.10 level of significance.

This study consider F stats for significance of lagged endogenous variables however the results suggest that in table 9 there country size granger cause demand volatility in short run also trade openness granger cause to demand volatility. GDP deflator has bi lateral causal relationship with demand volatility but trade openness has uni lateral causal relationship with country size. Also, country size has uni lateral causal relationship with lag of GDP deflator but trade openness has GDP per capita presented in table 5.10 where country size has bi lateral casual relationship with price volatility however trade openness has uni lateral relationship with price volatility. Moreover, the country size has bi lateral relationship with trade openness and PPP converted GDP per capita granger cause to country size also trade openness granger cause to PPP converted GDP per capita.

Table 9
Granger Causality for Demand Volatility

Null Hypothesis	*F-Statistic*	*Probability*	*Decision*
LPOP does not Granger Cause LSDG	0.4537	0.63876	Reject
LSDG does not Granger Cause LPOP	3.0437	0.05974***	Do not reject
LO does not Granger Cause LSDG	0.56686	0.57215	Reject
LSDG does not Granger Cause LO	2.86921	0.06944***	Do not reject
LGDP(-1) does not Granger Cause LSDG	1.26778	0.29372	Reject
LSDG does not Granger Cause GDP(-1)	0.0645	0.93765	Reject
LO does not Granger Cause LPOP	0.38476	0.6833	Reject
LPOP does not Granger Cause LO	2.73857	0.07778***	Do not reject
LGDP(-1) does not Granger Cause LPOP	2.89908	0.06802***	Do not reject
LPOP does not Granger Cause LGDP(-1)	0.43624	0.64983	Reject
LGDP(-1) does not Granger Cause LOG(O)	9.86359	0.00038*	Do not reject
LO does not Granger Cause LGDP(-1)	0.36135	0.69923	Reject

Note: *, ** & ***significant at 1%, 5% and 10% level of significance.

Table 10
Granger Causality for Price Volatility

Null Hypothesis	*F-Statistic*	*Probability*	*Decision*
LPOP does not Granger Cause LSTDP	1.1542	0.3419	Reject
LSTDP does not Granger Cause LPOP	0.2921	0.8308	Reject
LO does not Granger Cause LSTDP	0.0716	0.9748	Reject
LSTDP does not Granger Cause LO	4.5488	0.0089*	Do not reject
LGDF(-1) does not Granger Cause LSTDP	2.6747	0.0633***	Do not reject
LSTDP does not Granger Cause LGDF (-1)	3.3670	0.0301**	Do not reject
LO does not Granger Cause LPOP	0.3239	0.8081	Reject
LPOP does not Granger Cause LO	1.9828	0.1351	Reject
LGDF (-1) does not Granger Cause LPOP	2.3368	0.0916**	Do not reject
LPOP does not Granger Cause LGDF(-1)	0.7032	0.5569	Reject
LGDF (-1) does not Granger Cause LO	7.3040	0.0007*	Do not reject
LO does not Granger Cause LGDF (-1)	0.2159	0.8847	Reject

Note: *, ** & ***significant at 1%, 5% and 10% level of significance.

5. CONCLUSION

The purpose of this study to find the empirical relationship between trade openness and demand- price volatilities and for that used JJ co integration technique for long run relationship also vector error correction for short run relationship. The economic volatilities are not solely because of trade openness for this purposes this study incorporate the effect of population and lags of demand- price volatilities. The results suggest that in Pakistan the trade openness is has positive and significant effect in long run on demand volatility implies that the higher degree of trade openness will cause greater demand volatility and the verification of compensation hypothesis. Similarly the speed of adjustment of trade openness has significant and negative impact on demand volatility in short volatility. But the country size and gdp has negative has significant effect on demand volatility in long run only. On the

other hand trade openness has significant and negative effect on price volatility; means that greater the degree trade openness lower fluctuation appears in prices due to globalization and highly competitive markets. Moreover, country size has positive effect on price volatility in long run which implies high population creates more fluctuation in prices due the gap of demand-supply for more goods and services. However, in short run trade openness and country has significant effect on demand-price volatility. The results of granger causality represents, country size granger cause demand volatility and trade openness granger cause to demand volatility. In addition, country size has bi lateral casual relationship with price volatility but trade openness has uni lateral relationship with price volatility.

Regardless of empirical association between trade openness, country size and economic volatiles there are still extensive way to understand, what this link is actually means. From some core assumptions of our theories if the study makes step forward and might benefit from more strongly investigation, both theoretically and empirically. It has been proved that trade openness and economic volatility has modification of the compensation hypothesis, which is based on only a partial specification of the effect on domestic economic volatility. Although, this suggest that for Pakistan the international trade coverage did not make in fashion for the economic volatilities alone. That might have comprised a source of economic insecurity and other factors in this case. Therefore, to the degree those liberal welfare systems were a comeback to economic insecurity and externally persuaded volatility does not appear to have played a fundamental role.

References

Alesina A. and Waciarg R. (1998), "Openness, Country Size and the Government." National Bureau of Economic Research, Working Paper 6024.

Allen, H. C. (1995), "Country Size, Aggregate Fluctuations, and International Risk Sharing." *Canadian Journal of Economics*, Vol. 28 (4b), pp 1096-1119.

Cameron, D. R. (1978), "The Expansion of the Public Economy: A Comparative Analysis." *The American Political Science Review*, Vol. 72, No. 4, pp. 1243-1261.

Down, I. (2007), "Trade Openness, Country Size and Economic Volatility: The Compensation Hypothesis Revisited." *Business and Politics*, Vol. 9, Issue 2, Article 3.

Easterly, W., Islam, R. and Stiglitz, J. (2001), "Shaken and Stirred: Explaining Growth Volatility." Annual World Bank Conference on Development Economics, ed. by B. Pleskovic and N. Stern, Washington : World Bank.

Furceri, D. and Karras, G. (2007), "Country Size and Business Cycle Volatility: Scale Really Matters." *J. Japanese Int. Economies* 21, pp. 424–434.

Giovanni J. D. and Levchenko A. A. (2008), "Trade Openness and Volatility." IMF Working Paper WP/08/146.

Haddad M. E., Lim, J. J. and Saborowski, C. (2010), "Trade Openness Reduces Growth Volatility When Countries Are Well Diversified." World Bank, Policy Research Working Paper 5222.

Karras G. (2006), "Trade Openness, Economic Size, and Macroeconomic Volatility: Theory and Empirical Evidence." *Journal of Economic Integration*, Vol. 21, No. 2, pp. 254-272.

Liberati P. (2006), "Trade Openness, Financial Openness And Government Size." Available at: *Http:// www. Dauphine. Fr/ Globalisation/ Liberati. Pdf*

Loayza N. V., Romain R., Servén, L. and Ventura, J. (2007), "Macroeconomic Volatility and Welfare in Developing Countries: An Introduction," *The World Bank Economic Review*, Vol. 21, No. 3, pp. 343–357.

Pakistan Economic Survey 2009-10, [online] Available at: *http://www.finance.gov.pk/survey_1112.html*

Razin A., Sadka E. and Coury T. (2002), "Trade Openness, Investment Instability and Terms-of-Trade Volatility." National Bureau of Economic Research, Working Paper 9332.

Rodrik, D. (1998), "Why Do More Open Economies Have Bigger Governments?" *Journal of Political Economy*, Vol. 106, No. 5, pp. 997-1032.

This document was created with Win2PDF available at http://www.win2pdf.com.
The unregistered version of Win2PDF is for evaluation or non-commercial use only.
This page will not be added after purchasing Win2PDF.