Urbanization as a Way to Open Economy: Empirical Evidence from Pakistan

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Abstract: Urbanization expands the size of people in the cities; consequently, it puts pressure on the aggregate demand in the country. High aggregate demand opens up two channels in the country. First, it opens the doors for investment to produce more goods and export more after meeting domestic demand. Second, it encourages importers to meet this rising domestic demand by importing such goods. As a result, trade of such goods will increase. The proponents of urbanization led trade hypothesis reveal mixed opinion, such as urbanization could contribute positively and negatively to trade openness depending on the domestic condition of each country. Therefore, an effort is made to inspect the relationship between urbanization and trade openness in Pakistan. This study applies Autoregressive Distributed Lag Model (ARDL) to explore the long term association between urbanization and trade openness; Fully Modified Ordinary Least Square Technique (FMOLS) to compute long term coefficients, Error Correction Mechanism (ECM) for the short term coefficients and Granger Causality Test to investigate short term and long term direction of causality between urbanization and trade openness for the period from 1975-2010.

Key words: Pakistan · Urbanization · Trade Openness and Auto Regressive Distributed Lag Model (ARDL) · Granger Causality

INTRODUCTION

The literature reveals that the welfare and productive capacity of an economy is dependant on the balanced growth in population. The analyses of dynamics of population; labor force and employment requires to know the size of the population of a country; its growth rate and other demographic attributes which help to compute the volume of goods and services in order to meet the future needs of the people. Trade, economic development and well being of the people of a country are being influenced by its population. If human resource in a country is not managed in a positive manner then it will not only harm social norms but will also deteriorate trade openness and rate of economic growth.

As in Pakistan; population growth is increasing rapidly and it is not being managed appropriately, therefore, Pakistan is suffering from socioeconomic crises including food insecurity, decline in exports resulting trade deficit, reduction in the pace of economic growth and increase in unemployment etc. The growth rate of population has remained high since the creation of Pakistan. Pakistan was at 6th rank in 2011 in terms of its high population and this position was 13th in the world in 1950. If this pace remains continued then Pakistan will become 5th largest country in 2050. The increase in population is putting pressure on the demand for food and imported items; infrastructure and provision of services to the masses. Moreover; the mobility of the people from rural areas to the urban parts of the countries

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is based on the increase in their needs and limited availabilities of work opportunities for them. Consequently; not only in Pakistan but also worldwide urbanization is accelerating. However, it is important to highlight the fact that approximately (3.3 billion) more than one half population of the world is living in urban parts. Additionally, it is expected that about 60% population will be living in urban parts of the world by 2030. As far as under developed economies are concerned, approximately 60 million people mobile from the villages to the cities every year and it is expected that this number will continue to increase in future as well.

Since the needs of the people like job opportunities; better value added services, health and education facilities, sanitation, clean drinking water, electricity, transportation and communication etc. force them to move from villages to cities in case of Pakistan. About two million people have shifted to cities in 2012 as compared to the year 2011 in Pakistan. In the coming future, it is expected that Pakistan will expect to suffer in future due to the socio economic problems. This situation of lurch may be managed by ensuring not only improved economic and healthy environment in the cities by the government but also ensure the provision of basic infrastructure in the slum parts. There are few reforms that could help to handle urbanization and these reforms are given as below:

- Government should ensure the availability of basic infrastructure, like roads, houses, electricity, water and sanitation services, public transportation, schools and health clinics.
- The rural parts of the country must be transformed into legitimate communities.
- Agriculture sector must be accelerated by the government supportive policies.

The Table 1.1 reveals the last five years trends of both rural and urban population. Broadly speaking, growing size of urban population indicates the process of industrialization in the country. It means that as the size of urban population grows; it will elevate the pace of industrial development. This reveals that for industrial development, urbanization is an important instrument. Additionally, the countries who allocate more resources towards the development of their industry will tend to enjoy higher foreign exchange earnings due to increase in their trade with other countries. As industry matures; the

Table 1.1: Urban and Rural Population (Million)

Mid-Year	Urban Population	Rural Population
2008	57.32	105.06
2009	60.87	109.07
2010	63.05	110.46
2011	65.28	111.82
2012	67.55	113.16

Source: Planning and Development Division

growth rate of the country will also increase which will ultimately give stimulus to employment. Therefore; this study has an aim to establish the relationship between urbanization and trade openness by considering unemployment and economic growth as control variables for Pakistan for the data set ranges from 1975-2010.

The organization of the study is based upon introduction; review of the literature, data source and methodological framework, estimation and interpretation and finally conclusion of the study. Now the next step is to review all the past studies which have been conducted by various researches regarding the link between urbanization and trade openness.

Literature Review: Trade openness is among the mainstream indicators of macro economy. The economic activity will be faster when a country has more trade volumes and vice versa. Urbanization is another important macroeconomic factor which plays its pivotal role to enhance trade volumes in the country. Availability of value added services in the cities is the one cause of migration of the people from rural parts of the country to the urban parts of the country. Consequently, urbanization increases in the country. Now the question arises, whether increase in urbanization contributes to increase trade openness or whether it declines trade openness? The answer of this question will be found in the later part of the study when actually analysis will take place. The direct literature on the link between urbanization and trade openness is rare to find. The literature on urbanization and some other macroeconomic indicators like poverty; economic growth, environmental degradation and many more is given as below:

Moomaw and Shatter [1] and Davis and Henderson [2] examined the evidence by using cross-country panel data and they found that as size of population living in urban area increases; it also enhances economic growth. They also found that agriculture sector has an adverse effect on economic growth whereas; manufacturing contributes positively into the economic growth. This study also incorporated dummy variables to capture the

structural changes of urbanization among different regions and the researchers found that structural changes of urbanization differ across regions.

Jayasuriya and Wodon [3] explored the effect of urbanization; quality of bureaucracy and corruption on the competence of health and education determinants by employing international panel data. They used stochastic production frontier estimation technique in order to contrast the effect of the level of government expenditures on the outcomes of social indicators such as education and health along and on the competence of public expenditures. They concluded that efficiency of countries in order to improve the outcomes of education and health was significantly determined by urbanization and the quality of the bureaucracy; whereas corruption did not appeared as to be the significant factor. Finally, the fifty percent changes into the efficiency measures between countries were captured because of the explained indicators of the study.

Henderson [4, 5] empirically testified the outcome of the urbanization process on economic growth by using international panel data. He applied the dynamic panel GMM technique and he found that urbanization positively impact economic growth; however this impact was very weak. He also tested the impact of urban concentration on economic growth and he found very strong impact of urban concentration on economic growth. Issah *et al.* [6] conducted an empirical study in which they investigated the impact of provision of infrastructure on the level of urbanization in Ghana. They found that provision of water and electricity, significantly improves the effect of rural - urban migration in Ghana. So, government must installed infrastructure into both rural and urban parts in order to avoid the mismanagement of urbanization.

Kalim and Shahbaz [7] examined the relationship between remittances and poverty by using urbanization as supporting variable into their study. They applied Johansen Co-integration technique to investigate long term association among remittances; poverty, economic growth, trade, economic shocks, urbanization, tax revenue, foreign direct investment and annual inflation. They also used Fully Modified Ordinary Least Square Method to estimate long term coefficients and to compute short term coefficients they applied Error Correction Mechanism. The findings of their study revealed that remittances and urbanization have an inverse relationship with poverty in Pakistan for both short term and long term time spans for the period of 1973-2006.

Hassan and Siddiqi [8] investigated the impact of trade on poverty reduction by incorporating urbanization as control variable into their study. They applied Johansen - Juselies Co-integration technique [9] to compute long run relationship among trade; poverty, economic growth, urbanization, agriculture value added, investment and inflation. Long run dynamics were estimated by using Fully Modified Ordinary Least Square Method and short run dynamics were explored by applying Error Correction Mechanism. They found that both trade and urbanization led poverty reduction hypothesis exist significantly in Pakistan for both short run and long run dynamics for the period of 1973-2007. Hassan and Siddiqi [10] also investigated the impact of trade openness on economic growth by using various control variables into their study. They used Johansen - Juselies [9] Maximum Likelihood Co-integration technique to compute long run relationship among economic growth; trade, government spending, inflation, manufacturing value added and financial development. They used Fully Modified Ordinary Least Square Method in order to compute long term coefficient and to examine short term coefficients they applied Error Correction Mechanism. Their findings reveal that trade led growth hypothesis works significantly only in long term but, trade openness and economic growth has insignificant trade off in short term for Pakistan for the period of 1973 - 2007. Alam *et al.* [11] explored the relationship among trade liberalization; environmental degradation and urbanization. They used time series data for the period from 1971 to 2008. They applied Johansen Co-integration method to detect the existence of long run relationship among the running actors of the study. Also, Variance Decomposition Approach is used to examine the relative importance of random innovation in affecting the variables in VAR. This study found that both industrial and agriculture activities in addition to the rapid increase in the urbanization is adversely affecting environment in Pakistan. As far as the impact of trade liberalization and human development on environmental degradation is concerned; the both indicators are environmental friendly.

Shahbaz and Lean [12] investigated the impact of urbanization on energy consumption by applying Auto Regressive Distributed Lag Model to estimate long run relationship and to estimate direction of causality, they applied Granger Causality test on the data set ranges from 1971 - 2008 for Tunisia. They found that urbanization enhances energy consumption in both short term and

long term but, in short term the results remain inconsistent. They also found that there prevails unidirection granger causality that runs from energy consumption to urbanization in short term; however, urbanization granger causes energy consumption in the long run.

Besides the brief review of the literature; the next step is to explore an understanding about data source, variables and their description and methodological framework.

Data Source and Methodological Framework:
Data Source: The data[4] on Value of Trade; Urbanization, Per capita GDP and Unemployment is gathered from the world development indicators, World Bank [13]. The data series ranges from 1975 to 2010.

Methodological Framework: Ehrlich [14] and Layson [15]; Bowers and Pierce [16] and Cameron [17] and Ehrlich [18] had examined that the models which are in the Log Linear Form are more superior and robust than that of Linear Form Approach. Therefore, this study proposes Log Linear Model which is given as below:

$$LT_t = \alpha_C + \alpha_{UB_t}LUB_t + \alpha_{G_t}LG_t + \alpha_{U_t}LU_t + \mu_t \qquad (3.1)$$

whereas:
LT_t = Value of Trade as Share of GDP
LUB_t = Urbanization as Share of Total Population
LG_t = Real GDP Per capita
LU_t = Unemployment as Share of Labor Force

Estimation Technique: Augmented Dicky Fuller [19] test and NG - Perron [20] test are applied to investigate the problem of unit root; besides knowing order of integration [it may be experienced mixed order of integration I(0) and I(1) later], it is proposed that Auto Regressive Distributed Lag Model [20] would be more suitable to examine long term strength of relationship between urbanization and value of trade. Pesaran *et al.* [21] were the founders of this technique. The long term coefficients are computed by applying Fully Modified Ordinary Least Square Method (FMOLS); short term dynamics are estimated by using Error Correction Mechanism (ECM), to compute direction of causality it is proposed to apply Granger Causality Test and finally Cumulative Sum (CUSUM) and Cumulative Sum of Square (CUSUMSQ) tests are applied to inspect

that whether the coefficients of the estimated model face any structural instability over the time or not? The following steps are followed for further analysis:

Computing Stationarity: Augmented Dickey-Fuller [19] test and Ng - Perron [20] test are applied to investigate the stationarity of the data series. Augmented Dickey-Fuller [19] test is developed by Dickey and Fuller by incorporating lag term into the conventional Dickey - Fuller [22] test. The following equation is used to estimate unit root problem by using Augmented Dickey - Fuller test [19] test.

$$\Delta Y_t = \alpha + \beta Y_{t-1} + \delta_1 \Delta Y_{t-1} + \ldots + \delta_{p-1} \Delta Y_{t-p+1} + \varepsilon_t \quad (3.2a)$$

The theoretical foundations of the NG - Perron [20] test were made by Joseph and Sinha [23] (2007). The findings of this technique are quite consistent than that of the orthodox unit root tests such as Augmented Dickey-Fuller [19] and Phillips and Perron [24]. The ultimate equation of the NG - Perron [20] is mentioned as below:

$$k = \sum_{t-2}^{T}(yd_{t-1})2/T2 \qquad (3.2b)$$

Estimating Cointegration: If the data series is based on small number of observations and it also has mixed order of integration like I(0) and I(1); in these circumstances Pesaran *et al.* [21] suggested Auto Regressive Distributed Lag Model (ARDL) to explore the strength of relationship among the running actors of the study in the long term. Pesaran *et al.* [21] examined that the existence of long term association among the variables in a model will be verified if the estimated value of F - statistics through Wald test becomes greater than Upper Critical Bound. Decision regarding long term association will not be made if F - statistics lies in between Lower and Upper Critical Bounds. In the end, if F - statistics is less than the Lower Critical Bound; then it will reveal no relation among the variables. Besides this, Banerrjee *et al.* [25] proposed Error Correction Mechanism (ECM) approach by regressing ARDL model. The long term association among the variables of this study is estimated by using equations from 3.3 to 3.6. These equations are given as below:

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[4]The data on all the variables is available on the special request from the author

$$\Delta LT_t = \alpha_C + \alpha_{11}L_{t-1} + \alpha_{12}LUB_{t-1} + \alpha_{13}LG_{t-1} + \alpha_{14}LU_{t-1} +$$
$$\beta_{11}\sum_{i=1}^{p}\Delta LT_{t-i} + \beta_{12}\sum_{i=0}^{p}\Delta LUB_{t-i} + \beta_{13}\sum_{i=0}^{p}\Delta LG_{t-i} + \beta_{14}\sum_{i=0}^{p}\Delta LU_{t-i} + \eta_1 \quad (3.3)$$

$$\Delta LUB_t = \alpha_C + \alpha_{21}LT_{t-1} + \alpha_{22}LUB_{t-1} + \alpha_{23}LG_{t-1} + \alpha_{24}LU_{t-1} +$$
$$\beta_{21}\sum_{i=0}^{p}\Delta LT_{t-i} + \beta_{22}\sum_{i=1}^{p}\Delta LUB_{t-i} + \beta_{23}\sum_{i=0}^{p}\Delta LG_{t-i} + \beta_{24}\sum_{i=0}^{p}\Delta LU_{t-i} + \eta_2 \quad (3.4)$$

$$\Delta LG_t = \alpha_C + \alpha_{31}LT_{t-1} + \alpha_{32}LUB_{t-1} + \alpha_{33}LG_{t-1} + \alpha_{34}LU_{t-1} +$$
$$\beta_{31}\sum_{i=0}^{p}\Delta LT_{t-i} + \beta_{32}\sum_{i=1}^{p}\Delta LUB_{t-i} + \beta_{33}\sum_{i=0}^{p}\Delta LG_{t-i} + \beta_{34}\sum_{i=0}^{p}\Delta LU_{t-i} + \eta_3 \quad (3.5)$$

$$\Delta LG_t = \alpha_C + \alpha_{41}LT_{t-1} + \alpha_{42}LUB_{t-1} + \alpha_{43}LG_{t-1} + \alpha_{44}LU_{t-1} +$$
$$\beta_{41}\sum_{i=0}^{p}\Delta LT_{t-i} + \beta_{42}\sum_{i=1}^{p}\Delta LUB_{t-i} + \beta_{43}\sum_{i=0}^{p}\Delta LG_{t-i} + \beta_{44}\sum_{i=0}^{p}\Delta LU_{t-i} + \eta_4 \quad (3.6)$$

The results computed at first difference by applying Vector Auto Regression (VAR) test will not be reliable said by Engle - Granger [26]. The estimated results will become reliable if the equation of ARDL is modified by introducing the first period lagged term of error correction. Besides it; the sign of the coefficient of the first period lagged term reflects whether any economy tends to converge to long term stable equilibrium or whether it diverges from the long term stable equilibrium. However, convergence takes place if the coefficient of first period lagged term is negative and significant and vice versa if the sign is positive and insignificant. The equations from 3.7 to 3.10 will estimate the existence of short term dynamics.

$$\Delta LT_t = \beta_C + \beta_{11}\sum_{i=1}^{p}\Delta LT_{t-i} + \beta_{12}\sum_{i=0}^{p}\Delta LUB_{t-i} + \beta_{13}\sum_{i=0}^{p}\Delta LG_{t-i} +$$
$$\beta_{14}\sum_{i=0}^{p}\Delta LU_{t-i} + \gamma_{11}ECM_{t-1} + \varepsilon_1 \quad (3.7)$$

$$\Delta LUB_t = \beta_C + \beta_{21}\sum_{i=1}^{p}\Delta LT_{t-i} + \beta_{22}\sum_{i=0}^{p}\Delta LUB_{t-i} + \beta_{23}\sum_{i=0}^{p}\Delta LG_{t-i} +$$
$$\beta_{24}\sum_{i=0}^{p}\Delta LU_{t-i} + \gamma_{21}ECM_{t-1} + \varepsilon_2 \quad (3.8)$$

$$\Delta LG_t = \alpha_C + \beta_{31}\sum_{i=1}^{p}\Delta LT_{t-i} + \beta_{32}\sum_{i=0}^{p}\Delta LUB_{t-i} + \beta_{33}\sum_{i=0}^{p}\Delta LG_{t-i} +$$
$$\beta_{34}\sum_{i=0}^{p}\Delta LU_{t-i} + \gamma_{31}ECM_{t-1} + \varepsilon_3 \quad (3.9)$$

$$\Delta LU_t = \beta_C + \beta_{41}\sum_{i=1}^{p}\Delta LT_{t-i} + \beta_{42}\sum_{i=0}^{p}\Delta LUB_{t-i} + \beta_{43}\sum_{i=0}^{p}\Delta LG_{t-i} +$$
$$\beta_{44}\sum_{i=0}^{p}\Delta LU_{t-i} + \gamma_{41}ECM_{t-1} + \varepsilon_4 \quad (3.10)$$

Variables and Hypothesis: This study takes into account trade openness and those factors which bring changes into trade openness in Pakistan. The description of the variables used in the model of this article is given as below:

Trade Openness as Share of GDP: The ratio of value of trade to the real GDP reveals trade openness as share of GDP. It is an imperative macro economic indicator for any economy. As value of trade expands; it is assumed that an economy is on the path of growth and vice versa. Therefore; an attempt is made to explore that how modernization has an impact on the value of trade in Pakistan.

Urbanization as share of Total Population: It is obtained by taking the ratio of the total urban population to the total population. It shows modernization in any economy. As urbanization takes place in the country, it is expected that it postulates positive impact on the value of trade.

Real GDP Per Capita as a proxy for Economic Growth: Real GDP per capita is taken by taking the ratio of Real GDP to the Population. It is used as proxy for economic growth in the country. It is expected that as economic activities speed up in the country; it ultimately boost up value of trade in the country.

Unemployment as Share of Labor Force: It is obtained by taking the ratio of the total number of unemployed workers in the country to the total labor force in the country. It is expected that because of increase in the unemployment, value of trade could reveal mixed results. It could increase value of trade or it may decrease value of trade in the country.

Afterwards, the results are going to be estimated and interpreted in the step number 4 which is given as below:

Empirical Estimation and Interpretation of the Results: Table 4.1 represents the descriptive statistics, this table concludes that the error term of the model is normally distributed. The computed results are given in the above table. Afterwards, Table 4.2 estimates the problem of unit root by using Augmented Dickey Fuller (1981) test and Ng - Perron (2001) test. The estimated results are given in the below table:

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Table 4.1: Descriptive Statistics

	LT_t	LUB_t	LG_t	LU_t
Mean	3.516592	3.441463	10.06279	1.515594
Median	3.533448	3.440411	10.11985	1.458615
Maximum	3.766878	3.610918	10.45129	2.156854
Minimum	3.323086	3.269569	9.634457	0.936093
Std. Dev.	0.097766	0.095795	0.235344	0.341671
Skewness	0.317930	0.017212	-0.217219	0.212343
Kurtosis	3.381236	1.992554	2.154423	2.024898
Jarque-Bera	0.824487	1.524200	1.355604	1.696772
Probability	0.662163	0.466685	0.507732	0.428105
$\Sigma(X = Variables)$	126.5973	123.8927	362.2606	54.56138
$\Sigma(X - \bar{x})^2$	0.334539	0.321184	1.938533	4.085871
n	36	36	36	36

where X = Variable; $\bar{x}$ = Mean of the Variable; n = Sample Size

Table 4.2: Unit Root Tests

	ADF - Unit Root Test		NG - Perron Unit Root Test			
Dependent Variable	t - Statistics	Prob. Value#	MZ_a	MZ_t	MSB	MPT
LT_t	-2.958763**	0.0492	-15.9593***	-2.81176	0.17618	1.58381
ΔLT_t	-5.074360***	0.0002	-30.2297***	-3.87998	0.12835	0.83449
LUB_t	2.307132	0.9999	2.24343	5.75925	2.56716	530.970
ΔLUB_t	-2.935541*	0.0531	-9.39603**	-2.16687	0.23062	2.60989
LG_t	-0.931706	0.7657	0.92212	0.61115	0.66277	33.8426
ΔLG_t	-3.128009**	0.0341	-9.87228**	-2.22167	0.22504	2.48196
LU_t	-1.364132	0.5871	-3.44798	-1.26312	0.36634	7.08324
ΔLU_t	-3.118543**	0.0355	-87.8654***	-6.62814	0.07544	0.27890
Level of Significance	Test critical values:		Asymptotic critical values##			
01%	-3.646342	-13.8000	-2.58000	0.17400	1.78000	
05%	-2.954021	-8.10000	-1.98000	0.23300	3.17000	
10%	-2.615817	-5.70000	-1.62000	0.27500	4.45000	

#MacKinnon [27] one-sided p-values. ##Ng-Perron [20]

*; ** and *** indicate the significance of the test at 10%; 5% and 1% levels of significance

Table 4.3: ARDL Bounds Testing Approach

Estimated Models	$T_t = f(UB_t, G_t, U_t)$	$Ub_t = f(U_t, G_t, T_t)$	$G_t = f(UB_t, U_t, T_t)$	$U_t = f(UB_t, G_t, T_t)$
Optimal lags	(1,1,0,0)	(1,2,1,0)	(1,1,2,1)	(1,1,1,1)
F - statistics	5.9237*	6.8735*	3.4298	4.3925**
W - statistics	23.6947*	27.4939*	13.7193	17.5700**
	Critical Bounds For F - Statistics		Critical Bounds For W - Statistics	
Significance Level	Lower Critical Bound	Upper Critical Bound	Lower Critical Bound	Upper Critical Bound
5 per cent	3.5971	4.9442	14.3886	19.7767
10 per cent	2.9393	4.0984	11.7570	16.3934
	Diagnostic Tests			
R^2	0.62823	0.99988	0.99546	0.83381
Adjusted - R^2	0.56185	0.99985	0.99400	0.78907
F-statistics	9.4633*	31144.3*	684.8902*	18.6358*
Breusch Godfrey LM Test	0.88136 [0.356]	6.6618 [0.016]	0.25848 [0.616]	0.03664 [0.850]
Hetero - skedasticity Test	0.64544 [0.428]	4.1968 [0.049]	0.50789 [0.823]	2.1328 [0.154]
Ramsey RESET	0.94161 [0.340]	13.5800 [0.001]	0.07541 [0.786]	0.10190 [0.752]

Note: * and ** show significant at 5% and 10% level respectively. We have used critical bounds developed by Narayan [28] for W - Statistics

Table 4.4: Long Term and Short Term Dynamics

Estimated Long Term Coefficients using the ARDL Approach

Dependent Variable: LT_t

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LUB_t	-0.1029	0.035371	-2.9101	0.007
LG_t	0.5407	0.19566	2.7633	0.010
LU_t	0.5700	0.26856	2.1223	0.043
C	36.4392	29.96710	1.2160	0.234

Error Correction Representation for the Selected ARDL Model

Dependent Variable: ΔLT_t

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ΔLUB_t	0.44160	0.1200	3.68310	0.001
ΔLG_t	0.31370	0.1044	3.00390	0.005
ΔLU_t	0.33100	0.1264	2.61710	0.014
ecm_{t-1}	-0.58020	0.1404	-4.13350	0.000
R-squared	0.49651	Mean Dependent Variable	-0.06827	
Adjusted R-squared	0.40661	S.D. Dependent Variable	1.71250	
S.E. of Regression	1.31920	Akaike Information Criterion	-60.36230	
Sum Squared Residual	48.72860	Schwarz Criterion	-64.94140	
Log Likelihood	-54.36230	Durbin-Watson Stat	2.15980	
F-statistic	5.25980	Prob. (F-statistic)	0.00300	

Table 4.5: Granger Causality Test

Granger Causality Test

Short-Term [F - statistics]

Dependent variable	ΔLT_t	ΔLUB_t	ΔLG_t	ΔLU_t	Long-Term [t-statistics]
ΔLT_t	-	4.389890**	4.557970**	1.454997	-0.438307** [-2.357528]
ΔLUB_t	6.842390***	-	2.336807 (0.1174)	3.008671*	0.017209 [0.771308] (0.4478)
ΔLG_t	0.645705	1.033006	-	2.247679	-0.431737*** [-2.793995]
ΔLU_t	2.732067*	2.367751	2.894820*	-	-0.415394** [-2.174569]

Joint Granger Causality Test [F-statistics]

Dependent variable	$\Delta LT_t, ECM_{t-1}$	$\Delta LUB_t, ECM_{t-1}$	$\Delta LG_t, ECM_{t-1}$	$\Delta LU_t, ECM_{t-1}$
ΔLT_t	-	4.191538**	4.163949**	2.737931*
ΔLUB_t	5.874732***	-	3.712496**	3.259895**
ΔLG_t	1.615728	3.764793**	-	2.787370*
ΔLU_t	2.978330*	3.071364**	2.963280*	-

*;** and *** demonstrate significance of the test statistic at 10%; 5% and 1% levels of significance

The results of Table 4.2 reports that the variables of the model are integrated at both I(0) and I(1). Therefore; in order to examine long term co-integration among value of trade and its indicators, Auto Regressive Distributed Lag (ARDL) Approach reveals more suitable results. The computed results are demonstrated in Table 4.3. The results render that the computed value of both F - statistics W - statistics are significant at 5% level of significance; and hence signifying the existence of long term relationship between value of trade and urbanization.

Also; the long term dynamics and short term dynamics of urbanization on the value of trade are examined by using Fully Modified Ordinary Least Square (FMOLS) technique and Error Correction Mechanism (ECM) respectively. The results are exposed into Table 4.4.

The estimated results demonstrate that modernization and value of trade has a significant trade off in the long term but, in short term modernization extends value of trade significantly. It is also evident that growth led trade hypothesis significantly works for Pakistan both in short
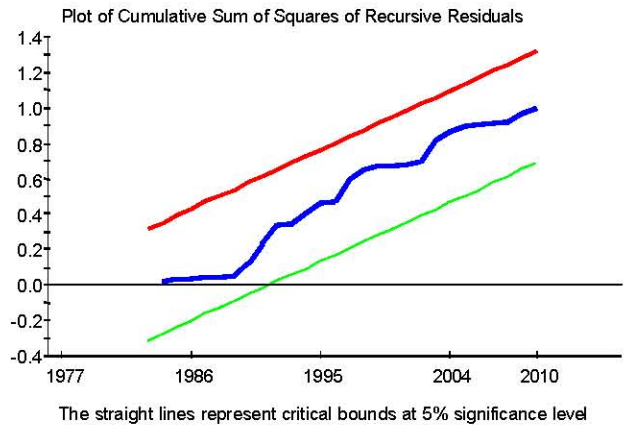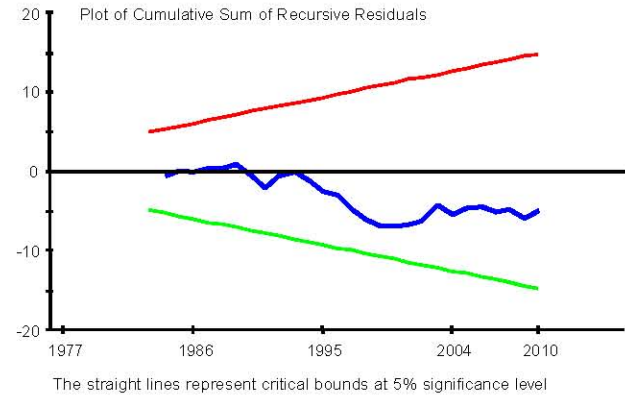
term and long term respectively. It is further diagnosed that unemployment led trade hypothesis also works significantly for Pakistan. The negative and significant coefficient of the first period lagged term of error correction term signifies that there does exist convergence towards long term stability and it takes almost $1/0.5802 = 1.7235$ years to correct short term fluctuations to achieve long term stability in the country. The coefficient of speed of adjustment is very strong in this study.

Table 4.5 reveals the empirical findings for the existence of univariate or bivariate Granger causality. The estimated results for short term dynamics disclose that there prevails univariate Granger causality which runs from economic growth to value of trade; from unemployment to modernization and from value of trade to unemployment in the short term. However, it is evident that there exists feedback effect between value of trade and modernization in short term in Pakistan. It is also evident that urbanization, economic growth and unemployment Granger Cause value of trade in the long term. It is also found that the economic growth is being Granger caused by all its factors taken into the study in the long term. Moreover, it is also evident that value of trade, urbanization and economic growth granger cause unemployment in the long term.

In the end; the joint causality among trade openness; urbanization, economic growth and unemployment is investigated. The estimated results demonstrate that all the factors of trade liberalization Granger Cause trade openness/liberalization jointly both into short term and into long term. Afterwards; it has found that the factors of urbanization like trade openness, economic growth and unemployment granger cause urban population as share of total population jointly into both short run and long run. In the next model; the indicators of economic growth like urbanization and unemployment granger cause economic growth jointly in the both periods but, trade openness does not reveal joint causality with economic growth into both periods. Finally; it has evident that all the factors of the unemployment into this study like trade openness; urbanization and economic growth are significantly granger causing unemployment jointly into the both spans like short term and long term in Pakistan. The estimated results are presented into the following Table 4.5.

In the end; Cumulative Sum (CUSUM) and Cumulative Sum of Square (CUSUMSQ) tests reveal that the coefficients of the estimated model do not face any structural instability over the time; therefore, the following diagrams reveal complete picture.

Graphical Representation

The straight lines represent critical bounds at 5% significance level

The straight lines represent critical bounds at 5% significance level

CONCLUSION AND POLICY IMPLICATIONS

Conclusion: The study concludes that urbanization led trade hypothesis works significantly in the short term but, in the long term there sustains significant trade off between them. It is evident that growth led trade hypothesis significantly works for Pakistan for both short term and long term respectively. It is further diagnosed that unemployment led trade hypothesis also works significantly for Pakistan for both long term and for short term.

Also, empirical findings disclose that there prevails unidirectional Granger causality which runs from economic growth to value of trade; from unemployment to modernization and from value of trade to unemployment in the short term. However, it is found that there exists feedback effect between value of trade and modernization in short term in Pakistan. It is also evident that urbanization, economic growth and unemployment Granger Cause value of trade in the long term. Moreover, it is found that the factors of economic growth Granger Cause economic growth in the long term. Last but not the least, it has diagnosed that in the long

term unemployment is being Granger Caused by value of trade, urbanization and economic growth.

Lastly; we have examined the joint causality among the running indicators of the study. It has found that urbanization; economic growth and unemployment significantly granger cause trade openness jointly into both short term and long term. In the next model; trade openness, economic growth and unemployment granger cause urban population as share of total population jointly into both short run and long run. In the third model; urbanization and unemployment granger cause economic growth jointly in the both periods and in the last and final model we have found that trade openness; urban population as share of total population and economic growth significantly granger cause unemployment jointly for short run and long run in Pakistan.

Policy Implications: The literature has exposed that it is the balanced growth of the population which has a consistent impact on the well being and productive capacity of an economy. This balanced growth in Population also poses its effects on the trade, economic development and welfare of the people of a country. Moreover; to stabilize economic factors like trade openness and economic growth and to stabilize social norms of the society, the management of human resource is highly important indicator. In the light of present study, we suggest that in order to stabilize the economic factors, rather to increase urbanization, it is more useful if government set up new cities; develop required infrastructure and provide required resources to such cities. This will lower down the overburdened cities and improve both social and economic indicators in the country. As this study has found that urbanization may reveal positive effects on trade openness into short term, but, into long term it will deteriorate trade openness. Therefore, it is more appropriate manage urban population in such a manner that it may improve both social and economic indicators in Pakistan.

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