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Some non Price Factors that Fend off Unemployment in Pakistan

BY

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ABSTRACT

The study empirically analyzed the impact of financial development; foreign direct investment and urban population as share of total population on unemployment in Pakistan for the period from 1973 – 2010. Empirical findings of this study suggest that financial development does reduce unemployment significantly in the short run and in the long run. Foreign direct investment reduces unemployment in the long run but, it increases unemployment in the short run. Moreover; the urban population as share of total population is significantly increasing unemployment in the long run, whereas, it reduces unemployment in the short run.

Keywords:

Pakistan; Financial Development, Unemployment, Foreign Direct Investment, and Urbanization

1. Introduction:

It is the principle rule in conventional economics to reduce unemployment in the wake of high inflation. However countries like Pakistan have been struggling on this account and are at risk of stagflation where both inflation and unemployment are increasing. Aurengzeb and Asif [1] have demonstrated that unemployment has remained 3.13 percent from 1990 – 2011 in Pakistan

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except for the year 2002 in which it was at its peak at 7.8 percent. This develops interest in such non price factors that may reduce unemployment. There are several reasons of increasing unemployment over the time in the country. For instance; financial crisis, energy shortfall, industrial shut down, population growth, urbanization, short falls in infrastructure, illiteracy, inflation, public and trade deficits, and government regulations. All these factors are directly or indirectly contributing to unemployment in Pakistan.

The literature has exposed that there does prevail a close relationship between financial development/crisis and unemployment. All the industrial and underdeveloped states are experiencing the consequences of financial catastrophe in the form of industrial shut downs; rising unemployment, decrease in productivity and economic growth and rise in indebtedness of the people individually and country as whole. On the basis of this argument, this study is aimed at investigating the consequence of financial development/crisis in the form of unemployment in case of Pakistan for the period ranges from 1973 – 2010. The study is organized as; in the first part of this study; introduction is presented, part second elaborates the review of the past studies, part third explains the data source and methodology, in the part fourth results and discussion is presented and in the final part conclusion is mentioned.

2. Literature Review:

Shabbir et al [2] investigated the impact of financial sector development on unemployment in case of Pakistan for the data set ranges from 1973 – 2007. They used Autoregressive Distributed Lag Model to check long run relationship among the variables of the study and Granger Causality test to explore the direction of causality among the variables of the study. They found that there prevails stable long run association among financial sector indicators and unemployment in Pakistan. Also, M2 minus currency in circulation as share of GDP has a positive and significant impact on unemployment into both short run and long run and there runs uni – directional causality from M2 minus currency in circulation as share of GDP to unemployment into short run. Moreover, domestic credit to private sector as share of GDP reveals significant and inverse impact on unemployment in the long run but the impact becomes insignificant and inverse in the short run. It has also found that there prevails bidirectional

granger causality between domestic credit to private sector as share of GDP and unemployment in case of Pakistan.

Schemerer [3] introduced a multi – industry trade model for the labor market. He used dataset of Organization for Economic Co-operation and Development countries on unemployment, foreign direct investment, and labor market institutions for 20 countries for the period from 1980 – 2003. The findings of his study revealed that the lower rates of aggregate unemployment are dependant on the net foreign direct investment. Mpanju [4] explored the response of employment creation/generation in response to the changes in the inflows of foreign direct investment in Tanzania. He used ordinary least squares (OLS) for the data ranges from 1990 – 2008. He empirically found that pattern of employment opportunities significantly increases as foreign direct investment inflows increases in Tanzania. Nucu [5] investigated the relationship between FDI and economic growth and the relationship between FDI and unemployment in case of Romania for the period from 1991 – 2009. He elaborated that inflows of foreign direct investment has a potential to reduce unemployment by creating new job opportunities and it is also capable of having access to advanced technologies. Consequently, disequilibrium of balance of payment improves. He came up with view that the inflow of foreign direct investment is a tool for economic development in Central and Eastern European countries. In the end, he concluded that FDI has an adverse impact on unemployment but, FDI has a positive impact on economic growth. Vacaflores [6] investigated the impact of foreign direct investment on generation of employment by using Arellano-Bover/Blundell-Bond System Estimator of Dynamic Panel Model for the data set from 1980 – 2006 for 12 Latin American countries. His findings revealed that for the later periods of the sample and with low inflation rate, foreign direct investment has positive and significant impact on employment generation in particular on male labor force for the Latin American countries. He further concluded that the results are more relevant in case when countries have high level of informality and they are encouraging low level of average foreign direct investment then they may reap the benefits. In the end, he concluded that as the nature of the econometric specification is dynamic; therefore, the estimated results of linear GMM technique at first difference are completely incorrect.

Hisarciklilar et al. [7] investigated the possible consequences of foreign direct investment inflows on the sectoral employment in case of Turkey by using the Generalized Method of Moments (GMM) of Dynamic Panel Model for 19 sectors for the data from 2000 – 2007. They considered real wages; lagged employment, current and lagged foreign direct investment inflows as the determinants of employment. They came up with findings that foreign direct investment inflows have an inverse impact on employment. El-Agrody et al. [8] used ordinary least square (OLS) for the data set ranges from 1994 – 2004 in case of Egypt in order to examine the relationship among privatization; population, consumption expenditure, interest rates, exchange rates, technology, agricultural domestic product, real wage rates, and agricultural investment. They came up with the findings that volume of gross domestic product responds positively and significantly to the changes in the national unemployment; national investment, exchange rate and average per capita share of GDP. They also found that among the major reasons of increasing unemployment in the Egypt are increase in privatization and increase in population. In the end, they suggested that in order to reduce unemployment in the agriculture sector; the policies regarding privatization must be redesigned, it will reduce interest rate initially, then it will lower the agriculture unemployment. Ozturk and Akhtar [9] used Innovative Accounting Technique for the data set from 2000 – 2007 in case of Turkey in order to investigate the correlation among economic growth; unemployment, foreign direct investment, and exports. They found that foreign direct investment did not contribute to curtail unemployment in case of Turkey. Also, their findings revealed that exports do positively and insignificantly contribute to economic growth. Their study did not support the export led growth hypothesis in case of Turkey. In the end, they also found that the reduction in unemployment was not associated with the changes in the economic growth. Berentsen et al. [10] investigated the link among unemployment; money supply and interest rate for the long run period. The findings of their study has exposed that there exist direct relationship among the variables of the study at low frequencies. They formulated a model of unemployment and money supply by using “search and bargaining theory” of micro detail. Their study contributes that there does exist combined relationship between goods market and labor market. In the end, they concluded that the search and bargaining theory is applicable when people have substantial amount into their hands during the time of unemployment.

Berument et al. [11] examined the association between unemployment and macroeconomic policy shocks for a case of Turkey for nine sectors. They used Vector Autoregressive (VAR) technique on the quarterly dataset period from 1988 – 2004 and they considered unemployment; money supply, bank interest rate, shocks in real GDP, prices, and exchange rate as the variables of the study. Their findings revealed that there exist an inverse relationship between (a) income shocks and unemployment and (b) money supply shocks and unemployment. However, they found that unemployment responds positively to the positive shocks in the interest rate. Lin and Wang [12] investigated the link between unemployment and outflow of capital by running a separate regression for each country with Generalized Least Squares (GLS) method for the annual data from 1981 – 2002 for G-7 countries. The empirical findings of the study confirmed that the correlation between foreign direct investment and unemployment is negative for all the G – 7 countries. Mankiw [13] came with the findings that deteriorating monetary shocks have a positive impact on unemployment for the period of short run. To him, the inverse relationship between inflation and unemployment and the estimates of monetary policy along with the regulations for price mechanism is the big hurdle on the way for business cycle theorists. After having a brief review of the literature on the link among unemployment; financial development, foreign direct investment, and urban population as share of total population the next part is aimed at writing the possible model and methodological framework.

3. Data Source and Methodological Framework:

3.1. Data Source

The dataset⁴ on the indicators of this study like Unemployment⁵ as Percentage of Labour Force; Domestic Credit to Private Sector as share of GDP as proxy for Financial Development, Urban Population as share of Total Population, and Foreign Direct Investment Inflows as Percentage of GDP has obtained from the World Development Indicator [14], World Bank. The dataset for the empirical investigation ranges from 1972 to 2010.

⁴ The data on all the variables is available on the special request from the authors.

⁵ The data on Unemployment starts from 1980 to 2009. We have generated values for unemployment from 1976 to 1979 and 2009 to 2010 based on the formula. Also, some observations were missing in between the data; those were also generated by the author by following the formula.

3.2. Methodological Framework

The objective of this study is to test the Log Linear Model which is given as below:

$$LUN_t = \beta_C + \beta_{FD_t} LFD_t + \beta_{URB_t} LURB_t + \beta_{FDI_t} LFDI_t + \mu_t \quad (3.1)$$

Whereas

LUN_t = Log [(Unemployment)/(Total Labour Force)]

LFD_t = Log [(Domestic Credit to Private Sector)/(Real GDP)] as proxy for Financial Development

LUB_t = Log [(Urban Population)/(Total Population)]

$LFDI_t$ = Log [(Foreign Direct Investment Inflows)/(Real GDP)]

It has found by the researchers like Ehrlich [15], Layson [16], Bowers and Pierce [17], Cameron [18] and Ehrlich [19] that the estimated results are more efficient if those are computed by converting the original variables into Log Linear Approach. Therefore, the model of this study is designed in the log form.

3.3. Method to Estimate Results

In the beginning, the stationarity of the variables will be tested by using Augmented Dickey Fuller [20] Test. The following equation will help us to estimate results of the stationarity:

$$\Delta LUN_t = \alpha + \delta LUN_{t-1} + \sum_{i=1}^p \phi_j \Delta LUN_{t-1} + \varepsilon_t \quad (3.2)$$

By using the equation (3.2), stationarity for all the variables can be found. After estimating stationarity; the optimal lag length will be found by applying Vector Autoregressive (VAR) method and it will help us to find out Long run relationship among the variables. Besides this, the relationship among the variables of this study for the long run is computed by using Johansen and Juselius Approach [21] Maximum Likelihood Approach. There are two further test statistics which help us to find out long run relationship and these tests are (a) Trace Statistic and Maximum Eigen – Value Statistic. It is necessary for the existence of long run relationship

among the variables that the calculated value of these test statistics should be greater than their respective critical values. These tests will be estimated by using the following equations:

$$\lambda_{trace} = L_A - L_O \quad (3.3)$$

and

$$\lambda_{max} = -T \log(1 - \hat{\lambda}_{r+1}) \quad (3.4)$$

Afterwards; it will be found by using equation (3.1) that how the independent variables will impact dependant variables in the long run. This equation is developed by using fully modified ordinary least square method (FMOLS). It will also be found that how the dependant variable responds to independent variables in the short run. To fulfill this objective; we will use the equation (3.5) which is developed by using error correction mechanism (ECM) and it is given as below:

$$\begin{aligned} \Delta LUN_t = & \delta_C + \delta_{FD_t} \Delta LFD_t + \delta_{URB_t} \Delta LURB_t + \delta_{FDI_t} \Delta LFDI_t \\ & + \lambda_{ecm_{t-1}} + \eta_t \end{aligned} \quad (3.5)$$

Besides data source and methodological part; the next part of the study demonstrates results and discussion.

4. Results and Discussion:

Table – 4.1 is presented to show the descriptive statistics and coefficient of correlation matrix for the model of this study and results are given as below:

Table – 4.1: Descriptive Statistics and Correlation Matrix

	LUN_t	LFD_t	$LURB_t$	$LFDI_t$
<i>Mean</i>	1.496546	3.204765	343.1507	0.057168
<i>Median</i>	1.438446	3.201719	343.2689	0.021905
<i>Maximum</i>	2.156854	3.395909	361.0918	0.364261

<i>Minimum</i>	0.936093	2.952613	324.6491	2.44E-05
<i>Standard Deviation</i>	0.342259	0.107123	10.25426	0.086241
<i>Sum</i>	56.86875	121.7811	13039.73	2.172384
<i>Sum of Square Deviation</i>	4.334218	0.424587	3890.544	0.275188
<i>Observations</i>	38	38	38	38
<i>LUN_t</i>	1.000000			
<i>LFD_t</i>	0.060840	1.000000		
<i>LURB_t</i>	0.742438	0.321646	1.000000	
<i>LFDI_t</i>	-0.282827	-0.198373	-0.455165	1.000000

Table – 4.1 demonstrates mean; median, standard deviation etc for the all the variables of the study and also contains the coefficient of correlation for all the variables. From this table it can be concluded that the variables of the study are free from multicollinearity problem. We then move towards the estimation of stationarity of the variables and we have used Augmented Dickey Fuller [20] test for this purpose. The estimated results are given in the Table – 4.2. It is cleared from Table – 4.2 that all the variables have become free from unit root problem at first difference. Afterwards, the optimal lag length is found in the Table – 4.3 and it has found that the optimal lag length for this study is 2 and it selected on the basis of the minimum value of Akaike Information Criterion. The results are presented in the Table – 4.3.

Table – 4.2: Unit Root Test

Augmented Dickey Fuller Test					
	At Level			At First Difference	
Variables	t – Statistics	Prob.* Value	Variables	t – Statistics	Prob.* Value
<i>LUN_t</i>	-1.375757	0.5824	<i>ΔLUN_t</i>	-3.235987	0.0267
<i>LFD_t</i>	-2.554100	0.1126	<i>ΔLFD_t</i>	-3.011883	0.0444
<i>LURB_t</i>	2.006348	0.9998	<i>ΔLURB_t</i>	-2.741385	0.0787
<i>LFDI_t</i>	-1.797000	0.3752	<i>ΔLFDI_t</i>	-3.726920	0.0085
Critical Values			1% Level	-3.646342	
			5% Level	-2.954021	
			10% Level	-2.615817	
*MacKinnon [22] one-sided p-values.					

Table – 4.3: Lag Length Criteria

VAR Lag Order Selection Criteria						
<i>Lags</i>	<i>Log L</i>	<i>LR</i>	<i>FPE</i>	<i>AIC</i>	<i>SIC</i>	<i>HQ</i>
0	-41.89793	NA	0.000150	2.549885	2.725832	2.611295
1	190.4554	400.1640	9.13e-10	-9.469742	-8.590010*	-9.162692
2	217.7685	40.96967*	5.05e-10*	-10.09825*	-8.514730	-9.545558*
3	229.2767	14.70491	7.11e-10	-9.848703	-7.561398	-9.050373

*** indicates lag order selected by the criterion**
LR: Sequential Modified LR Test Statistic (Each Test At 5% Level)
FPE: Final Prediction Error
AIC: Akaike Information Criterion
SIC: Schwarz Information Criterion
HQ: Hannan-Quinn Information Criterion

After the above tables, the Table – 4.4 confirms that there exists long run relationship among the variables of this study; the reason is that trace test indicates 3 and 1 co – integrating equations at 5% and 1% level of significance respectively, and maximum eigen value test indicates 1 co – integrating equation at 5% level of significance. The results of Johansen and Juselius [21] Maximum Likelihood Approach are given in the below Table – 4.4:

Table – 4.4: Co – Integration Test

Unrestricted Co – Integration Rank Test							
Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value	0.01 Critical Value	Hypothesized No. of CE(s)	Max-Eigen Statistic	0.05 Critical Value	0.01 Critical Value
None **	70.53896	53.12	60.16	None *	30.55907	28.14	33.24
At most 1 *	39.97989	34.91	41.07	At most 1	18.11743	22.00	26.81
At most 2 *	21.86247	19.96	24.60	At most 2	13.92245	15.67	20.20
At most 3	7.940022	9.24	12.97	At most 3	7.940022	9.24	12.97

Trace Test indicates 3 Co – Integrating Equations and Maximum Eigen Statistic indicates 1 Co – Integrating Equation at the 5% Level of Significance
Trace Test indicates 1 Co – Integrating Equation and Maximum Eigen Statistic indicates 0 Co – Integrating Equation at the 1% Level of Significance
***(**) Denotes Rejection of the Hypothesis at the 5% (1%) Level of Significance**

After finding long run relationship among the variables of the model, the long run estimates are found in the below Table – 4.5 by using equation 3.1:

Table – 4.5: Long Term Results

Dependent Variable: LUN_t				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LUN_{t-1}	0.714210	0.119778	5.962762	0.0000
LFD_t	-0.614142	0.261747	-2.346317	0.0251
$LURB_t$	0.007980	0.004476	1.782792	0.0838
$LFDI_t$	-0.136953	0.351022	-0.390155	0.6989
C	-0.324457	1.499596	-0.216363	0.8300
R – Squared	0.802196	Mean Dependent Variable		1.496546
Adjusted R – Squared	0.778219	S.D. Dependent Variable		0.342259
S.E. of Regression	0.161182	Akaike Information Criterion		-0.690487
Sum Squared Residual	0.857327	Schwarz Information Criterion		-0.475015
Log Likelihood	18.11925	F – Statistic		33.45788
Durbin-Watson Statistic	2.168160	Prob. Value (F – Statistic)		0.000000

Table – 4.5 shows that one period lag term of unemployment and urban population as share of total population are significantly increasing unemployment in the long run. However; financial development is significantly but foreign direct investment inflows is insignificantly deteriorating unemployment in the long run. Moreover, the diagnostics of the long run model show that the model as whole is also significant in the long run. Besides this, the response of unemployment towards financial development; urbanization, and foreign direct investment inflows is also found in the short run by using equation (3.5) and the results are given in the below Table – 4.6:

Table – 4.6: Short Term Results

Dependent Variable: ΔLUN_t				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ΔLUN_{t-1}	1.166156	0.390418	2.986943	0.0056
ΔLFD_t	-0.680478	0.327096	-2.080361	0.0461
ΔLFD_{t-1}	0.605255	0.351898	1.719972	0.0957
$\Delta LURB_t$	-0.015966	0.173178	-0.092195	0.9272
$\Delta LFDI_t$	0.333688	1.301634	0.256361	0.7994

ECM_{t-1}	-1.600809	0.442728	-3.615788	0.0011
C	0.023149	0.168144	0.137672	0.8914
R – Squared	0.371766	Mean Dependent Variable		0.014351
Adjusted R – Squared	0.246119	S.D. Dependent Variable		0.179609
S.E. of Regression	0.155948	Akaike Information Criterion		-0.709927
Sum Squared Residual	0.729596	Schwarz Information Criterion		-0.405159
Log Likelihood	20.13365	F – Statistic		2.958820
Durbin-Watson Statistic	2.053649	Prob. Value (F – Statistic)		0.021707

Table – 4.6 shows that one period lag term of unemployment and financial development are significantly increasing unemployment in the short run but the impact of first period of unemployment is stronger than that of the first period lag term of financial development. Financial development is reducing unemployment significantly and urbanization is also reducing unemployment but insignificantly into short run in case of Pakistan. Moreover, foreign direct inflows are insignificantly adding to unemployment into short run.

Lastly, the lag term of the error term is negative and significant. It shows that the model of this study follows convergence hypothesis that simply means if there occurs any distortions in the short run, it will instable long run equilibrium temporarily and this instable long run equilibrium will be corrected by the speed of 1.60% each year and long run equilibrium will be achieved in about 0.625 years and hence it has concluded that the pace of adjustment is quite strong [Bannerjee et al., 23]. The model as whole is also significant for the short run time as well.

5. Conclusion and Recommendations

This study examines the impact of financial development; foreign direct investment, and urban population as share of total population on unemployment for period ranges from 1973 – 2010. The findings of this study reveals that the first period lag term of unemployment, and the urban population as share of total population are increasing unemployment significantly in the long run. Also, both financial development and foreign direct investment are reducing unemployment in the country in long run. The impact of financial development on unemployment is significant in the long run whereas the impact of foreign direct investment on unemployment is recorded as insignificant in the long run.

The findings for the short run period demonstrates that the first period lag term of unemployment; the lagged term of financial development in the first period, and foreign direct investment are positively contributing to unemployment, however, the first period lag terms of unemployment and financial development are reflecting significant contribution whereas the foreign direct investment has left an insignificant impact on unemployment. Moreover, both financial development and urban population as share of total population are decreasing unemployment in the country in short run. However, the impact of financial development on unemployment is witnessed as significant whereas the impact of urban population as share of total population on unemployment is found as insignificant in the short run. In the end; the study suggests that government must set up policies which may allow the banking sector to flourish, so that, the investment opportunities may increase in the country and consequently, unemployment may decline in Pakistan.

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