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Social Cohesion and Economic Growth: A Case Study of Pakistan

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Abstract: This study is an attempt to find out impact of social cohesion on economic growth of Pakistan. The study has used the variables of middle class share of income, gender inequality, educational inequality and poverty as proxy for social cohesion. By employing Johansen's Co-integration Approach and using the time series data for the period of 1972 to 2007, we have found that all proxies of social cohesion and economic growth are co-integrated. The variable of middle class share of income has positive whereas gender inequality, educational inequality and poverty have negative impact on economic growth of Pakistan. For Short Run dynamics, Vector Error Correction Model (VECM) has been used. The Short Run results show that only two variables of middle class share of income and poverty seem to have statistically significant effect on economic growth in short run while the impact of other two variables of gender inequality and educational inequality is statistically insignificant.

Key words: Cohesiveness of Society · Middle Class · Ethno-linguistic Fractionalization · Poverty · Inequality

INTRODUCTION

Issue of cohesiveness of society has been discussed by many academicians and social scientists. Its economic implications have also been discussed in economic literature. The literature which discusses the issue of cohesiveness of society and relates it with economic performance can be divided into two different kinds. The first kind is that in which cohesiveness of the society is generally termed as social capital and measured by the indicators like civic participation, volunteer activities, trust or membership of social organizations. Putnam [1], Helliwell and Putnam [2], Knack and Keefer [3], Woolcock [4], whiteley [5], Putnam [6] and Robinson *et al.* [7] are some important studies in this regard. The second type of literature suggests the use of some indirect measures such as class division, ethno-linguistic fractionalization, elite dominance, incidence of poverty and social and income inequality for the measurement of social cohesion of a society. Easterly [8], Easterly *et al.* [9] and Marco *et al.* [10] are some examples of these kinds of studies. These studies find how social cohesion, measured in terms of different types of inequality, can affect economic growth through its effects on institutional quality and human capital creation. This strand of literature finds its intellectual roots in inequality-growth models and growth models of elite dominance or societal division put forward by Alesina and Perotti [11], Alesina and Rodrik [12] Persson and Tabellini [13], Alesina and Perotti [14], Perotti [15] and Rodrik [16].

Easterly *et al.* [9] have found that social cohesion of a society affect economic growth through its effects on institutional quality. They have used middle class share of income along with ethno-linguistic fractionalization as a measure of social cohesion. Middle class share of income is the share of income being received by the population belonging to second, third and fourth quintile collectively and ethno-linguistic fractionalization is the probability that two randomly selected persons from the society do not belong to the same ethno-linguistic group. Higher this probability implies higher ethno-linguistic fractionalization in the society. This is an important study which has addressed the issue of social cohesion in an excellent way and has provided explanation that why even seasoned politicians can fail to deliver in a divided society. But it has certain limitations; firstly it has used cross country data but different countries have their own history and political atmosphere due to which the findings of cross country regressions cannot be generalized. Secondly the model of social cohesion proposed by

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Easterly *et al.* [9] has taken into account middle class share of income and ethno-linguistic fractionalization as a measure of social cohesion of a society but salience and forms of inequality could be different in different countries. As present study aims to investigate the relationship between social cohesion and economic growth for the case of Pakistan, therefore, we will have to select those variables which can be used as most suitable and appropriate proxy of social cohesion in our case. Pakistan is a case study where incidence of poverty is high and inequalities on the basis of gender and in the provision of education can be observed which have not only political salience but can also affect human capital creation in the society[1]. Therefore, using of the variable of middle class share of income along with poverty, gender inequality and educational inequality as a proxy for social cohesion will be appropriate in case of Pakistan. We can use these variables because all these variables refer to the inclusion/exclusion and can increase/decrease the social cohesion of the society [17,18].

We are not using ethno-linguistic fractionalization in our study because it is generally measured by calculating the probability that two randomly selected persons do not belong to same ethno-linguistic group. Higher this probability means higher ethno linguistic fractionalization in the society. This measure just tells about the homogeneity or heterogeneity of a society. It does not give a true picture of fractionalization among different ethnic or linguistic groups of the society. In fact social cohesion does not mean the cultural sameness or homogeneity in all aspects rather it means that how different individuals or groups are willing to cooperate with each other. We are of view that ethno-linguistic fractionalization is not main or primary cause of division of society in Pakistan. The main or primary cause of division is class. It is more likely that the people belonging to a particular class will have more interaction with the persons of same class irrespective of the fact that with which ethnicity they belong or which language they speak. This case can be observed in Pakistan where political elites, land lords and civil and military bureaucrats are united at least in protecting their own benefits and keeping the masses backward.

Methodology

Econometric Model: In order to analyze the relationship between social cohesion and economic growth in Pakistan and drawing upon our discussion in section 1, the following econometric equation will be estimated

$$\ln Y_t = \alpha + \beta_1 \ln MC_t + \beta_2 \ln GI_t + \beta_3 \ln EduI_t + \beta_4 \ln Pov_t + \varepsilon_t$$

where t is time period, Y_t is GDP Per capita in Pak rupees at time t, MC_t is Middle Class share of Income (The percentage share of income received by second, third and fourth quintile), GI_t is Gender Inequality, $EduI_t$ is Educational Inequality, Pov_t is Poverty and β_1, β_2, β_3 and β_4 are the coefficients of MC, GI, EduI and Pov respectively ε_t is usual error tem and α is intercept.

Augmented Dickey-Fuller Test: In most of the time series data, time trend is involved due to which it is non-stationary. Applying regression on such data can give spurious results [25]. Philips [26] points out that regression result will be misleading if co-integration does not exist. Thus the results obtained from ordinary least square (OLS) will be reliable if variables are stationary and are co-integrated. In fact, stationarity of variables is prerequisite for co-integration. To check the stationarity of data, different tests have been suggested in literature. Augmented Dickey-Fuller (ADF) test proposed by Dickey and Fuller [27,28] is one of these tests which are widely used in economic literature to investigate the stationarity of a time series data. ADF test is applied to investigate the unit root problem in the time series by using the following regression.

$$\Delta X_t = \alpha + \delta X_{t-1} + \sum_{j=1}^{q} \gamma_j \Delta X_{t-j} + \in_{1t}$$

where $\Delta X_t = X_t - X_{t-1}$ and q= number of lags in the dependent variable. The existence of unit root problem or stationarity is checked by the help of following hypotheses; H_0: $\delta = 0$ (X_t is Non-Stationary) and H_a: $\delta < 0$ (X_t is Stationary)

Johansen Co-Integration Test: Co-integration is a test to find long run relationship between variables which are integrated at same order. Initially, the concept of co-integration was put forward by Engle and Granger [29]. Later on it was elaborated further by, Stock and Watson [30], Johansen [31-34] and Johansen and Juselius [35]. This study uses the Johansen co-integration method to investigate the long run relationship between the variables of interest. Unlike two steps estimation approach suggested by Engle and Granger [29] by which only one co-integrating vector can be found, Johansen [31] and Johansen and Juselius [35] suggest maximum likelihood testing procedure to find out the number of co-integrating vectors in the Vector Autoregressive (VAR) representation. The general form of VAR is as under:

[1]See for example Burki [19,20], Hussain [21], Easterly [22], Zaidi [23] and Siddiqa [24] for a brief description of economic history and political economy of Pakistan.

$$x_t = \alpha + \beta_t x_{t-1} + \ldots\ldots + \beta_k x_{t-k} + \varepsilon_t$$

where x_t is an (n×1) column vector of ρ variables that are integrated of order 1, α is a (n×1) vector of constant terms, $\beta_t \ldots\ldots \beta_{t-k}$ are parameters and ε_t is an independently and identically distributed error term. The general VAR model presented above can also be reformulated in the following alternative form of Vector error correction model (VECM).

$$\Delta x_t = \alpha + \sum_{i=1}^{\rho-1} \Gamma_i \Delta x_{t-i} + \Pi x_{t-1} + \varepsilon_t$$

where x_t is a (n×1) column vector of ρ variables, α is a (n×1) vector of constant terms, ε_t is (n×1) vector of usual error term, Δ is difference operator and Γ and Π represent coefficient matrices. The coefficient matrix Π is also termed as impact matrix and it tells about the long run relationship. It captures the long run impact whereas coefficient matrix Γ captures the short run impact.

Data: The Data used by this study has been taken from different sources. Data for GDP per capita is in Pak Rupees and has been taken from World Bank [36]. Data for Gender Inequality is an index generated by Ahmad and Bukhari [37]. Educational inequality shows the distribution of education among the people. Data for this variable is taken from Castello and Domenech [38]. Barro and Lee [39] data set on schooling has been used by Castello and Domenech [38] to compute the Gini index of distribution of education. To facilitate the time series data analysis, missing values have been interpolated. Data for poverty is from Jamal [40].

EMPIRICAL RESULTS

Stationarity of Data: The results of ADF test have been reported in Table 1.

According to these results, t-statistics of ADF tests for all the five variables of GDP per capita, Middle class share of income, gender inequality, educational inequality and poverty are statistically insignificant at level. This implies that null hypothesis of unit root at level cannot be rejected. However t-statistics of ADF test for these variables are statistically significant at first difference which leads towards the rejection of null hypothesis. Thus the variables become stationary at their first difference. After checking the stationarity of variables, next step is the selection of optimal lag length to apply co-integration.

Optimal Lag Length: Aikaike information criterion (AIK), Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ); all three suggest an optimal lag length of 1 (Table 2). Thus the lag length 1 has been used in our analysis.

Co-integration among the Variables: The results of Johansen's co-integration test have been reported in Table 3.

Trace statistics λ_{trace} are used to check the number of co-integrating vectors. Trace statistics test the null hypothesis of no co-integration against the alternative of co-integration. Starting with the null hypothesis of no co-integration ($r \leq 0$) among the variables. The trace-test statistics is 75.84, which is above

Table 1: Augmented Dickey-Fuller (ADF) Test for Unit Root

Augmented Dickey-Fuller (ADF) Test at Level				
Variables	Without Trend	Prob. Values	Trend and Intercept	Prob.Values
$\ln Y_t$	-0.311	0.913	-1.402	0.8422
$\ln MC_t$	-0.861	0.7884	-2.853	0.189
$\ln GI_t$	0.495	0.9842	-1.960	0.602
$\ln EduI_t$	-0.983	0.7485	-2.180	0.4849
$\ln POV_t$	-2.261	0.1897	-1.668	0.7437
Augmented Dickey-Fuller (ADF) Test at 1st Difference				
Variables	Without Trend	Prob.Values	Trend and Intercept	Prob.Values
$\Delta \ln Y_t$	-4.225	0.0022	-4.138	0.0132
$\Delta \ln MC_t$	-5.113	0.0002	-4.938	0.0018
$\Delta \ln GI_t$	-6.159	0.0000	-6.209	0.0001
$\Delta \ln EduI_t$	-5.993	0.0000	-5.906	0.0001
$\Delta \ln POV_t$	-5.365	0.0001	-5.678	0.0003

Table 2: VAR Lag Order Selection Criteria

Lag	AIC	SC	HQ
0	-14.88775	-14.66328	-14.81120
1	-24.42357*	-23.07678*	-23.96427*
2	-23.74715	-21.27804	-22.90511

* indicates lag order selected by the criterion

Table 3: Unrestricted Co-integration Rank Test (Trace)

H_0	H_1	Trace Statistic	0.05 Critical Value	Prob.[a]
R = 0*	R = 1	75.83689	69.81889	0.0153
R = 1	R = 2	46.16840	47.85613	0.0714
R = 2	R = 3	25.51262	29.79707	0.1439
R = 3	R = 4	9.870556	15.49471	0.2908
R = 4	R = 5	1.283502	3.841466	0.2572

[a] MacKinnon-Haug-Michelis [] p-values

Table 4: Long Run Relationships

	Dependent Variable = $\ln y_t$		
Variable	Coefficient	T-Statistic	Prob-Value
Constant	18.64897	7.101939	0.0000
$\ln MC_t$	1.218538	2.612540	0.0141
$\ln GI_t$	-2.560373	-7.704542	0.0000
$\ln Edu I_t$	-0.292290	-1.998971	0.0499
$\ln POV_t$	-0.268975	-4.953899	0.0000
AR(1)	0.394233	2.169923	0.0383
	R-Squared= 0.982919		
	Adj-R-Squared= 0.979974		
	F-Statistic= 333.7596		
	Prob(F-statistic)= 0.000000		
	Durbin-Watson = 1.854680		

Table 5: Short Run Dynamics

	Dependent Variable = $\Delta \ln y_t$		
Variable	Coefficient	T-Statistic	Prob-Value
Constant	0.02554	6.1850	0.0000
$\Delta \ln MC_t$	0.6149	2.1725	0.0399
$\Delta \ln MC_{t-1}$	0.1981	0.8683	0.3938
$\Delta \ln GI_t$	0.1583	0.4666	0.4649
$\Delta \ln GI_{t-1}$	0.5772	1.4805	0.1517
$\Delta \ln Edu I_t$	0.0027	0.0653	0.9676
$\Delta \ln Edu I_{t-1}$	0.0525	0.7635	0.4526
$\Delta \ln POV_t$	-0.1134	-3.0104	0.0061
$\Delta \ln POV_{t-1}$	-0.0511	-1.2530	0.2223
ECT_{t-1}	-0.3192	-2.7906	0.0101
	R-Squared = 0.5526		
	Adj-R-Squared = 0.3848		
	F-Statistic= 3.2934		
	Prob(F-statistic)= 0.0094		
	Durbin-Watson = 1.9878		

the critical value of 69.86 at 5percent significance level. Hence it rejects the null hypothesis $r \leq 0$ in favour of alternative hypothesis $r = 1$. But the null hypothesis of $r \leq 1$ can not be rejected in favour of alternative hypothesis of $r = 2$ because trace statistics 46.67 which is less than the critical value of 47.86 at 5percent significance level. Thus the analysis of data confirms the presence of one co-integrating vector and we can conclude that a long run relationship exists between middle class share of income, gender inequality, educational inequality, poverty and economic growth.

Long Run Results: As co-integration exists among the variables of our interest, therefore, the results obtained from OLS are reliable. The results obtained from OLS have been reported in Table 4. To remove the problem of autocorrelation AR (1) scheme has been applied.

The results reported in the Table 5.4 show that all the variables have statistically significant impact on economic growth. The middle class share of income has positive whereas gender inequality, educational inequality and poverty have negative impact on economic growth. The estimates represent that on average 1 percent rise in middle class share brings 1.218 percent increase in GDP per capita whereas 1 percent reduction in gender inequality, educational inequality and poverty leads to 2.560 percent, 0.292 percent and 0.2668 percent increase in economic growth as measured by GDP per capita.

Short Run Dynamics: Short Run Dynamics obtained by using the Vector Error Correction Model (VECM) have been reported in Table 5. According to the table only two variables of middle class share of income and poverty seem to have statistically significant effect on economic

growth in short run while the impact of other two variables of gender inequality and educational inequality are statistically insignificant.

The error correction term is statistically significant and has a negative sign. It is further proof of long run relationship among the variables of our interest. The table shows that on average 1 percent increase in middle class share of income leads towards 0.6149 percent increase in per capita income in short run.

The coefficient of the variable of poverty is statistically significant and has a negative sign which implies that 1 percent reduction in poverty leads towards 0.1134 percent increase in economic growth as measured by GDP per capita. The other two variables of gender inequality and education inequality do not have statistically significant impact on economic growth in short run. Lags of all variables have also been used in our short run analysis but their impact seems to be remaining insignificant.

It is evident from empirical results that all independent variables except middle class share of income have negative impact on economic growth. The variable of middle class share has positive impact on economic growth because consumption function of middle class is different from the poor and the rich. Poor people have to spend a large portion of their income on basic necessities of food and shelter and rich people are fond of spending on luxuries. But generally middle class has more aspiration in their life. Unlike rich and poor, they spend more on education, health and other productive channels. It is accepted as a historical fact that the main driving force behind the economic development of Western Europe was its middle class. Growing middle class also makes society more cohesive by reducing the level of exclusion. In a society where share of middle class is higher, people's sense of belonging to a common society is strengthened whereas in a society where share of middle class is lower, a sense of deprivation is created among the masses. They feel that they are being exploited by the oligarchy of the society. Such kind of feelings among masses can create distrust in the society which may result in a conflict and hence can reduce the pace of economic growth. Thus increased share of middle class makes society more cohesive and more harmonized and such situation is more conducive for economic growth.

The second proxy of social cohesion used in our study is gender inequality. This study has noted a negative impact of gender inequality on economic growth. Although in short run the variable of gender inequality does not show any significant impact on economic growth yet the negative effects of gender inequality on economic growth seems to be more robust than any other variable of our study in long run. The effects of gender inequality on economic growth are mix in economic literature. In fact, how the gender inequality affects economic growth depends upon the way by which gender inequality is measured. Gender wage gap or gender education gap are most common variables used in the literature as a proxy for gender inequality. But none of these variables depict the true picture. This study has used an index developed by Ahmad and Bukhari [37] which is a better way of measuring gender inequality because it has been developed by using eight different indicators. These indicators are mainly related with education, health and employment. As the index takes into account the difference between male and female in three different dimensions therefore higher gender inequality refers to high level of exclusion of women from education, health and employment opportunities. This exclusion of women from these three kinds of opportunities means that a large section of society has been excluded from economic activities and development process which will surely affect economic growth negatively.

The variable of educational inequality has shown a negative impact on economic growth. This is consistent with Castello and Domenech [38]. Thus it can be described that it is not only the level of education or the mean year of schoolings but also its distribution which plays an important role in the economic growth of a country. The distribution of education affects economic growth through its affects on investment. If educational distribution is skewed then access of people to different stages of education is limited. But economic activities not need 'some' people with high level of education but 'many' people with different levels of education. Thus educational inequality or distribution of education is very important in deciding about the investment rates and economic growth. Education has also to play its role in binding the different sections of society. But if the education is not evenly distributed among the different population groups then social cohesion of the society will be weakened and economic growth will be depressed.

Poverty is variable which not only tells about the number of people living below the poverty line but also tells about the exclusion of the people from different economic and social opportunities. Incidence of poverty makes the society less cohesive because generally the costs of economic activities are born by them whereas the fruits of these activities are reaped by the rich. Poor feel

that they are being exploited by the elite of the society and this feeling weakens the social cohesion of the society. On the other hand poor are bound to spend less on their education and health which decreases their productivity. Thus incidence of poverty retards economic growth through reduction in the productivity of the poor and by making the society less cohesive.

CONCLUSION

This study has checked the relationship between social cohesion and economic growth. Our results show that a long run relationship exists between social cohesion and economic growth. According to results, growth is positively affected by middle class share of income whereas gender inequality, educational inequality and poverty have negative effect on economic growth. The results of this study are consistent with Easterly [8] and Easterly *et al*. [9]. However, unlike previous studies, this study has used a broader set of variables as proxy for social cohesion. The study reveals that social cohesion is important not only for the integrity of a country, as it is widely accepted, but it is also important in determining the pace of economic growth.

Pakistan is currently in a vicious cycle in which lack of social cohesion is an obstacle in the way of rapid economic growth and uneven distribution of economic growth is further retarding the level of social cohesion in the society. The country can move away from this vicious cycle to the virtuous cycle if economic growth and different opportunities such as education, health and employment are evenly distributed among the people. This even distribution will make the society more cohesive which will further enhance economic growth. Thus economic growth as well as its distribution should be given due importance because economic growth will not be sufficient and even sustainable if the policies to promote economic and social equality are not adopted. Resolving the issue of economic and social inequalities should be at the agenda of public policy due to its importance in making the society more cohesive and achieving the goal of economic growth.

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