Impact of Soft Powers on Income Inequality in South Asia: An Empirical Analysis

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Abstract

This study empirically investigates the impact of soft powers on income inequality in a penal of seven South Asian countries over the period from 1996 to 2016. The study incorporated population growth, dependency ratio, government effectiveness index, political stability index, net foreign assets, domestic credit, government expenditures, current account balance, expenditures on education, tax revenue, inflation, trade openness and real GDP growth as soft power measures to determine demography, governance, social, external, financial and economic power in single penal model. The study used Least Square Dummy Variable (LSDV) fixed effect model, random effect model and pooled OLS with standard model specification tests of Hausman and Breusch & Pagan Lagrangian Multiplier. The results of the study addressed that soft power measures are significantly effecting income inequality in South Asia. The results of the study are consistent with existing evidence on the subject the signs of the parameters are according to expectations. The study hold significant contribution in the literature as it fulfills the gap in existing literature by first time exploring wide ranged soft power determinants of income inequality in South Asia. The study with reference to previous evidence suggested that there is need of considering soft power factors in targeted policy reforms to determine income distribution of South Asian countries.

Keywords: Soft powers, Income inequality, Fixed Effect Model.

1. Introduction

The term "soft power" refers to the effectiveness of the country's governance, demography, political situation, financial base, economic development and social sector development which are sometimes called structural measures of the economic and social land scape of the economy (Nye, 1990). The importance of soft power is taking vital place in social and macroeconomic implications particularly on Income distribution. Recent studies have explored the theoretical linkages between soft power and income inequality. Recent literature confirmed that with other traditional determinants of inequality structural measures are also very significant drivers to determine income distribution in emerging economies (Kanbur et al., 2011).

Inequality remains a persistent challenge in many economies today. In Asia and the Pacific, inequality has risen over the past decade despite rapid growth that has significantly lowered poverty incidence (Asian Development Bank, 2016). In 16 countries in developing Asia, the Gini coefficient increased from 46.8 to 52.4 in last decade.

While inequality is usually measured in terms of income or consumption, the concept of inequality is now being extended to cover many other standard-of-living dimensions, such as inequality of outcomes in health, education, basic infrastructure, and so on.

Fair income distribution is a significant aspect of social welfare. Countries are striving to bring little changes in equality, because external shocks to economy diminutive these efforts. Different positions of people within economic distribution (income, wage, wealth) mostly represent economic inequalities. Income inequality is calculated by percentage of income to a percentage of population, and is connected to impression of fairness. Most commonly, income is fairly distributed if rich and poor have same share of country's income. On the other hand,

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if rich occupy larger share of income compared to population then this will be unfair income distribution.

In developing world, 21st century begins with the challenges of two main and connected issues of large and persistent indebtedness and inequality and worsening poverty. Along with these issues these countries are also facing significant implications for growth possibilities. Non-governmental organizations (NGOs) and anti-globalization movements pressurize financial institutions, International Monetary Fund, World Bank and UNDP to relate and connect debt relief with poverty reducing agendas. South Asian economies have widely share growth, but persistent poverty exists in larger amount. Due to this rising social and cultural strains worsen the present encounters and produce new ones.

Table 1 shows the inequality situation measured through GINI index. Pakistan is the only country with almost same pattern of inequality within each decade as in 1990s coefficient value was 31.61 %, 31.38% in 2000s and 31.50 % in 2010s decade. Maldives and Bhutan have decreasing trend while Bangladesh and India have mix of trends as in 1990s these both have low inequality but during 2000s they have increased in inequality but further both countries have low inequality.

Table 1: GINI Index in South Asia

Year	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
1990s	31.56	47.015	32.645	61.3725	37.4275	31.61	37.3475
2000s	32.854	43.259	33.008	41.158	39.3824	31.387	39.773
2010s	31.004	38.344	31.70834	34.794	33.008	31.502	34.894

The prime objective of the study is to test whether there is a relationship between Income inequality and Soft power in South Asia. For this purpose the study also determine the soft power measures and there performance in South Asia.

The Significance of this study is therefore to investigate the nature and scale of relationship between income inequality and Institutional infrastructure and social features across South Asian countries. This will be the significant study of the dynamic nature in case of South Asia in which Soft power will be addressed as the determinant of income inequality. We expect to see “soft power” factors to have a prominent role in determining income inequality directly and indirectly by fostering better policy choices and shaping the pattern and evolution of macroeconomic fundamentals and risk premia. Significance basically lead to the literature point of view, there are many recent studies conducted on the view of different macroeconomic determinants of income inequality (Menzie et al., 2008 and Chinn & Prasad, 2000) and some studies have elaborated the implications of income distribution on macro economy (Mozy, 2009 and Obstfeld & Rogoff, 1995). Recently some studies have determined that structural measures are also important determinants for unequal distribution of income in developed and in emerging economics (Aizenman et al., 2010) however, in case of South Asian economies there it is hard to find and previously conducted empirical study on the subject thus the contribution of the current study magnifies the significance in the literature.

In the last couple of decade a different strand of literature has emerged which is primarily focused on researching the political determinants of inequality: how institutions and types of political regimes influence the levels of inequality. Democracy is the main focus of research for Bollen and Jackman (1985), Lee at al. (1998), Rodrik (1999) and Reuveny and Lee (2003). The majority of these works claim that democracies tend to redistribute more towards the poor (consistent with the median voter model by Richard and Meltzer (1981)) with decreasing inequality as a final result. As a counterbalance to this, there has been a strand of literature which has claimed that redistribution in different types of political regimes is primarily

influenced by decisions of efficiency rather than politics (Sala-i-Martin (1996), Benabou (1996), Rodriguez (2004)). This group of authors tend to conclude that regime type cannot be considered as one of the main determinants of inequality. On the other hand, the impact of institutions on inequality and vice versa has been the main focus of analysis for a significant group of researchers (Engerman and Sokoloff (1997) and Sokoloff and Engerman (2000), Gradstein and Chong (2007)). Finally, some of the extant research attempted to disentangle the impact of ideology on inequality (Milanovic, Gradstein and Ying (2001)) and the impact of corruption on inequality and poverty (Gupta and Davoodi (2002)).

2. Methodology

The model

The "soft power" variables are more likely to have an impact Income Inequality in the cross-section rather than the time series and we developed a model by following and Aizenman et al. (2010) and Cevik (2015) accordingly our starting equation will be as:

$$INEQ_{i,t} = \alpha_{i,t} + \beta SOFT_{i,t} + \gamma Z_{i,t} + \varepsilon_{i,t}$$

Where INEQ is the income inequality for country i in year t and $SOFT_{i,t}$ is the structural measure for soft power in country i and time t. $Z_{i,t}$ is the control variables notion for country i and in time t and $\varepsilon_{i,t}$ is the random error term.

GINI index is used as measurement of inequality of income distribution of residents of a country. Its value lies between 0 and 1 on the basis of resident's net income. It describes the rich and poor gap. 0 value means no inequality and 1 says perfect inequality. In percentage form GINI index is referred to as GINI coefficient. Relative poverty within a country is explored through this coefficient.

Further this model will be developed as following with incorporation of control variables and soft power measures:

$$\begin{aligned} INEQ_{it} = {} & \beta_1 + \beta_2 POP_{it} + \beta_3 DR_{it} + \beta_4 GEF_{it} + \beta_5 PS_{it} + \beta_6 GDP_{it} + \beta_7 INF_{it} + \beta_8 NFA_{it} \\ & + \beta_9 CR_{it} + \beta_{10} TO_{it} + \beta_{11} CAB_{it} + \beta_{12} TAX_{it} + \beta_{13} GEXP_{it} + \beta_{14} EDU_{it} \\ & + \beta_{15} EXDEBT_{it} + \varepsilon_{it} \end{aligned}$$

Technically the study found some evidence from the literature there is bulk of structural measures to evaluate soft power, and there were some conflicts among the previous studies to choose appropriate proxies for soft power, so after having a detailed look on the previous literature the study incorporated fourteen structural variables for soft power, accordingly population growth (POP), Dependency ratio (DR), government effectiveness (GEF), political stability (PS), net foreign assets (NFA), trade openness (TO), Tax revenue (TAX), Government expenditures (GEXP), external debt (EXDEBT), current account balance (CAB), inflation (INF) Domestic credit to private sector (CR) and real gross domestic product (GDP) are measures of soft power. Control variables are also selected among the best suited significant variables of Current Account Balance which are inflation, trade openness and domestic credit to GDP ratio.

3. The Data

In this study panel data of concerned variables which has been described before. Panel data, time series and cross section are three types of data which are mostly used for empirical analysis. Time series observes the values of two or more variables over a period of time and in cross section the values of one or more variables are collected for several subjects at the same point in time. While the panel data set have the components of both, as its measures the cross sections over time so the panel data sets have time as well as space dimensions. It's mostly used to analyze the change over time e.g. social change, development or growth, to check trends

in any social phenomenon, policy evaluation, and casual models and in estimation of treatment effects.

Some other names of panel data are micro panel data, longitudinal data, event history data etc. (Basic Econometrics 5th Edition, Gujarati). So according our targets as a best data set we have used the panel data set for 7 south Asian countries with the focus on to measure the soft power in these countries and their impact on income inequality. Data is taken from World Development Indicators (2017), IMF data set of world economic outlook (2017) and World Governance Indicators (2017) which provide a long time comparable data for all economic, demographic, financial and governance variables for South Asian countries, i.e. Pakistan, Bangladesh, India, Sri-Lanka, Bhutan, Nepal, Maldives. Secondary data for each country on the above mentioned variables is taken for the period 1996-2016.

4. Estimation Methodology

There are a number of econometric techniques to test the hypothesis given in the study by using panel data set. This includes a variety of estimation layouts but for the context and requirement of the study the study only elaborated the Pooled OLS, the fixed effects model, the random effects model and least squares dummy variable (LSDV) model. All intercepts and coefficients are assumed to be same in constant coefficient model (i.e. there is neither significant temporal effects nor significant country). In this way time dimensions and space of pooled data are ignored. Thus data is pooled and ordinary least square (OLS) regression model is run. So such models have very highly restricted assumption about the model. Though the OLS model is simple but it depicts the true picture of the relationship between the independents and dependent across the cross-sections.

Here with the situation to cross-section or time are applied to the fixed effects model with different variations. The fixed effects model has slops constant but intercept differ to the cross-sectional (group) unit. For i classes' i-1 dummy variables are being used to assign the particular country, sometimes this model is called the LSDV model. There is another fixed effect panel model where slope coefficients are constant, but intercept varies over individual/country as well as time. On the data fixed effect model (FEM) with differential intercept and slope can be applied, but by the inclusion of many variables and dummies may give such result for which interpretation is not manageable, because of inclusion of many dummies may cause the problem of multicollinarity. There is no reason to pool if; all of these are statistically significant (Gujarati, 2003). While in the random effect model it is assumed that the intercept to be random outcome variable, whereas the random outcome is a function of random error plus mean value, For estimation purpose two way random effects model is being used. Random effects model was suggested by Swamy (1971) and Swamy and Arora (1971) and Swamy et al., (1988a, 1989) suggested and extended the random effects model as;

$y_{it} = \beta_i' x_{it}\ , \qquad t = 1, \ldots . T(i), i = i, \ldots, N$

$\beta_i = \beta + v_i$

Where

$E[V] = 0\ and\ Var[v_i] = \Omega$

This model is generalized group-wise hetroscedastic model.

For best model selection among these three types of models, significance test with Breusch-Pagan Lagrange Multiplier test, and efficiency test of F-test and Hausman Specification Test are conducted.

5. Results and Discussion

In order to determine which model is more appropriate for our study (OLS, FEM or REM), the HST is carried out. To back up our result, i.e. REM is to be used, the BP-LM test is also

performed and the results are shown in tables given below. After having the thorough discussion regarding the methods used in the current study we have reached on the following results. This chapter is about the results with incorporating methodology discuss in the 4th chapter which are Ordinary Least Square Model (OLS), Least Square Dummy Variable Model (LSDV), Random and Fixed Effect Models, we followed Akbar et al. (2011) and Rajasekar & Deo (2014) to estimate the comprehensive results of the current panel study. We started with the simple pooled OLS.

Table 2 Pooled OLS results

Dependent Variable: INEQ				
Method: Panel Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	33.7840***	3.8597	8.7529	0.0000
DR	0.0900***	0.0254	3.5406	0.0006
POP	-2.6734***	0.5608	-4.7666	0.0000
EDU	1.2656***	0.3738	3.3854	0.0010
GEF	9.3644***	1.1202	8.3591	0.0000
PS	-1.7616***	0.5621	-3.1338	0.0022
CR	-0.1957***	0.0270	-7.2493	0.0000
EXDEBT	-0.0180**	0.0089	-2.0213	0.0455
GEXP	-0.3563***	0.0664	-5.3639	0.0000
GDP	-0.1075	0.0810	-1.3273	0.1870
INF	-0.1620**	0.0791	-2.0480	0.0428
TO	0.0649***	0.0108	6.0089	0.0000
NFA	0.1305***	0.0213	6.1304	0.0000
CAB	-0.0814*	0.0464	-1.7540	0.0820
TAX	0.7164***	0.1340	5.3453	0.0000
Diagnostics				
R-squared	0.8431	F-statistic		45.320
Adjusted R-squared	0.8245	Prob(F-statistic)		0.0000

*, ** *** indicates the significance at 10%, 5% and 1% respectively.

The results of the study are similar to the existing literature on the subject where political stability index significant in decreasing the current account deficit, government effectiveness has positive and significant relationship with INEQ. Increase in dependency ratio leads to increase the income inequality, population growth is negatively associated with INEQ, NFA is negatively associated with INEQ and increase in domestic credit leads to decrease the INEQ in South Asia. Trade openness and external debt have negative and significant relationship with INEQ, while with inflation there is negative relationship.

Table 3 Fixed effect model results using

Dependent Variable: INEQ				
Method: Panel Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	21.978	4.4221	4.9701	0.0000
DR	0.2594***	0.0476	5.4438	0.0000
PG	-1.2246**	0.5925	-2.0668	0.0411
EDU	0.7190	0.4628	1.5534	0.1231

GEF	7.4779***	1.5780	4.7386	0.0000
PS	-2.0750***	0.5548	-3.7400	0.0003
DCGDP	-0.1119***	0.0343	-3.2583	0.0015
EXDT	-0.0270***	0.0082	-3.2708	0.0014
GEXP	-0.2652***	0.0696	-3.8079	0.0002
INF	-0.1744**	0.0690	-2.5256	0.0129
TO	0.0575***	0.0147	3.8978	0.0002
NFA	0.0678***	0.0380	1.7846	0.0770
CAB	-0.1179***	0.0418	-2.8192	0.0057
TAXR	0.3173*	0.1696	1.8710	0.0640
GDP	-0.0821	0.0695	-1.1816	0.2399
Effects Specification				
Cross-section fixed (dummy variables)				
Diagnostics				
R-squared	0.9025	F-statistic		51.8584
Adjusted R-squared	0.8851	Prob(F-statistic)		0.0000
Normality test: Jarque-Bera Probability:	0.3680 0.8319			

*, ** *** indicates the significance at 10%, 5% and 1% respectively.

Effect specification indicates that there is significant cross section effect exists. The results are gicng in table 4.3.

Table 4 Cross section fixed test (efficiency test)

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	11.3676	(6,112)	0.0000
Cross-section Chi-square	63.2550	6	0.0000

Table 5 Cross section effect

S.N	COUNTRY	Effect
1	Bangladesh	-8.4130
2	Bhutan	3.9100
3	India	-0.1804
4	Maldives	2.7177
5	Nepal	0.5968
6	Pakistan	-4.3832
7	Sri Lanka	5.7521

6. Conclusion

This study examines the relationship between soft power and income inequality in a penal of seven South Asian economies over the period from 1996 to 2014. The study incorporated population growth, dependency ratio, political stability, government effectiveness, GDP, net foreign assets, domestic credit, trade openness and inflation as soft power measures in a single penal model. The used Least Square Dummy Variable (LSDV) Fixed Effect model, Pooled OLS and Random Effect model with standard diagnostics of Hausman test, Langragian Multiplier test and F-test for model efficiency. The econometric analysis is also supported by standard diagnostic test for serial autocorrelation, heteroskdasticity and multicolinearity.

The econometric analysis includes pooled OLS, Fixed Effect LSDV, Fixed Effect Model and Random Effect Model. The models are selected on the basis of F-test of model efficiency, Breusch & Pagan Lagrangian Multiplier Test, Hausman Wu test. These tests suggested that the fixed Effect with country specific is the best model. The results of the study are similar to the existing literature on the subject where political stability index significant in decreasing the current account deficit, government effectiveness has positive and significant relationship with INEQ. Increase in dependency ratio leads to increase the income inequality, population growth is negatively associated with INEQ, NFA is negatively associated with INEQ and increase in domestic credit leads to decrease the INEQ in South Asia. Trade openness and external debt have negative and significant relationship with INEQ, while with inflation there is negative relationship. The study concludes that soft power measures are significant determinants of income inequality in South Asia, so there is need to design policy accordingly.

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