

TOPIC:

**ROLE OF HUMAN CAPITAL,
IMPERFECT CAPITAL AND
LABOUR MARKETS IN THE
DEVELOPMENT OF SOUTH
ASIAN ECONOMIES**

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Introduction

- Imperfect capital market is one of leading issues in developing countries that hampers economic growth both in short run and long run.
- Imperfection in capital market is due to asymmetrical information or high transaction cost and/or high collateral demand.
- Lack of information and devoid of legal structure compel the poor to resort to only one source of borrowings that is informal borrowing.

Introduction

- Human capital accumulation is the prerequisite for economic growth & development because it has IRS and positive externalities to the investment.
- It enables countries to absorb modern technologies and also has high private and social returns for the developing countries than to the developed countries.
- Income inequality develops when economy grows without paying any attention to the poverty; income inequality is necessary for the economy's initial growth (Kuznet). But In long run, it hampers economic growth causing exclusive and declining growth.

Rationale of the Study

- Initial wealth distribution affects aggregate outputs and investments both in short and long runs creating multiple steady states.
- The macroeconomic adjustment's differences across countries are due to the differences in wealth and income distribution.
- the long run effects of initial wealth distribution on aggregate economic activities are carried out due the indivisibilities in human capital.

Introduction

Objective of the study:

To examine the impact of human capital, imperfect capital and labour markets on economic growth and development of South Asian Economies.

Theoretical framework ⁷

- Imperfect capital market hampers economic growth in both SR and LR. There is a positive relationship between income inequality and economic growth in SR due to the imperfection in capital market (Barro, Forbes, Galor and Zeire)
- In long run there is a negative relationship between income inequality and economic growth (Forbes, Hollis B. Chenery et al. Benergee and Newmen).

Theoretical framework ⁸

Human capital investment has positive relationship with economic growth in the absence of imperfect capital market (Romer and Lucas). However, as imperfection in capital markets occurs, the decline in investment in human capital causes strong negative effects on growth irrespective of the large positive effects of physical capital investment. And as a result, growth declines (Jones).

Data Sources and Treatment⁹

- world development indicators (2015), IMF and IFS have been used for the extraction of data on relevant variables.
- Data has been extracted for the south Asian countries for the period of 1960-2015.
- Appropriate proxies of the concerned variables were selected for study purpose.

Data Sources and Treatment¹⁰

- GDP per capita growth (% of GDP) GDPPCG: a proxy for economic growth and development. It is a dependent variable, While others are independent variables.
- CFI is a dummy variable, used to deal the imperfection in capital market. Its value ranges from 0 to 1.
- The construction of median is based on adding broad money (% of GDP) and domestic credit to private (% of GDP) multiplied with Gini index.

Data Sources and Treatment ¹¹

- Domestic credit to private sector (% of GDP):
Credit to private sector as claims on non-financial private/GDP
- Secondary school enrollment as % of age group (net) is a proxy for human capital.... Or GSSER
- Gross capital formation growth (% of GDP) GCFG:
It is used to measure the investments in physical capital.
- Missing Values has been eliminated to cater the issue of singularities.

1) Panel unit root test:

The stationarity of variables is observed through applying two tests, such as LLC and IPS, in order to find out whether there is non-stationarity in data or not.

Further to determine whether unit root is present or not in a Panel data, ADF (augmented Dickey fuller) test is employed.

2) Panel cointegration:

we used Pedroni cointegration test to find out the cointegration among various variables.

Null hypothesis for panel cointegration is “no cointegration”.

The equation for Pedroni's cointegration test is as follows:

$$\text{GDPPCG}_{it} = \eta_i + \delta_i t + \beta_1 \text{ISCER}_{i,t-1} + \beta_2 \text{GCFG}_{i,t-1} + \beta_3 \text{CFI}_{i,t-1} + \varepsilon_{i,t}$$

η_i is country fixed effect while $\delta_i t$ time fixed effect.

While the residual estimation is:

$$\varepsilon_{it} = \rho_i \varepsilon_{i,t-1} + \mu_{i,t}$$

The value calculated must be smaller than that of critical value in order to have the null hypothesis rejected.

3) Johanson Fisher panel Cointegration test:

For long run relationship between the variables we used johanson fisher panel cointegration tests.

The null hypothesis is of “no cointegration.

Methodology

4) Vector error correction test:

- To find out the relation's direction for short run we used vector error correction test.
- The estimation of long run relation is to be given by ECT, which a measure of extent is observed values deviated from the long run equilibrium.

$$\Delta GDPC = \alpha_0 + \alpha_1 VECM_{i,t} + \alpha_2 \Delta GCFG_{i,t} + \alpha_3 \Delta SSCER_{i,t} + \alpha_4 CF_{i,t} + \varepsilon_{i,t}$$

VECM is the time adjustment coefficient.

5) FMOLS and DOLS:

- We used these two techniques to know the long-run equilibrium's coefficients, in order to correct bias created by both endogeneity and serial correlation on the leads and lags of the first-differenced from all equations in order to control for the potential Endogeneities.

Methodology

- Our equation:

$$\text{GDPCG}_{i,t} = \alpha_i + \beta_i \text{CFI}_{i,t} + \gamma_{1i} \text{GCFG}_{i,t} + \gamma_{2i} \text{SSCER}_{i,t} + \gamma_{3i} \text{CFI}_{i,t} + \varepsilon_{i,t}$$

$i=1, 2, 3, \dots; N$ shows number of countries in panel and $t=1, 2, 3, \dots, T$ refers to the time period.

$\varepsilon_{i,t}$ is the term (residuals) which represent the deviations from the true long run relationship

Functional Form

The model for our thesis work is as follow:

$$GDPPCG = F(SSER, GCFG \text{ and } CFI)$$

$$GDPPCG = \alpha_{i,t} + \beta_{it} + \mu_1 SSER_{i,t} + \mu_2 GCFG_{i,t} + \mu_3 CFI_{i,t} + v_{i,t}$$

we would employ a panel data by using all the viable and possible analytical techniques.

Results and discussion¹⁹

The following table results show us the panel unit test with and without trend. As from the table it is obvious that the null could not be rejected at level which is “non-stationary”, however, stationarity series is generated at first difference.

Results and discussion²⁰

Panel unit root test at level

Variable	Scenario	Common unit root	Individual unit root
		LLC-ADF	IPS-ADF
GDPPCG	Individual	14.0188	-0.95671
	intercept	1.0000	0.1694
GSCER	Individual	1.38356	0.30517
	intercept	0.9168	0.6199
GCFG	Individual	19.1106	-1.29159
	intercept	1.0000	0.1096
CFI	Individual	6.49064	-0.40767
	intercept	1.0000	0.3418

Results and discussion²¹

Panel unit root test at First Difference

Variable	Scenario	Common unit root	Individual unit root
		LLC-ADF	IPS-ADF
GDPPCG	Individual intercept	-15.8038 0.0000	-24.2848 0.0000
GSCER	Individual intercept	-8.06125 0.0000	-9.39864 0.0000
GCFG	Individual intercept	2.93337 0.0083	-16.7342 0.0000
CFI	Individual intercept	53.2048 0.0000	-5.82338 0.0000

Results and discussion²²

- The included variables are integrated at order 1.
-
- we have to check the presence of long run relationships among these variables.
- In most of the cases, the null hypothesis of no co-integration be rejected based on within dimensions and between dimensions tests at both 5 and 1 % level of significance, as the fact has also been observed by Al-Iriani (2006).

Results and discussion²³

Pedroni cointegration test

Value	Statistics of panel tests				Statistics of group tests		
	V statistic	Rho statistic	PP Statistic	ADF statistic	Rho statistic	PP statistic	ADF statistic
Statistics	0.75087 1	-13.15891	-17.13858	-9.186971	-12.68439	-23.66460	-10.82894
p-value	0.2264	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Results and discussion

The johanson fisher test suggests that there are three cointegrating vectors at 5 % level of significance for all countries data as one region. For each separate country, there are also three cointegrating vectors. However, at $r \leq 3$, some countries have still an additional cointegrating vector like in cases of Nepal, Bhutan, and Bangladesh.

Results and discussion

Johansen Fisher Panel Cointegration Test

Series: GDPG GENR GCPG CFI				
Sample: 1960 2015				
Included observations: 392				
Trend assumption: Linear deterministic trend				
Lags interval (in first differences): 1 (1)				
Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)				
Hypothesized	Fisher Stat.*		Fisher Stat.*	
	(from trace test)	Prob.	(from max-Eigen test)	Prob.
No. of CE(s)				
None	280.7	0.0000	209.7	0.0000
At most 1	161.4	0.0000	114.3	0.0000
At most 2	81.94	0.0000	80.13	0.0000
At most 3	21.18	0.0970	21.18	0.0970

Results and discussion

VEC statistics

Variables name	coefficient	p-value	<i>t</i>-statistic
GDPCG	1.000000	-	-
CFI	0.080961	(0.02036)	[3.97740]
GSCER	-0.066901	(0.10539)	[-0.63479]
GCFG	0.366214	(0.32924)	[1.11231]
C	-12.558	-	-
ECM	-0.038717	(0.02130)	[-1.81804]

Results and discussion

- The results suggest that if any disequilibrium occurs in short run, the adjustment will be 3 % per year.
- an economy that is in short run disequilibrium will be converged to long run equilibrium taking 33 years.

The short run equation is as follows:

$$\Delta GDPCGi,t = -12.558 - 0.0387Ecmi,t - 0.3662GCFG - 0.0809CIFI,t + 0.066SSCERi,t + vi,t$$

- Human capital and physical capital show insignificant relationships with economic growth and development {Amjad and Tabassum (2008)}.

Results and discussion

- CFI is a coefficient of interaction term, is negative and significant, supporting the argument that inequality (created by imperfect capital market) hampers and slows down the economic growth and process of development.
- The insignificance of gross capital formation growth and human capital proxy variables is due to the data issues and time lags i.e. the effects are appeared overtime.
- But the negative effect of investment is stronger than that of positive effects of education on growth, leading to overall decline in growth statistics in the presence of imperfection in capital market causing labor market to confront with the problems on unemployment and less efficient outcomes.

Results and discussion

- The results from FMOLS show that all variables have significantly cointegrated with economic growth and development.
- Education and investment have significant positive long run relationship with economic growth and development.
- The imperfect credit market has negative long run relationship with economic growth and development..

Results and discussion

Results from FMOLS Model
Dependent variable: GDP per Capita

Panel group	Number of nations	Intercept	GSCER	GCFG	CFI
Whole nation	7	2.588006 (0.0000) [4.758462]	0.003018 (0.0012) [2.251933]	0.098871 (0.0000) [5.279208]	-0.001739 (0.0414) [-2.046707]

Results and discussion

By applying DOLS to the same datasheet, it is obvious that all variables have shown a significant and positive relationship at both 5% and 1% levels of significance with growth and development except CFI which is significant at 10% level of significance

Results from DOLS
Dependent Variable: GDP Per Capita

Panel group	Number of Nations	Intercept	GSCER	CFI	GCFG
Whole nation	7	2.143326 (0.0015) [3.205236]	0.005122 (0.0009) [4.384357]	-0.003566 (0.0603) [-1.884418]	0.136973 (0.0001) [3.890704]

- The imperfection in capital market has negative relationship with growth and development in short run, supporting an exclusive growth.
- When a regression except ICM is run, it is observed that education and physical capital have a positive relationship with growth and development in short run.
- an increase labor force participation rate will be observed.

- ICM creates artificial inequality both in short and long runs.
- A country with high initial PCI and less income inequality would lead to more growth and development (despite of the imperfect capital market and more inequality in later stages of growth).
- More people to invest in both physical and human capital both in short and long runs without resorting to borrowings.
- The spillovers effects of these investments in turn would benefit latter generations.

- Labor market is indirectly dealt, through human capital And physical investment scenario.
- If there are heavy investment activities both in human and physical capitals, then the labor market outcomes would be good and generate an AD and vice versa.
- Human capital and investment (physical capital) have insignificant relationship with growth and development in the presence of imperfect capital markets.

Policy Recommendations³⁵

- Pro-poor policies should be adopted especially by targeting low income group.
- Training and other skill ventures instead of income and consumption smoothing support
- Redistribution of income from rich to poor, raise average productivity and economic growth in turn.
- Remove the imperfection in capital market or provide loans with an inclusive and inductive incentive structure.

Policy Recommendations³⁶

- Firms and workers should be encouraged by envisaging pro-labor and pro-firm strategies.
- restructure the rules of constitutional politics i.e. overhaul those laws and rules of institutions which are exclusive in nature.
- Good and viable government [4/5 majority role].
- The government responsibility is to subsidize investment in education and increase its expenditures on education

Thank you!