Convergence in Income, Poverty, and Inequality in Bangladesh

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Background

- **During the last two decades discourse on regional growth in Bangladesh entailed the so-called 'east-west divide'.**

- **Districts to the east of the Jamuna River are generally more affluent than those to the west based on poverty map using data from the HIES, 2005 and Population and Housing Census, 2001.**

- **When data from the HIES, 2010 and Population and Housing Census, 2011 were used to reproduce the map, the imaginary line of demarcation seems to have withered.**

- **It has apparently re-emerged in 2016 when the district level representative data from HIES, 2016 were used.**

Estimates of Income, Poverty, and Inequality

All Districts				
Year	2000	2005	2010	2016
Real PC Consumption (Tk.)/Month	1004.20	1109.02	1471.54	1508.64
HCR (%)	50.23	42.52	32.26	24.34
PG (%)	13.21	10.15	6.70	4.98
SPG (%)	4.81	3.38	2.04	1.54
Gini Coefficient (Consumption)	0.334	0.332	0.321	0.324
East Districts				
Real PC Consumption (Tk.)/Month	1154.44	1263.47	1613.22	1698.19
HCR (%)	46.02	35.66	28.68	23.07
PG (%)	12.27	7.59	5.64	4.89
SPG (%)	4.57	2.22	1.64	1.54
Gini Coefficient (Consumption)	0.289	0.297	0.286	0.307
West Districts				
Real PC Consumption (Tk.)/Month	901.40	1005.40	1374.60	1378.95
HCR (%)	53.13	47.22	34.70	30.45
PG (%)	13.85	11.90	7.42	6.35
SPG (%)	4.97	4.17	2.30	1.99
Gini Coefficient (Consumption)	0.349	0.337	0.335	0.320

Conceptual Framework of Convergence

- **Neoclassical growth theory predicts convergence in per capita income.**
- **And economic development implies that higher mean income tends to come with a lower incidence of absolute poverty.**
- **The corollary of these effects is convergence in poverty.**
- **Amidst the flurry of β-convergence on income, it was also realized that the logic applies to the inequality not just income, or poverty alone.**

Issues in Regional Convergence

- **Accelerated growth and poverty reduction along with muted change in inequality leaves the impression that poor across the regions have reaped benefits through 'spread effect' or 'spatial trickle-down process'.**

- **However, 'backwash effect' or 'polarization effect' may cancel out or even outweigh the 'trickle-down effect' or the 'spread effect' and hence the regional difference may persist or even aggravate over time.**

- **Thus, convergence (or lack of it) in affluence, indigence and inequality across regions is at best an empirical issue.**

Empirical Issues

- **Does per capita income converge across districts? If so, does east-west divide taper or propagate overtime?**
- **Does poverty and/or inequality retard growth?**
- **If there is convergence in income, has it been translated into convergence in poverty and/or inequality?**
- **Does reductions in poverty and inequality in districts are adversely affected by initial poverty- and inequality-adjusted growth rates.**
- **We looked into the regional welfare from three possible perspectives:**
  - **per capita income, measures of poverty, and inequality.**

Convergence in PC Income

Dependent Variable: Growth in log per capita income			
	All Districts	East Districts	West Districts
(a) Absolute Convergence			
$ln(y_{it-1})$	-0.0172***	-0.0168***	-0.0167***
	(0.001)	(0.003)	(0.002)
(b) Conditional Convergence			
$ln(y_{it-1})$	-0.0233***	-0.0241***	-0.0225***
	(0.002)	(0.003)	(0.003)

- The speed of conditional convergence in the west districts appears to lag behind that of the east districts.
- It seems polarization or backwash effect dominates the trickle down or spread effect.

σ-Convergence in Income

- **Given the preponderance of β-convergence a natural corollary is whether distribution of log per capita income across districts has become equitable.**

Districts	STD-2000	STD-2005	STD-2010	STD-2016	p-value 2005/2000	p-value 2010/2005	p-value 2016/2010
Bangladesh	0.5537	0.5469	0.5348	0.5427	0.8767	0.9907	0.0208

- **The country appears to have experienced σ -convergence during the first two quinquennia, but shows signs of σ -divergence during the third quinquennium.**

- **There is a preponderance of west districts in the list of σ-divergence across the three quinquennia.**

Convergence in Poverty Reduction Rates

Dependent Variable: Annualized growth poverty rate			
	All Districts	East Districts	West Districts
	(1)	(2)	(3)
(a) Poverty headcount rate			
$\ln(P_{it-1})$	-0.0308***	-0.0138***	-0.0337***
	(0.0041)	(0.0043)	(0.0050)
(b) Poverty gap rate			
$\ln(P_{it-1})$	-0.0278***	-0.0139***	-0.0288***
	(0.0036)	(0.0042)	(0.0052)
(c) Squared poverty gap rate			
$\ln(P_{it-1})$	-0.0265***	-0.0143***	-0.0270***
	(0.0036)	(0.0054)	(0.0051)

The 'west districts' appear to experience more convergence in poverty measures than those in the 'east districts' by about 1 percent whether it is poverty headcount rate, poverty gap, or squared poverty gap.

Poverty-adjusted Growth Elasticity in Poverty Reduction

- **It is found that the estimates of partial elasticity between poverty reduction rate and growth that vary between -2.23 to -3.60 across headcount rates, poverty gap, and squared poverty gap.**

- **The results also suggest that poverty is more responsive to growth in the west districts than the east districts.**

- **However, poverty tends to be less responsive to growth, or the elasticity declines in absolute value, the higher the initial poverty rate.**

Decomposition of Poverty Convergence

- **Decomposition analysis reveals that the speeds of convergence in poverty rates across districts are driven by growth in per capita income with little adverse influence of initial levels of poverty rates**

- **Does it mean that only growth but not inequality matter?**

- **Our estimates suggest that that higher inequality tends to entail a lower rate of poverty reduction at any given positive rate of growth.**

- **And, the distribution-corrected poverty elasticity is higher in the west districts compared to the east districts across different measures of poverty.**

- **Therefore, if inequality in the west districts could be reduced alone, the country would have experienced a marked dent in poverty reduction.**

Convergence in Inequality Reduction Rate

Dependent Variable: Annualized growth in inequality measure			
	All Districts	East Districts	West Districts
	(1)	(2)	(3)
(a) Inequality Measure: Gini Coefficient			
$ln(G_{it-1})$	-0.0256***	-0.0306***	-0.0242***
	(0.0023)	(0.0045)	(0.0026)
(b) Inequality Measure: Atkinson Index [A (1)]			
$ln(A_{it-1})$	-0.0256***	-0.0313***	-0.0241***
	(0.0023)	(0.0044)	(0.0026)
((c) Inequality Measure: Theil Index [GE (1)]			
$ln(T_{it-1})$	-0.0262***	-0.0325***	-0.0245***
	(0.0026)	(0.0041)	(0.0030)
(d) Inequality Measure: Generalized Entropy Index [GE (2)]			
$ln(GE_{it-1})$	-0.0276***	-0.0317***	-0.0263***
	(0.0027)	(0.0041)	(0.0034)

Speeds of convergence are faster in the east districts than that in the west districts across alternative measures of inequality.

Conclusions

- **Convergence in per capital income and poverty rates are similar when proxy for differences in steady-state characteristics are controlled.**
- **While growth spurts poverty reduction and initial poverty rates or initial inequality has little effect on growth, both poverty-adjusted elasticity of growth and inequality-corrected elasticity of growth adversely affect poverty reduction.**
- **Stronger growth effect dominates the adverse poverty elasticity effect to ensure strong poverty convergence found across the districts as well in the east and west districts.**
- **Despite slow reduction, inequality also experienced convergence across districts.**
- **There have been frequent changes in the trajectory and lead-lag roles of east and west districts due apparently to continual duel between backwash effect and spread effect.**

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