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Institutional quality and poverty reduction

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ABSTRACT
This article evaluates the impact of varying institutional quality outcomes on poverty reduction. We empirically demonstrate that an unheralded benefit to institutional improvement is an enhancement in the response of poverty to economic growth in certain instances, and a blunting of the harmful impact of income inequality on poverty reduction in others.

KEYWORDS
Institutions; poverty; economic growth; income inequality

JEL CLASSIFICATION
I32; I38; O11

I. Introduction

The relationship between institutions and macroeconomic outcomes remains highly topical in contemporary economic inquiry. In particular, a strand of the literature as notably advanced in Acemoglu et al. (2005) argues that improved institutions foster growth by constraining harmful and self-serving motives of influential economic entities. The counter-argument, as enunciated for instance in Glaeser et al. (2004), suggests that such proposition may suffer from challenges of reverse causality, given that economies on a sustained growth path face greater incentives to improve their institutional substructures. Typically absent from such debates however is the question of associated macroeconomic gains that may arise due to improved institutions such as a more equitable distribution of income and/or poverty reduction.

Accordingly, the approach herein queries the impact of improved institutions on the capacity of economic growth and rising income inequality to impact poverty reduction. This is carried out by evaluating the fractional contribution of improving institutions to the growth elasticity of poverty reduction (GEP), which is defined as the percentage response of poverty to a 1% increase in economic growth; as well as the distribution elasticity of poverty (DEP), which conversely evaluates the response of poverty to rising income inequality.

We consider the complex and multifaceted nature of institutions by conducting the analysis using six alternative measures as availed by the World Bank's data repository in order to capture varying manifestations of institutional movements. This approach alludes to the fact that some institutions work better for poverty reduction than others and a summary index which approximates all institutional movements in an economy may not sufficiently account for such a nuance. Moreover, while some institutional outcomes may have a more pronounced impact on poverty reduction through inducing economic growth, others may function by constraining unproductive income inequality.

The results presented here reinforce the above proposition. Our findings are summarized as follows: a) We observe an improved functionality of economic growth in enhancing short-term poverty reduction when emphasis is paid to the institutional indicators underpinning *Regulatory Quality* and *Control of Corruption*; b) We document a short-term blunting of the impact of rising income inequality on poverty when emphasis is paid to *Government Effectiveness, Rule of Law, Voice & Accountability*, and *Political Stability*; c) Vulnerable individuals within economies evaluated as having functional institutions observably demonstrate greater resilience to rising income inequality, regardless of how institutions are evaluated.

From the foregoing, we highlight an overall net welfare gain to improved institutions with regard to poverty reduction across all metrics used in evaluating institutions. Indeed, even the institutional measures which were not directly associable with an

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improvement in the functionality of growth, yet supported poverty reduction by mitigating the impact of rising income inequality thereon. Taken together, this implies that poverty reduction can be sustained even within low-growth economies if adequate attention is given to the right institutional measures in the construction of welfare policies.

The rest of the article is organized as follows. The next section presents the model while Section III describes the data utilized. Section IV presents and discusses the regression results and Section V concludes.

II. Empirical specification

The model proceeds with a theoretical proposition linking poverty with overall economic activity and income distribution in the form.[1] A given measure of poverty P is described as a function of the mean income, y, and the distribution of income which we measure using the Lorenz curve, $L(p)$. The growth and distribution elasticities of poverty reduction are thus

$$\frac{dP}{P} = F_1 \frac{dy}{y} + F_2 \frac{dL(p)}{L(p)}, \tag{1}$$

where the growth elasticity of poverty reduction is F_1 and the distribution elasticity is F_2. We utilize the international poverty threshold of \$1.90,[2] which is also known as the extreme poverty margin.[3] To carry out an empirical assessment of the above, we adopt the Arellano and Bond (1991) specification which implies an estimation of the form;

$$\ln P_{i,t} = \alpha_i + \delta \ln P_{i,t-1} + \beta \ln y_{i,t} + \gamma \ln G_{i,t} + \varepsilon_{i,t}. \tag{2}$$

F_1 is thus measured by β and F_2 by γ. Identification proceeds by evaluating Equation (2) during periods of improving and worsening institutional quality, and assessing the significance of a difference in the parameters using a Wald test. The implementation of this approach is done using first differences, alongside a gauge for the impact of institutional movements on the regression parameters β and γ. The difference-transformed and institution-augmented equivalent to Equation (2) is accordingly given by

$$\begin{aligned} d\ln P_{i,t} = {} & \delta d\ln P_{i,t-1} + d\ln y_{i,t}(\beta_0 + \beta_1 \Delta INS_{i,t} + \beta_2 INS_{i,t-1}) \\ & + d\ln G_{i,t}(\gamma_0 + \gamma_1 \Delta INS_{i,t} + \gamma_2 INS_{i,t-1}) + \varepsilon_{i,t}. \end{aligned} \tag{3}$$

Here, $d\ln P_{i,t}$ is the differenced percentage in the poverty index between two periods for country i, at time t while $d\ln y_{i,t}$ and $d\ln G_{i,t}$ are the corresponding percentage changes in income and its distribution, respectively. Since the equation is expressed in terms of first differences, the idiosyncratic components associated with time-invariant heterogeneity are expunged.

The coefficients β_1, β_2 and γ_1, γ_2 describe the institutional contribution to both the GEP and DEP, respectively. In constructing them, we theorize that institutional change has both a contemporaneous and a lagged effect on poverty in the current period. Accordingly, we describe two interaction variables; the first is an indicator that evaluates the impact of a one-period institutional improvement on the GEP and DEP, ΔINS_t, while the second term describes the effect of a one-period lag of institutional quality on poverty, INS_{t-1}.

By implication, the marginal impact of economic growth on poverty is given by $\beta_0 + \beta_1 + \beta_2 INS_{t-1}$ whenever there is a contemporaneous improvement in institutional quality, and $\beta_0 + \beta_2 INS_{t-1}$ whenever institutional quality falls or does not change between two periods.[4] A positive (negative) realization of β_1 and β_2 will thus presuppose that the GEP falls (strengthens) whenever a country's institutional quality improves, given that from Equation (2) and (4a), β is negative by definition. The foregoing also extends to our interpretation of the results for γ_0, γ_1, and γ_2 with regard to the DEP.

Finally, there is a need to account for possible endogeneity based on the feedback between institutions, poverty, and economic growth. Accordingly, we utilize three lags each of $\ln P_{i,t}$,

[1]The framework herein adopted is familiar within the literature. See for instance Bourguignon (2003), Kalwij and Verschoor (2007), and Aiyemo (2020).
[2]\$1.90 represents the average of the national poverty lines in the world's poorest 15 countries.
[3]The World Bank recently re-based the year upon which the \$1.90 value for poverty delineation was made from 2011 to 2019. The 2019 dollar-equivalent is \$2.15.
[4]This latter quantity can also be considered as the long-run GEP of an economy with regard to its institutional quality.

Table 1. Regression results.

Dependent Variable: Log of Poverty Headcount							
Institutional Index:		Control of Corruption	Government Effectiveness	Political Stability	Rule of Law	Regulatory Quality	Voice and Accountability
$lnP_{i,t-1}$	−0.169	−0.17	−0.177	−0.182	−0.17	−0.175	−0.161
	[−486.310]**	[−285.703]**	[−374.212]**	[−652.161]**	[−337.720]**	[−348.353]**	[−402.299]**
$lny_{i,t}$	−3.3	−5.381	−4.938	−3.232	−5.42	−4.556	−5.695
	[−531.052]**	[−107.510]**	[−67.268]**	[−244.164]**	[−59.816]**	[−47.005]**	[−47.166]**
$lnG_{i,t}$	3.872	6.908	6.795	3.616	6.444	5.496	6.931
	[596.309]**	[107.645]**	[69.685]**	[129.140]**	[45.861]**	[42.043]**	[36.570]**
$lny_{i,t} \times \Delta INS_t$		0.03	−0.01	−0.035	0.036	0.022	0.004
		[8.361]**	[−8.669]**	[−26.362]**	[15.489]**	[8.044]**	[1.842]
$lnG_{i,t} \times \Delta INS_t$		−0.068	0.002	0.052	−0.051	−0.065	−0.017
		[−12.641]**	[0.950]	[28.068]**	[−11.690]**	[−15.315]**	[−4.879]**
$lny_{i,t} \times INS_{t-1}$		1.451	1.236	0.056	1.454	0.884	1.664
		[45.887]**	[29.235]**	[5.074]**	[24.653]**	[16.362]**	[23.807]**
$lnG_{i,t} \times INS_{t-1}$		−2.268	−2.036	−0.212	−1.869	−1.364	−2.386
		[−61.667]**	[−37.533]**	[−18.054]**	[−20.097]**	[−18.183]**	[−22.711]**
Observations	626	538	536	534	539	535	538
Cross-Sections	91	100	100	100	100	100	100
Periods	30	14	14	14	14	14	14
AR1	0.05	0.01	0.01	0.02	0.02	0.01	0.01
AR2	0.13	0.26	0.31	0.26	0.3	0.28	0.3
J Prob	0.33	0.41	0.54	0.42	0.42	0.4	0.4
Instrument Rank	75	100	100	99	101	100	101

$\ln y_{i,t}$, $\ln G_{i,t}$,and $\ln INS_{i,t}$ as internal instruments within a 2-Step Difference-GMM framework.

III. Data

Data on poverty, mean income and income distribution (the Gini coefficient) comes from the 2020 World Bank survey round of the http://iresearch.worldbank.org/PovcalNet/home.aspxPovcalNet database, which is the primary repository for empirical poverty research. We constrain this assessment to individuals subsisting in extreme poverty. Our indicator for $P_{i,t}$ is the poverty headcount, which is the fraction of a country's populace subsisting on less than $1.90 daily.

Data on institutional quality come from the Kauffman and Kraay World Governance Index (WGI) database. This database evaluates institutions along six distinct categories i.e. *Control of Corruption, Government Effectiveness, Political Stability, Rule of Law, Regulatory Quality*, and *Voice and Accountability*. The index is constructed such that a country's institutional quality is evaluated on a scale between 2.5 and −2.5,[5] with higher values indicating better institutional quality.

Whereas the http://iresearch.worldbank.org/PovcalNet/home.aspxPovcalNet database has a commencement date of 1981, a consistent annual sequencing of the WGI database only started after 2000. This consequently constrains our scope in terms of observation periods. Pairwise, we obtain an initial tally of 870 country-year observations for poverty and corresponding institutional quality metrics. Moreover, given the highly unbalanced nature of the sample, which in particular owes to the non-uniform survey rounds of the PovCal database, first-differencing produces 539 country-year observations comprising 100 cross-sections, which implies an average of 5.4 data points per-country.

IV. Results

Table 1 presents the results for Equation (3) The first column evaluates the traditional GEP and DEP coefficients as presented in Equation (2). The growth interaction dummy variable is presented on the fourth row. Accordingly, with regard to the contemporaneous institutional quality improvements, the marginal impact of growth for poverty reduction is observably enhanced along the lines of *Government Effectiveness* and *Political Stability*. The converse result is however observed for the indicators of *Control of Corruption, Rule of Law, Regulatory Quality*, and *Voice & Accountability*.

[5]Countries experiencing prolonged conflict may be assigned a score lower than −2.5.

Table 2. Robustness check using the poverty gap.

Dependent Variable: Log of Poverty Gap							
Institutional Index:		Control of Corruption	Government Effectiveness	Political Stability	Rule of Law	Regulatory Quality	Voice and Accountability
$lnP_{i,t-1}$	−0.199	−0.079	−0.084	−0.011	−0.065	0.03	−0.062
	[−771.739]**	[−105.191]**	[−178.397]**	[−50.050]**	[−268.098]**	[27.359]**	[−117.709]**
$lny_{i,t}$	−3.27	−5.319	−9.885	−4.265	−7.56	−5.678	−7.566
	[−811.369]**	[−84.587]**	[−255.235]**	[−90.874]**	[−389.089]**	[−107.736]**	[−112.003]**
$lnG_{i,t}$	4.629	8.864	14.522	7.328	12.249	8.251	11.827
	[661.694]**	[113.151]**	[296.320]**	[76.583]**	[411.792]**	[214.350]**	[110.946]**
$lny_{i,t} \times \Delta INS_t$		−0.1	0.09	0.119	0.03	−0.118	0.152
		[−42.335]**	[20.166]**	[27.035]**	[15.232]**	[−87.488]**	[62.116]**
$lnG_{i,t} \times \Delta INS_t$		0.145	−0.088	−0.169	−0.026	0.175	−0.185
		[43.440]**	[−13.233]**	[−23.396]**	[−8.944]**	[75.458]**	[−53.709]**
$lny_{i,t} \times INS_{t-1}$		1.754	4.515	1.176	3.275	2.089	3.035
		[42.908]**	[174.550]**	[48.612]**	[281.114]**	[86.923]**	[67.011]**
$lnG_{i,t} \times INS_{t-1}$		−2.357	−6.254	−1.862	−4.544	−2.644	−3.932
		[−41.877]**	[−140.877]**	[−46.955]**	[−307.857]**	[−81.399]**	[−57.974]**
Observations	525	403	401	400	404	400	403
Cross-Sections	70	76	76	76	76	76	76
Periods	30	14	14	14	14	14	14
AR1	0.05	0.01	0.01	0.01	0.01	0.01	0.01
AR2	0.74	0.8	0.46	0.65	0.93	0.7	0.58
J Prob	0.44	0.37	0.59	0.51	0.34	0.55	0.45
Instrument Rank	70	77	78	76	78	76	77

The GMM regressions use robust standard errors and treat the lagged poverty headcount measure as predetermined. Three lags of the concurrent variables are used as internal instruments. In all regressions, the Windmeijer finite sample correction for standard errors is employed. t-statistics are presented in parenthesis. * and ** denote significance at the 5% and 1%-level, respectively. The Hansen J-test reports p-values for the null hypothesis that the full instrument set is valid. The values reported for AR(1) and AR(2) are the p-values for first and second order autocorrelated disturbances. In all regressions, the forward orthogonal transformation is used to limit information loss due to first differencing.

On the fifth row, the indicators for *Control of Corruption, Rule of Law, Regulatory Quality*, and *Voice & Accountability* observably blunt the DEP for contemporaneous improvements in institutional quality. To interpret, whereas rising income inequality is generally associated with rising poverty levels, this rise is observably tempered for economies that experienced concurrent institutional improvements along the afore-listed lines. We thus infer that improved institutional quality constrains the deleterious impact of rising income inequality on poverty reduction. Given the contrasting signs, we note that with the exception of the institutional GEP response to *Political Stability*, the magnitude of contemporaneous coefficient gain in poverty reduction from institutional quality improvement across all institutional measures exceeds the corresponding loss, i.e. $|\beta_1/\gamma_1| > 1$ for $\beta_1 < 0$, and $|\beta_1/\gamma_1| < 1$ for $\gamma_1 < 0$, hence a net welfare gain from improved institutions.

On the sixth and seventh rows, we appraise the results for the one-period lag in institutional quality on poverty reduction. The results reinforce the net gains to institutional improvements in terms of magnitudes earlier highlighted above. A notable difference from the preceding results, however, is the fact that in the case of INS_{t-1}, the gains which arise from better institutional quality on poverty reduction accrue exclusively through the DEP. Hence, a reiteration of the proposition that institutions constrain the negative impact of rising income inequality on poverty.

The GMM diagnostics are presented below the regression results, and they indicate that in each case, the overidentifying restrictions are acceptable. Notably, de Haan et al. (2022) observes that financial development does not matter for extreme poverty reduction when the indicator of choice is the poverty gap. Accordingly, we also conduct a sensitivity analysis on the above results using the poverty gap as dependent variable. The results are presented on

Table 2, and they demonstrate that the results are largely robust to the specification of poverty adopted.

V. Conclusion

The simple framework utilized here highlights the key argument that regardless of the underlying causality between institutions and economic growth, there is a net positive societal benefit to improving institutions in the form of an enhancement in the responsiveness of poverty to positive macroeconomic movements. We think of this as providing an added policy tool in the global effort to ensure poverty eradication by 2030 as enunciated in the World Bank's Sustainable Development Goals. The next challenge becomes identifying what these institutional quality measures translate to in terms of specific, measurable, and actionable metrics.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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