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Inequality and Economic Growth: New Evidence using Upper Bounds Estimates of Inequality of Opportunity

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The relationship between income inequality and economic growth has been hard to disentangle, with results showing positive, negative, as well as no effects (Persson and Tabellini, 1994; Forbes, 2000; Voitchovsky, 2009). In this paper, I focus on one possible explanation for these results: the idea that different components of inequality have different effects on economic growth. Structural causes of inequality -those factors linked to circumstances that are beyond the control of an individual- may cause a hindrance of economic growth by concentrating opportunities and excluding people from accessing good positions in the labour market. On the other hand, inequalities due to differences in effort may promote economic growth.

Inequality of opportunity (IOp) quantifies the extent to which inequalities can be explained by differences in circumstances (Roemer, 1998; Roemer and Trannoy, 2015). Circumstances are factors beyond individual control that affect our outcomes in life. Common examples of circumstances include parent's education, occupation, or income, place of birth, gender, and ethnicity. If IOp is high, then current economic inequality is driven by differences in circumstances rather than by differences in effort, and thus the negative effect of inequality outweighs the potential positive effect. The idea that IOp explains the negative effect of inequality on growth has been explored for the US (Marrero and Rodriguez, 2013; Marrero et al., 2016), Europe (Ramos and Van de Gaer, 2017), as well as for larger regions (Ferreira et al., 2017), with mixed results.

One explanation for these mixed results lies in the way IOp is estimated. All previous papers have used lower bound estimates of IOp to study the relationship between IOp and growth. Lower bound estimates of IOp provide an incomplete picture of the extent of unequal opportunities, as we don't know how far they are from the 'true' level of IOp (Ferreira and Peragine, 2016). Also, lower bound estimates might have a detrimental effect when shaping public policies (Kanbur and Wagstaff, 2016) or informing beliefs on inequality (Mijs, 2019) if they are wrongly interpreted as the real level of IOp. By using lower bound estimates of IOp to study the effect of IOp on growth, we can only know the effect of observable circumstances, not the overall effect, and in most cases the number of observable circumstances is low. The problem due to lower bound estimates grows in a cross-country setting, as different surveys include

different sets of circumstances or outcome variables, harming the comparability of IOp estimates. To address this problem, and to contribute to the study of inequality and growth, I use upper bound estimates of IOp which are obtained from a single cross-country data set.

Upper bound estimates of IOp aim to capture all time invariant factors and treats them as circumstances (Niehues and Peichl, 2014). Under the assumption that there are no circumstances that vary over time, these estimates capture all circumstances, as well as other factors that may stem from individual choices but result in more permanent traits, such as being a ‘hard-working’ or ‘driven’ person, thus providing upper bounds of IOp. Methodologically, the circumstance set is defined by the predicted fixed effect of an income regression, which is then used in a parametric ex-ante regression of IOp. This approach results in an estimate of IOp that does not suffer from the omitted circumstance problem. In a previous paper, I discuss the estimation and analysis of the upper bounds of IOp in the context for a rotating panel structure for a set of European countries (Carranza, 2019).

By using upper bound estimates of IOp, we can account for all circumstances that shape IOp. More importantly, as this process is estimated separately for each country, these circumstances and their relative importance may not be the same across countries. Although it is not possible to know which circumstances are being included, we know that no circumstance that matters is being excluded of the analysis. By using the upper bound approach to estimate IOp, I obtain a set of comparable estimates –both over time and across countries- that allow me to properly estimate the effect of IOp on growth.

Growth regressions are estimated using System-GMM estimations, which use the lags of the dependent variable (in levels and in differences) in order to instrument the effect of IOp on growth. This process is prone to create many instruments, leading to over-fitting problems (Roodman, 2009a,b). I explore different instrument reduction techniques, particularly the use of Principal Component Analysis (Bontempi and Mammi, 2015). The paper includes regressions with different number of instruments, as well as Pooled OLS and Fixed Effect regressions.

I show that upper bound estimates of IOp have a negative effect on GNI growth. A one standard deviation decrease in IOp (equivalent to going from the middle of the IOp ranking to the bottom) increases the average 5-year GNI growth in between 0.48 to 1.15 percentage points. Recent papers that use lower bound estimates of IOp have found effects close to the lower end of this range (Marrero and Rodriguez, 2019). My estimations show that the importance of IOp in hindering economic growth could be larger than what has been suggested before.

My results support the idea that inequality hinders growth by restraining opportunities for a part of the population. Concretely, the negative relationship between inequality and growth is driven by inequality of opportunity, while the residual component of inequality (i.e. inequality of ‘efforts’) plays no role in these regressions. In order to understand the channels behind this result, I show that IOp is positively correlated with unemployment, as well as with the gender

unemployment gap, suggesting that IOp is related to existing gender differences in the labour market. I also find a negatively correlation with the GNI level, which given the focus on middle to high income countries could be capturing the 'second half' of the Kuznets curve. Overall, IOp seems to be related to poor economic conditions, such as high unemployment or a low-income level.