Inequality of income acquisition: The role of childhood circumstances

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Motivation

- Inequality of Opportunity approach is valuable, as it is based upon sound philosophical principles
- Surprisingly, the fraction of inequality attributable to circumstances is usually quite small – in the advanced democracies, on the order of 20 Percent
- Some argue that IOp research might actually be harmful
- We argue one reason for this is the lack of data on circumstance variables in empirical research
- Focus on childhood circumstances: All behaviors and accomplishments of children should be considered the consequence of circumstances

How to measure IOP

- ▶ Consider individual income y as outcome variable
- ▶ Inequality in Outcomes (IO): Mean Log Deviation (MLD) of income distribution $F(y)$: $MLD(F)$
- ▶ Partition the population into types, each type corresponding to the set of individuals with given circumstances
- ▶ MLD of total inequality IO is decomposable into MLD in circunmstances and effort:

$$MLD(F) = MLD(\phi) + \sum_{t=1}^{T} f_t MLD(F_t) \qquad (1)$$

- ▶ The ratio r gives a measure of the extent to which income inequality is due to circumstances:

$$r = \frac{MLD(\phi)}{MLD(F)} \qquad (2)$$

How to measure IOp

- We follow Ferreira and Gignoux (2011) and Niehues and Peichl (2014) who use a parametric specification to estimate lower bounds of IOp:

$$ln y_i = \alpha C_i + u_i \tag{3}$$

- Construct parametric estimate of smoothed distribution by replacing earnings outcomes by their predictions:

$$\hat{y} = exp(\hat{\alpha} C_i) \tag{4}$$

- Rewrite r as:

$$r = \frac{MLD(\hat{y}_i)}{MLD(y)} \tag{5}$$

- Why is r so low in most empirical research?

Data - NLSY79

- ▶ The NLSY79 is a longitudinal micro-study sponsored by the US Department of Labor
- ▶ The first wave of which was collected from a nationally representative sample in 1979
- ▶ The sample consisted of 12,686 respondents covering the cohorts 1957-1964
- ▶ Since 1986 the NLSY79 is complemented by the Child and Young Adults supplement
- ▶ It makes available a wealth of information on respondents' educational, income and employment biographies, family processes, health-related behaviors as well as psychological dispositions and cognitive abilities

Data - BCS70

- The BCS70 is a longitudinal survey funded by the Economic and Social Research Council
- It follows the lives of more than 17,000 individuals born in England, Scotland and Wales in a single week in 1970
- Since the first survey wave in 1970, there have been eight follow-up interviews of all cohort members at ages 5, 10, 16, 26, 30, 34, 38 and 42
- Accompanied by interviews of the parents and head-teachers, standardized test scores, health records, nutrition and activity diaries as well as labor market histories
- Questionnaires are filled by both parents, revealing broader information on parental background
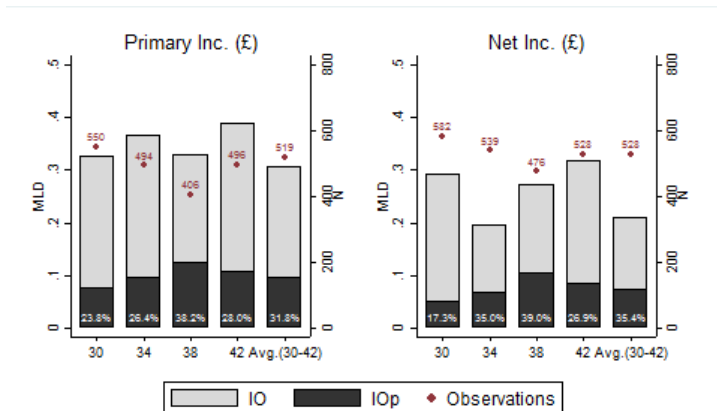- Similar and identical questions on family and social situation are addressed to parents and children

Childhood circumstances

Circumstance Sets - Scenarios

Scenario						Circumstance Set	Circumstance Var.
Sixth	Fifth	Fourth	Third	Second	First	Base	Sex, Country of Birth, Ethnic Affiliation, Cohort, Age, Academic Achievement Mother, Occupation Code Mother, Rural/Urban, Height (16), Family Income
						Ability	PIAT Math, PIAT Reading
						Behavioral Problems	Behavioral Problems Index (BPI)
						Child-Parent Relationship	Play/Schoolwork w/ Parents, Perceived Quantity of Time w/ Parents, Parents Split, Parental Income
						Health-Related Behavior	Smoking Habits Mother, Drinking Habits Mother, Health Restrictions Child
						Survey Specifics	Specific to NLSY79 and BCS70. See text for more information.

Results I - BCS70

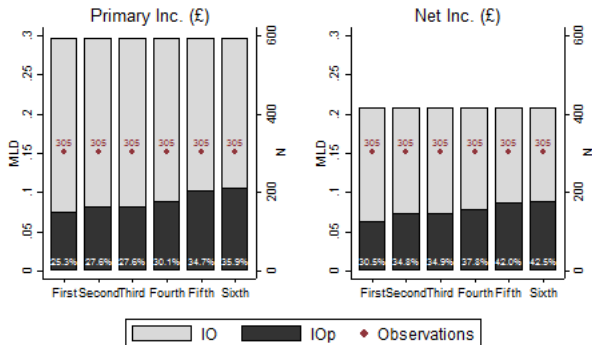IOp for Scenario V, unbalanced

Note: The overall bar yields the extent of outcome inequality IO. The black colored share of each bar yields inequality attributed to circumstances, i.e. the lower bound absolute measure of inequality of opportunity IOp. The residual gray colored share of each bar can be interpreted as an upper bound measure of inequality attributed to differential efforts. The white labels at the bottom of each bar indicate the share of IOp in IO, i.e. the relative measure of inequality of opportunity r.
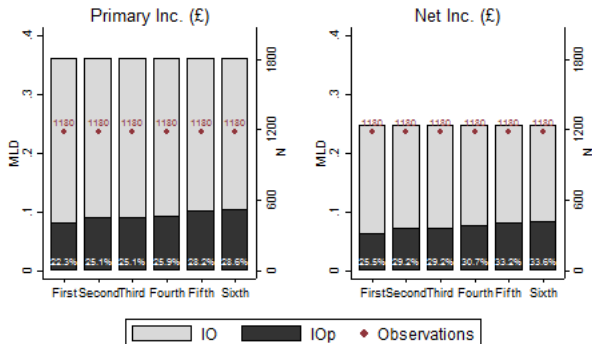
Results II - BCS70

IOp for Scenarios I - VI, balanced average income

Note: The overall bar yields the extent of outcome inequality IO. The black colored share of each bar yields inequality attributed to circumstances, i.e. the lower bound absolute measure of inequality of opportunity IOp. The residual gray colored share of each bar can be interpreted as an upper bound measure of inequality attributed to differential efforts. The white labels at the bottom of each bar indicate the share of IOp in IO, i.e. the relative measure of inequality of opportunity r.

Results III - BCS70

IOp for Scenarios I - VI, balanced pooled

Note: The overall bar yields the extent of outcome inequality IO. The black colored share of each bar yields inequality attributed to circumstances, i.e. the lower bound absolute measure of inequality of opportunity IOp. The residual gray colored share of each bar can be interpreted as an upper bound measure of inequality attributed to differential efforts. The white labels at the bottom of each bar indicate the share of IOp in IO, i.e. the relative measure of inequality of opportunity r.
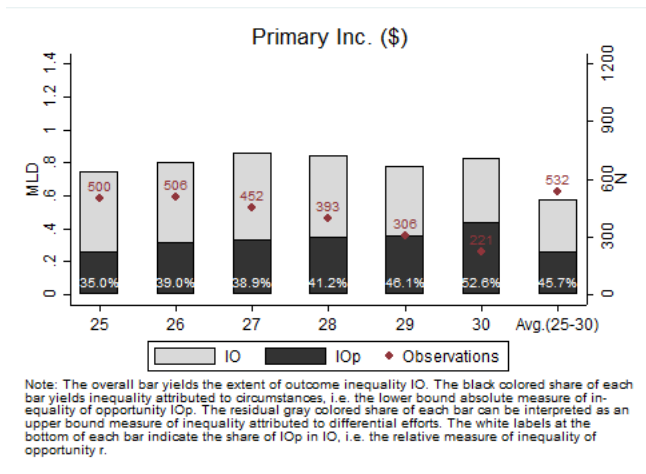
Results IV - NLSY79

IOp for Scenarios I - V, balanced average income

Note: The overall bar yields the extent of outcome inequality IO. The black colored share of each bar yields inequality attributed to circumstances, i.e. the lower bound absolute measure of inequality of opportunity IOp. The residual gray colored share of each bar can be interpreted as an upper bound measure of inequality attributed to differential efforts. The white labels at the bottom of each bar indicate the share of IOp in IO, i.e. the relative measure of inequality of opportunity r.

Results V - NLSY79

IOp for Scenario V

Note: The overall bar yields the extent of outcome inequality IO. The black colored share of each bar yields inequality attributed to circumstances, i.e. the lower bound absolute measure of inequality of opportunity IOp. The residual gray colored share of each bar can be interpreted as an upper bound measure of inequality attributed to differential efforts. The white labels at the bottom of each bar indicate the share of IOp in IO, i.e. the relative measure of inequality of opportunity r.
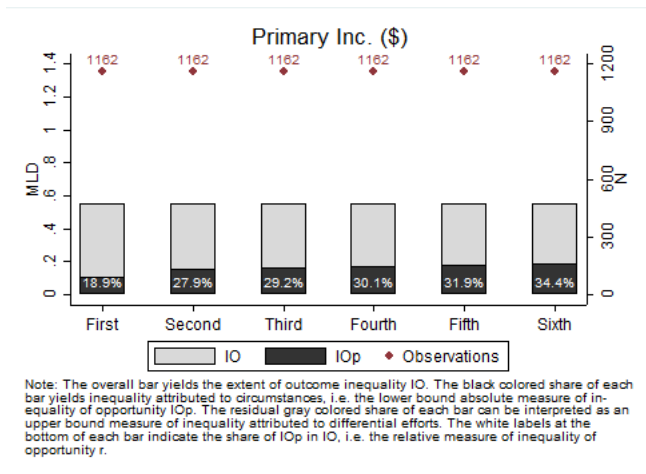
Conclusion

- ▶ Important circumstances that play a role in income determination have been ignored in the empirical literature on IOp so far
- ▶ Behaviors and accomplishments of children should be considered the consequence of circumstances
- ▶ The fraction of income inequality explained by circumstances to be 45.7 Percent using the NLSY79 and up to 31.8 Percent in the BCS70
- ▶ Our results address some of the concerns on the policy relevance of the concept by providing substantial upward corrections
- ▶ Data limitations are an important issue for further research
- ▶ The choice of age of consent can be discussed

Thanks for your attention

Comments: ungerer@zew.de

Literature

We follow

- ▶ Niehues, J. and Peichl, A. (2014): Upper bounds of inequality of opportunity: theory and evidence for germany and the US
- ▶ Ferreira, F.H.G, and Gignoux, J. (2011). The measurement of inequality of opportunity: theory and an application to Latin America

Recent surveys

- ▶ Roemer, J.E., and Trannoy, A. (2015): Equality of opportunity: Theory and measurement
- ▶ Ramos, X., and Van de gaer, D. (2016): Empirical Approaches to Inequality of Opportunity: Principles, Measures, and Evidence

Critique

- ▶ Kanbur, R., and Wagstaff, A. (2014): How useful is inequality of opportunity as a policy construct?