

In Praise of Snapshots

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Introduction

- Surely,
 - Dynamics is better than Statics?
 - Process is better than Outcomes?
 - Movie is better than Snapshot?
- Positive Analysis: the movie encompasses any one snapshot, and has so much more.
- Normative Assessment: “I am going to take the position that if economic success is largely unpredictable on the basis of observed aspects of family background, than we can reasonably claim that society provides equal opportunity. There still might be significant inequality in income across individuals, due to differences in ability, hard work, luck, and so on, but I will call these unequal outcomes.” (Stokey, 1998)

Introduction

- Despite this pedigree of intuitions, recent years have brought forth a questioning.
- Positive: The “movie is made up of a sequence of snapshots” metaphor is appealing but perhaps itself mechanical and misleading. What if each snapshot has within it the seeds of the next snapshot? Then the snapshots are the harbinger of the movie rather than merely its constituent parts.
- Of course—this is related to the Great Gatsby Curve literature.

Introduction

- Normative: One may ask *why* unpredictability of economic success based on current outcomes has normative power. When pushed, many would come to the notion that persistence of economic status over time perpetuates dynastic inequality, by which is meant some discounted aggregate of income over time for each set of individuals connected by birth.
- Although of course not exactly that, this is akin to comparing snapshots, now of aggregated intertemporal wellbeing across societies with different mobility patterns.

Introduction

- Where all this comes together is in the choice between two key policy instruments—direct income redistribution of parental incomes versus equal public provision of education to children (“equal outcome” versus “equal start”; or “equality” versus “equality of opportunity”, etc).
- The movie perspective tends to move us away from income redistribution towards education provision. The latter is certainly less controversial in the policy discourse.

Introduction

- This paper highlights and develops these three directions of reweighting in the direction of the snapshot—positive analysis, normative assessment and policy instruments.

From Mobility to Distribution and Back

- Cosndier Gibrat type processes.
- $y_t = \beta y_{t-1} + \varepsilon_t$; ε_t is $N(0, \sigma^2_\varepsilon)$
- $\sigma^2_y = \sigma^2_\varepsilon / (1 - \beta^2)$
- Great Gatsby Curve (GGC) Correlation between σ^2_y and β ,
- **But** causality from β to σ^2_y .

From Mobility to Distribution and Back

- Becker-Tomes (1979) approach to giving micro foundations to relationship between parental income and children's income, further developed by Solon (2004).
- But so long as β is independent of y the snapshot distribution of income will of course not causally affect β .
- One way of getting dependence is through varying credit constraints across the income distribution.
- Becker-Tomes argue that if the poor face credit constraints and the rich do not, β will be higher for low incomes, so the relationship between children's income and parents' income will be concave.

From Mobility to Distribution and Back

- However, Bratsberg et al (2007) argue as follows:
- “Suppose that all families are borrowing-constrained.....Suppose now that educational policies and institutions are designed in such a way that, for lower levels of human capital formation, access to education services is characterised by equal opportunity. In this meritocratic case, the.... flatter gradient applies to the lower rather than to the higher earning parents. In this scenario, the relationship between child and parent earnings is convex rather than concave.”

From Mobility to Distribution and Back

- So the shape of the relationship is an empirical matter—as of now the evidence across countries appears mixed.
- Chen, Ostrovsky and Piraino (2016) conclude:
- “The pattern of nonlinearity observed in the Canadian data seems to be more in line with the Nordic evidence: a modest intergenerational relationship in the lower segments of the fathers’ distribution and an increasingly positive correlation in middle and upper segments (Bratsberg et al. 2007). The United States, by contrast, exhibit an almost perfectly linear relationship between children’s and parents’ ranks in the income distribution (Chetty et al. 2014).”

From Mobility to Distribution and Back

- [Footnote: Strictly speaking, the comparative static link between parental income distribution and the average level of β —the GGC relationship—depends on the concavity or convexity of β as a function of parental income. It is this that the empirical analysis should also be trying to ascertain].

From Mobility to Distribution and Back

- But a key point is that in general the observed relationship is itself the result of policy—it does not tell us the “natural” relationship without policy. This point is also recognized in the literature. As Bratsberg et. al. (2007) argue, policies might overcome credit constraints in some countries but not in others.
- Policy variation in turn raises the question of why the intervention is deemed desirable in the first place—why precisely is it that a low IGE is normatively desirable? I now turn to this question.

Assessing Snapshots and Movies

- Consider again the relationship:
- $\sigma_y^2 = \sigma_\varepsilon^2 / (1 - \beta^2)$
- An important strand of the normative and policy discourse is not concerned with σ_y^2 at all. Rather, the normative focus is on reducing β (increasing mobility) even if, for example, the tradeoff was that σ_ε^2 would increase by so much that the combined effect would be for σ_y^2 to increase.

Assessing Snapshots and Movies

- Stokey (1998) exemplifies this strand, but it is ever present in the policy discourse, usually under the moniker that equality of opportunity is preferable to equality of outcomes. As summarized in a recent survey:
- “From this perspective greater mobility is socially desirable because equality of opportunity is a principle that is widely supported. This is relevant because independence of origins and destinations is consistent with inequality of outcomes being relatively equal or unequal.” (Jantti and Jenkins, 2015, p. 815).

Assessing Snapshots and Movies

- A similar perspective can be provided with transition matrices. Consider three 2x2 transition matrices:

- $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ $C = \begin{bmatrix} 1/2 & 1/2 \\ 1/2 & 1/2 \end{bmatrix}$

- Somewhat loosely speaking, the snapshot $(1/2, 1/2)$ is a steady state for all three. But the dynamics, the process, the movie is of course very different for all three. How should we anchor our normative assessment of these three movies?

Assessing Snapshots and Movies

- We could look directly at these processes and espouse intuitions about them. Process A predicts perfectly the economic status of the next generation given the status of the present generation. Process C, on the other hand makes outcomes identical and therefore independent of initial status. Appealing directly to intuitions, as Stokey (1998) does, might suggest that C is better, indeed the best.
- Inequality of Opportunity considerations, a la Roemer (1998) might also suggest the superiority of C, if we designate parents' status as circumstance of children's outcomes.
- But there is another sense in which mobility affects inequality, and it is to do with evaluations of time profiles of outcomes across generations.

Assessing Snapshots and Movies

- Shorrocks (1978b, pp 377-378) provides a clue when he argues as follows about the role of the accounting period:
- “There are reasonable grounds.....for supposing that the existence of mobility causes inequality to decline as the accounting interval grows.....If the income structure exhibits little mobility, relative incomes will be left more or less unaltered over time and there will be no pronounced egalitarian trend as the measurement period increases. In contrast, inequality may be expected to decrease significantly in a very (income) mobile society.”

Assessing Snapshots and Movies

- Such intertemporal aggregation was also introduced by Atkinson and Bourguignon (1982), indirectly and by implication, through their social welfare based approach to ranking multidimensional distributions of economic outcomes. The dimensions could of course be interpreted as different time periods, bringing us to social welfare rankings of time profiles of outcomes across the generations.
- This leads to the literature where a specific intertemporal social welfare function is specified and the question is asked which transition matrices will give higher social welfare. One of the best known papers in this tradition is that by Dardanoni (1993, p. 390):

Assessing Snapshots and Movies

- “In this paper we have considered the ranking of mobility matrices by deriving the lifetime prospects under different transition mechanisms and aggregating them with a [Social Welfare Function] which gives greater weight to individuals starting at a lower position....This approach may be considered as the intertemporal counterpart to the static inequality ranking of income distributions by the Lorenz curve....The equivalence of our ranking with the “permanent income” Lorenz ranking.....gives support to the claim that this approach is the natural extension of [conventional static inequality measurement] approaches.”

Assessing Snapshots and Movies

- As Jantti and Jenkins (2015, p. 813) state in their survey paper:
“Mobility can therefore be characterized in terms of the extent to which inequality in longer term income is less than the inequality in marginal distributions of period-specific incomes.”
- We are thus back to evaluating snapshots, granted of a particular type, to get a normative handle on the movie.

Assessing Snapshots and Movies

- The way to avoid being led into snapshot comparisons of one type or another is to studiously focus only on the dynamic properties of the income generation process, in particular on the degree of independence of future outcome from the current state.
- Put another way, the degree of independence of children's outcomes from parents' status is the only thing that matters—all else is extraneous.
- But then what does this mean for policy? Does it mean that redistribution of parental income should not be attempted at all?

Equalize Income or Education?

- An often heard refrain in the policy discourse is that policy should focus not on equality of outcomes but on equality of opportunity. Its manifestation in the current context would be to focus on improving mobility, by which is meant making children's economic prospects independent of parental economic status.
- In terms of concrete policy instruments, a distinction tends to be drawn between progressive taxation and transfers of income which reduce snapshot income inequality, and policies which provide an equal educational start for all.
- Redistribution of income is held to have detrimental incentive effects, but the primary reason for its disavowal is that it is targeting the wrong objective—the snapshot rather than the movie. Equalizing education provision, on the other hand, targets equal opportunity and so is to be preferred.

Equalize Income or Education?

- This narrative, common as it is and well-embedded as it is, needs to be looked at carefully and deconstructed, not least because it marks a slippery slope towards reducing progressive income tax and transfer policy.
- At the very least, we will have to think about how the resources for public provision of education are raised—will that be through progressive taxation?
- As important is the role of parental resources and inputs in determining the educational achievements of children. If parental resources are important, might not their inequality also contribute to inequality of educational outcomes and thus equality of opportunity?
- And what about the Great Gatsby Curve? If there is indeed a causal relationship from income inequality to mobility, should income inequality not be targeted instrumentally, at least?

Equalize Income or Education?

- In a paper prepared for the UNU-WIDER research programme on 'The Economics and Politics of Taxation and Social Protection', Haaparanta et. al. (2019) use optimal taxation analysis in the tradition of Mirrlees (1971) to assess the balance between progressive income taxation and public education provision, even when the objective is equality of opportunity, as measured by inequality of educational achievements.

Equalize Income or Education?

- Their Proposition 1 (p. 9) is instructive:
- “A government that only cares about inequality in educational outcomes should also use progressive income taxation, in addition to possibly subsidizing education. The tax system is more progressive when the increase in educational attainment is highly sensitive to increases in income, especially among those at the bottom of the educational distribution.”

Equalize Income or Education?

- The result is derived in a model in which educational outcomes depend on both public and parental inputs, and parents invest in the education of their children taking into account public provision and the tax regime.
- The intuition behind the proposition should be clear. Education is a normal good and richer parents invest more in education for their children for any given level of public provision. Raising public provision will equalize education *ceteris paribus*, but so will income redistribution.
- And in any case raising public provision will need resources which are in turn raised through taxation—doing this through progressive taxation will further enhance educational equality.

Equalize Income or Education?

- I also argue in the paper that Solon's (2004) analysis, though it is formally couched in terms of investment in human capital, comes close to a progressive transfer of resources to poorer households.
- Haaparanta et. al 's propositions tell us that income taxation should be progressive even if the objective is equality of educational outcomes. Thus the policy usually characterized as (and perhaps derided by some) as targeted to equality of outcomes, turns out to be instrumental in targeting equality of opportunity.

Conclusion

- The elevation of movie over snapshot is too readily made.
- Often when we think we are focusing on evaluating the movie we are in fact using methods from snapshot analysis.
- Theoretical and empirical arguments underpinning the Great Gatsby Curve suggest that the snapshot contains within it the seeds of the movie.
- And direct redistribution of income turns out to be an integral part achieving objectives like equality of educational outcomes which are proxies for greater mobility and for equality of opportunity.

Conclusion

- Perhaps I protest too much. Perhaps all this is well known and well understood and there is no danger of a focus on mobility leading to a shift away from redistributive taxes and transfers to reduce inequality directly. But I think a corrective is in order. I write in praise of snapshots.

Thank You!