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Aspirations and the Political Economy of Inequality*

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Abstract

In standard approaches to the political economy of inequality, the income distribution and the preferences of households are taken as fixed when studying how incomes are determined within and between nations. This paper makes the income distribution endogenous by supposing that aspirational parents can socialize children into having aspirational preferences which are modeled as a reference point in income space. The model looks at the endogenous determination of the level of income, income inequality and income redistribution where the proportion of aspirational individuals evolves endogenously according to payoffs along the equilibrium path. The paper discusses implications of the model for intergenerational mobility. It also shows how the income generation process is critical for the dynamics and welfare conclusions. Finally, it looks at some evidence from the World Values Survey in light of the theory.

JEL Codes: A130, D110, D630, I310,

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1 Introduction

Despite enormous increases in incomes over human history, there are groups of individuals and societies that have been left behind. Understanding this and what can be done about it remains a challenge and an important agenda at the heart of economics.

The traditional take on disadvantage among economists emphasizes the absence of physical and human capital. Economic development over the past two centuries was underpinned by large increases in capital inputs which form the cornerstone of modern theories of economic growth and development. Moreover, access to key assets is essential in explaining within-country variation in incomes with the poor lacking skills and access to the land, plant and machinery needed to make them more productive.

Such explanations of inequality within and between nations give little role for differences in preferences as a source of economic success. Indeed much of economics has been suspicious of seeking such an approach. The concern is that once this is allowed, then there are simply too many degrees of freedom that can be used to explain outcomes at either the individual or societal level. However, this contrasts with sociological accounts of development and change such as Durkheim (1893) and Polanyi (1944) which have emphasized the importance of changing attitudes along the development path. Whether these are reflections or causes of development and income distribution is much more difficult to judge and the approach taken here hints at how to think about this in the context of an autonomously evolving social system where preferences, policies and incomes co-evolve rather than being causally related.¹

This paper will focus on a specific aspect of preference dynamics and reflects an increasing appreciation among economists of the role of aspirations in influencing economic success.² The paper explores the implications of aspirations for the evolution of an economy with a particular focus on determinants of income distribution within and between economies.

The approach that the paper proposes has two core elements. First, it makes preferences endogenous and gives them a role in the transmission mechanism of economic advantage. This recognizes that family background

¹As is discussed in greater detail below, economists are also now more accepting of the importance of studying the role of socialization as a force in the way that economies evolve (see, for example, Bisin and Verdier, 2011).

²See, for example, Appadurai (2003) and Ray (1998, 2006).

shapes life chances not only by affecting endowments of financial wealth and human capital, but also via factors which determine effort levels which here are affected by *aspirations*. Second, the approach looks at the determination of the distribution of income in terms of endogenous earnings abilities alongside final incomes with endogenous redistribution of income. The paper uses a simple political economy model to allow a feedback from preferences to redistribution. It is the feedback from redistribution to the dynamics of preferences which determines the direction that a society takes.

The paper provides a framework for reflecting on sources of societal and individual advantage. It demonstrates the possibility of an aspirational poverty trap in which countries are locked into a low aspirations “culture” which inhibits development. This is due to the interplay between preferences and politics which creates a feedback loop which in turn affects a society’s equilibrium trajectory.

The second is the impact that aspirations have on income distribution within a society. Accident of birth is one of the principal sources of inequality. But debates rage about what are the parts of such endowments at birth that are rigid and which are amenable to policy intervention. Views about this often go to the heart of discussions about the role of redistributive policies and the legitimacy of distributive outcomes. Moreover, underpinning the process that turns new born infants into fully fledged citizens and workers is a complex process involving social interactions and economic influences. It is now appreciated that understanding this raises issues that inevitably combines insights from different social sciences.

The remainder of the paper is organized as follows. In the next section, there is a discussion of a range of relevant literatures which are brought together here. In section 3, the core theoretical building blocks are developed. Their implications for income distribution between and within societies are discussed in section 4. Section 5 considers a somewhat different underlying economic model which casts further light on the issues. Section 6 looks at evidence in the World Values Survey while section 8 concludes.

2 Background

This paper relates to four lines of enquiry in economics, and the social sciences more broadly, which have developed largely independently of one another. The review here is selective but will give the reader a sense of the range of

ideas that the paper touches upon. This underlines the hope that this paper will help to “cross-fertilize” ideas in hitherto separate areas of knowledge.

The Political Economy of Redistribution There are three aspects of political issues which impinge on the themes of this paper. First, there is the literature on determinants of income redistribution. Second, there are debates around the nature of redistributive preferences and third, there are questions about the role in society that inequality plays in motivating individuals. These issues are now discussed briefly.

There is a large formal literature on the political economy of redistribution beginning with the work of Roberts (1977), Romer (1975) and Meltzler and Richards (1981). In the canonical approach, the median voter chooses a level of an income tax where the proceeds are redistributed to citizens. The motive for redistribution in this framework comes from the fact that the decisive voter has an income below mean income; a small rise in the income tax sees this voter losing income depending on the median voter’s income and gain in proportion to average income. This must be offset against any deadweight loss due to distortions in labor supply.

Although the paper stays within this framework, it uses a citizen candidate approach based on Besley and Coate (1997) and Osborne and Slivinski (1996). In these models, a particular citizen representing a group is elected and implements his/her preferred policy. The paper combines this with a probabilistic voting model which is used extensively in Persson and Tabellini (2000). This will tend to make the expected level of redistribution smoothly increasing in the proportion of low income individuals.

Our core approach uses selfish preferences to motivate redistribution. However, there is also a literature on the nature of redistributive preferences reviewed in Alesina and Guiliano (2011). Individuals may hold to specific moral principles or perceptions of fairness as the basis for preferring some kinds of redistributive policies to others. One specific hypothesis is the “prospect of upward mobility” (POUM) hypothesis, i.e. the idea that those who anticipate that they are upwardly mobile will tend to favor less redistribution. Although these two things will be correlated in our framework, there is no direct link between aspirations and demand for redistribution. The idea that beliefs about how the world works feed into redistributive preferences is developed in Benabou and Tirole (2006) who also demonstrate the possibility of multiple equilibria. Fong (2001) provides evidence that there

are links between such beliefs and preferences for redistribution.

Most approaches to the political economy of redistribution begin from a starting point where the distribution of initial income is determined by exogenous factors (typically individual ability or capital ownership). However, there are two important debates about inequality and redistribution which this approach sidesteps: discussions about what creates a legitimate level of inequality and whether there are views about the process which generates inequality and which feed into judgements about what is just. Second, there are issues about how far inequality plays a role in motivating people. These issues were discussed in Friedman (1953) who says:

“one cannot rule out the possibility that a large part of the existing inequality of wealth can be regarded as produced by men to satisfy their tastes and preferences....(And) many common economic and social arrangements ... can be interpreted as, at least in part, devices for achieving a distribution of wealth in conformity with the tastes and preferences of the members of society.”
(page 290)

The logic of Friedman’s argument is explored using an occupational choice model with risk taking in Kanbur (1979). A key issue is whether there is a positive role for inequality in maintaining an incentive to put in effort. In a broad sense, the way that the paper models the impact of redistribution is related to theoretical approaches to moral hazard where income redistribution acts as an insurance device, diminishing incentives for prudent behavior. Varian (1980) develops a model of income redistribution with this feature.

Following Kuznets (1955), there is now a sizeable literature on the dynamics of redistribution and growth. Banerjee and Newman (1993) and Aghion and Bolton (1997) emphasize the importance of credit constraint in affecting the paths of individual incomes and the growth process in the economy. Benabou (1996) introduces endogenous redistribution and notes the possibility for income redistribution to increase growth in such settings. St Paul and Verdier (1993) study redistribution in the form of education which can enhance growth.

Also relevant to the analysis developed here is the emerging empirical literature on the impact of incentives on effort which is reviewed in Prendergast (2013). In a key contribution, Bandiera et al (2007) estimate this in the

context of a field experiment and their findings are in line with a more established literature on static labour supply elasticities.³ More recent efforts have also tried to look at life-cycle decisions such as investing in human capital as in Blundell et al (2015). They find effects on human capital accumulation from government tax and transfer programs using UK data.

Determinants of Economic and Social Mobility Studying the economics of intergenerational mobility has a long tradition in economics. The traditional focus is on the role of background in affecting the level of inherited wealth (see Jäntti and Jenkins (2015)) for a comprehensive review.⁴ Among the core theoretical models of intergenerational transmission are those based on human capital accumulation and intergenerational wealth transmission such as Becker and Tomes (1979, 1986), Loury (1981), Hassler et al (2007) and Solon (2004). It is well known from the empirical literature that there is a strong link between parental and child income, although interpreting this in terms of a specific mechanism is difficult as there are so many reasons why having higher family income is a source of advantage including alleviating credit constraints for accumulation of human capital and direct transmission of income generating assets.

A recent literature has focused on the importance of early childhood experiences in the determination of life chances (see Cunha and Heckman, 2009). Moreover, there is now a greater emphasis on the role of non-cognitive skills such perseverance and motivation which are strongly correlated with economic success. Cunha and Heckman (2009) traces the roots of these ideas back to Alfred Marshall who emphasized the importance of maternal influence in building “character”.

There is a large literature outside of economics on the importance of aspirational parents for the success of their children. In the framework developed here, this works via parents shaping the preferences of their children rather than due to strategic investments by parents. However, as the paper shows below such strategic behaviour could be incorporated into the model. From Aristotle onwards good parenting is taken as a virtue but like most virtues is

³However, it is well-known that this is only one aspect of how taxes can affect incentives and taxable income elasticities tend to be larger than hours elasticities since they could also reflect a range of other margins, such as pursuing a promotion.

⁴A large sociological literature has tended to focus on social class rather than income mobility (see, for example, Erikson and Goldthorpe, 1992).

in short supply. If being an aspirational child pays off, then it is reasonable to expect that this virtuous trait will become more prevalent.

The sociological literature has studied the determinants of economic success as a function of social background giving a central role of the family.⁵ In a classic sociological account, Bales and Parsons (1955) put it as follows:

“If .. the essentials of human personality were determined biologically, independent of social systems, there would be no need for families ... It is because the human is not "born" but must be "made" through the socialization process that in the first instance families are necessary. They are "factories" which produce human personalities.... We therefore suggest that the basic and irreducible functions of the family are two: first the primary socialization of children so that they can truly become members of the society into which they have been born; second, the stabilization of the adult personalities of the society.” (pages 16-17)

This account focuses on the family as the key institution in socialization. This in turn links to the idea of *cultural capital* a term coined by Pierre Bourdieu to refer to the non-pecuniary factors that increase social mobility such as intellect or appearance (see, for example Bourdieu, 1986 and Bourdieu and Passeron, 1990). Bourdieu (1986) discusses the factors that shape transmission of such capital including the role of parents and education. The absence of cultural capital available to some individuals is a potential constraint on social mobility.

A key feature of the model that is presented below is whether or not matching among parents is assortative. There is now a large theoretical and empirical literature on this in economics which draws out implications for inequality (see, for example, Kremer, 1997 and Fernandez and Rogerson, 2001). This is also related to debates about how to conceive of and operationalize the idea of equality of opportunity (see, Kanbur and Wagstaff, 2014, for an overview).

As documented by Chetty et al (2014), there is substantial geographical variation in intergenerational mobility in the United States. Subsequent work by Chetty and Hendren (2015) has taken advantage of data on five

⁵See, for example Rutter (2006) for a discussion of the nature/nurture debate.

million families which have moved across the United States. The quasi-experimental evidence available from this shows an effect of neighbourhoods on intergenerational mobility through childhood exposure; specifically, children whose families move to a better neighborhood – as measured by the outcomes of children already living there – have outcomes which improve linearly in proportion to the time they spend in that area. They also exploit county-level variation to find that children growing up in families at the 25th percentile of the income distribution, each year of childhood exposure to a one standard deviation (SD) better county increases income in adulthood by 0.5%. Such neighbourhood effects could reflect a range of factors but suggest that there could be an important role for cultural influence on outcomes when children are exposed to different environments.

The Behavioral Economics of Poverty The mainstream economic view of poverty has focused on how limited access to physical and human assets limits economic opportunities. However, the rise of behavioral economics has widened the agenda to incorporate the possibility that frictions in decision making can be more prevalent among the poor. Specifically, certain behavioral biases can be an impediment to making best use of available talents and assets. This view is developed, for example, in Bertrand et al (2004). An important example of a behavioral bias is self-control problems which lead to under investment in physical or human capital. These are studied in Banerjee and Mullanaithan (2010) and Bernheim et al (2015).

The idea that failure of aspirations is important to human achievement forges a link between anthropological and sociological studies of poverty with those that are typical in economics. For example Appadurai (2003) frames the issue in terms of “the capacity to aspire” which he claims is a:

“navigational capacity. The more privileged in society simply have used the map of its norms to explore the future more frequently and more realistically, and to share this knowledge with one another more routinely than their poorer and weaker neighbors. The poorer members because of their lack of opportunities to practice the use of this navigational capacity ... have a more brittle horizon of aspirations.” page 69.

This view has been pioneered in economics by Ray (1998, 2006) who puts aspirations at centre stage in understanding poverty. In Ray (2006), he observes that:

“individual desires and standards of behavior are often defined by experience and observation; they don’t exist in social isolation as ‘consumer preferences’ are so often assumed to....(T)here is much to be learned by viewing poverty both as a (partial) result of and a (partial) cause of a failure of aspiration.” page 409.

These ideas are developed further to explain the dynamics of poverty in Genicot and Ray (2015) and Dalton et al (2015). The canonical approach is one where aspiration levels affect effort and hence income generation. They emphasize the role of internalities in creating aspirational poverty traps whereas here the focus is on externalities due to cultural influence transmitted via family background. Bernard et al (2011) explore these ideas in Ethiopian data and what they call “fatalism” which they regard to be not believing in the efficacy of well-being enhancing investments.

One way to think about aspirations is as a reference point. Koszegi and Rabin (2006) develop a canonical model of endogenous reference points which affect behavior and Hsiaw (2013) discusses how goal setting can be a way of overcoming time consistency problems.

Cultural Evolution The ideas in this paper are influenced by the formal models of cultural evolution developed by Boyd and Richerson (1985) and Cavalli-Sforza and Feldman (1981). They model dynamic behavioral change as social learning which propagates behavior in populations. These approaches borrow the formal structure of population biology to develop models of the transformation of behavior. The approach has been influential in exploring the basis of unselfish behavior in kin groups or more extended social groups. They consider the role of cultural parents who influence the behavior of their offspring. The idea of a cultural parent is much wider than biological or foster parents. It can include a range of peers in education, social life and education who shape the behavior of others.

The canonical example is of a public goods game with a standard incentive to free-ride on the contributions of others so that rational self-interested individuals do not contribute. They consider three evolutionary mechanisms of change: mutations, genetic drift (which is relevant only in finite populations) and natural selection. Boyd and Richerson (1982) formulate an approach to "conformist transmission" where individuals imitate the more common behavioral types among their cultural parents. This creates a force that increases the frequency of more common types in the population.

There is now an emerging literature in economics which develops these ideas. Bisin and Verdier (2001) develop a model where the decision to socialize children is strategic and depends on the payoffs that the children will receive weighed against the “social distance” that it creates between parents and children. This approach is applied in Bisin and Verdier (2000) to study the dynamics of religion and ethnicity. Kuran and Sandholm (2008) also develop a model of cultural integration. A useful review of the approach and the literature can be found in Bisin and Verdier (2011).⁶

The approach to the evolution of preferences used here builds on the indirect evolutionary approach introduced in Güth and Yaari (1992) and Güth (1995). They propose that preferences can respond to payoffs in repeated games. In such models, whether or not preferences are observable is a key issue. In our setting this is not important as the only form of externality comes through voting where individuals (stochastically) vote sincerely. The importance of the indirect evolution approach is emphasized in the context of collective action in Ostrom (2000). By changing preferences, societies can be more or less cooperative and hence able to solve collective action problems. Most of the literature and applications of these ideas to date has tended to focus on small-scale cooperation.

The model developed here has some similar features in the way that it uses population dynamics. In common with economic approaches, the model gives payoffs associated with different types at the heart of the dynamic process where the evolution of preference-types is made endogenous. In common with most of the literature outside of economics, the transmission of preferences is unconscious operating through osmosis rather than via purposiveness decision making by cultural parents. This contrasts with the approach taken, for example, in Bisin and Verdier (2011). How much of the social processes in practice is due to strategic or unconscious socialization is not so clear.

3 The Model

This section lays out the basic framework and its key ingredients for exploring how aspirations evolve in society and affect the path of incomes, inequality and redistribution. The key components are a model of effort choice by young

⁶See also Saez-Marti and Zilibotti (2008) for an overview of the issues.

individuals whose preferences are the production of socialization determined by their parental background.

Framework Time is infinite and indexed by t . Each generation comprises a continuum of individuals of size one who live for two periods. There are two points in the life-cycle; when young individuals put in effort and when old, they earn income by supplying a unit of effort inelastically. All individuals are born with earnings ability a_L but can increase this to $a_H (> a_L)$. Effort, which is best thought of as how much to study in education, is denoted by $e \in [0, 1]$ and determines the probability that an individual's earnings ability is a_H when old.

Preferences when old depend on income denoted by y_J for $J \in \{L, H\}$. Effort is costly and this disutility is experienced when young. The main non-standard feature of the model is the possibility that individuals benchmark their income against a reference level, r . Specifically if their income is less than the reference level, they experience a loss $-\lambda[r - y_J]$, so that λ indexes loss aversion. This broad approach is consistent with the prospect theory model of choice due to Kahneman and Tversky (1979). A second non-standard feature is a time-inconsistent behavioral bias – individuals do not care about their future income when they are young. All of these features can be captured in the following lifetime preferences:

$$U(\beta, \lambda, r, y_H, y_L, e) = \beta [ey_H + (1 - e)y_L] - \lambda(1 - e)[r - y_L] - c(e)$$

by assuming that $\beta = 1$ when agents are old while $\beta = 0$ when they are young. Two possible reference points are considered, denoted by $r \in \{y_L, y_H\}$. In the case of $r = y_L$ an individual experiences no loss when she achieves y_L while, if $r = y_H$, she experiences a loss when income is y_L because this falls short of her reference level. Throughout, the paper refers to agents with $r = y_H$ as *aspirational*⁷ μ_t denoting the fraction of the population which is aspirational at date t . The cost of effort $c(e)$ is increasing and convex with $c(0) = c'(0) = 0$ and $c'(1) > \lambda[a_H - a_L]$.

This formulation of decision-making captures an intra-agent agency problem where the preferences of the old and young conflict since only adults

⁷Throughout we will focus on the case where the aspirational level of income is taken as post-tax income. If instead the reference point were based on pre-tax incomes, then effort level would be decoupled from the tax rate. However, the main core features of the analysis would remain.

care directly about earnings. Aspirational preferences are then a device for overcoming the shortsightedness of children and encouraging them to be motivated towards putting in effort. This formulation is deliberately quite extreme but the general thrust of the argument will be preserved so long as $\beta < 1$ when children choose effort and $r > y_L$. In general, fostering aspirations could lead to under- or over-correction of present-bias.

Income may differ from labour earnings due to a government tax and transfer program. Suppose that the government redistributes income using a standard income tax and transfer scheme where τ is the income tax rate and T is the transfer per agent. Then

$$y_J = (1 - \tau) a_J + T \text{ for } J \in \{L, H\}.$$

Let ϕ denote the fraction of high income individuals so that the government budget constraint implies that

$$T = \tau [\phi a_H + (1 - \phi) a_L].$$

The tax rate is bounded so that $\tau \in [\tau_L, \tau_H]$ where these bounds capture a minimal socially acceptable level of redistribution, τ_L , and a rate above which high income taxes are evaded, τ_H .⁸

Politics Politics is modeled as a citizen-candidate game with probabilistic voting where both adult groups, i.e. high and low income individuals, put up a candidate. High income candidates will prefer τ_L whereas low income candidates prefer τ_H . Voters then decide which candidate to support with the winner determined by majority rule. As in standard probabilistic voting models, voters are also influenced by non-policy relevant characteristics.⁹ The popularity shocks to voting make non-majoritarian policy outcomes possible.

Specifically, let $\varepsilon \in [-1, 1]$ be the shock to voting for a high income candidate which is assumed to have a uniform distribution and to be iid over time with a fresh draw in each period. Given the range of ε , no election is ever completely safe if $0 < \phi < 1$. A high income candidate wins if she

⁸The latter could be derived endogenously by specifying an enforcement technology and/or endogenous labor supply.

⁹This set-up could also be motivated by having another policy dimension which also influences voting behavior.

secures at least half the votes, i.e.

$$\phi + \varepsilon \geq (1 - \phi).$$

Thus, the ex ante probability that a high income candidate wins is

$$\text{Prob}(\varepsilon \geq 1 - 2\phi) = \phi,$$

which is simply the population share of high income individuals. The expected tax rate is therefore $\phi\tau_L + (1 - \phi)\tau_H$.

Reproduction and Socialization Children have two parents and, to keep the population balanced, every pair of parents (a family in this setting) has two children. The matching process for parents is not modelled explicitly; the paper assumes that a fraction α of mating is assortative, i.e. has individuals parenting children with someone of their own type. The remaining $1 - \alpha$ match randomly. As will be seen precisely below, the fraction of the population which matches assortatively does not affect the steady state of the model only the speed of convergence as long as $\alpha < 1$, i.e. there is some random matching. The parameter α can be thought of as a crude measure of the openness of social structures in a society since assortative will tend to entrench the existing structure of preference while lower α leads to more rapid culture change.

Children are socialized by their parents. For simplicity, suppose that having two parents of the same type guarantees that these preferences are passed along to their children.¹⁰ However, if an individual has mixed parenting, then whether an individual becomes aspirational depends on the expected utility of being an aspirational type relative to a non-aspirational type. Specifically let $\Delta(\mu)$ be the utility difference between aspirational and non-aspirational when the proportion of aspirational individuals in the population is μ and let $\eta_K \in (-\infty, \infty)$ for $K \in \{A, N\}$ be an idiosyncratic shock then an individual with mixed parentage becomes aspirational if and only if $\Delta + \eta_A \geq \eta_N$.

Suppose that η_A and η_N each have a type one extreme value distribution as in the standard logit model.¹¹ Then the probability that an individual

¹⁰This is clearly a strong assumption, adopted here to make the analysis sharper and simpler. One could consider alternatives, such as a fixed “mutation” rate in homogenous groups.

¹¹Specifically, we will suppose that

$$\text{Pr ob}(\eta_K \leq x) = \exp[-\exp[\gamma - x]]$$

with mixed parents is the aspirational type when the utility difference is $\Delta(\mu)$ is

$$\rho(\Delta(\mu)) = \frac{\exp[\Delta(\mu)]}{1 + \exp[\Delta(\mu)]}.$$

Given that there is a continuum of types, this will also be the proportion of those with mixed parentage who are aspirational. Note that $\rho(\cdot)$ is smoothly increasing with $\rho(0) = 1/2$.

Using this, write the proportion of the population who are aspirational at time $t + 1$ given that μ_t are aspirational at t as:

$$\mu_{t+1} = \alpha\mu_t + (1 - \alpha) [\mu_t^2 + 2\mu_t(1 - \mu_t)\rho(\Delta(\mu_t))].$$

To interpret this, note that assortative matching preserves the proportion of aspirational individuals. However, among those who are randomly matched, a fraction μ_t^2 are matched with other aspirational individuals. The fraction of mixed parent households is therefore $2\mu_t(1 - \mu_t)$.

A key feature of the approach is that the evolution of preferences is grounded in the payoffs that the different types receive bearing in mind that this is dependent on the level of redistribution that a society chooses. The proposed link between $\Delta(\mu_t)$ and the evolution of preferences is the key “positive selection effect” which drives the dynamics of aspirations in the model. Random matching encourages mobility in preferences since it affects the prevalence of parents of different types who are influenced by $\Delta(\mu_t)$. However, whether random matching encourages high aspirations in the population depends on the payoffs that the aspirational types receive compared to non-aspirational types. This contrasts, for example, with a model where pure numerical supremacy of one type drives the evolutionary process although this could be added as a feature. It is also consistent with some aspects of a model of strategic socialization along the lines of Bisin and Verdier (2001) where η_K above represents the cost/benefit of socializing your child. A key simplifying feature here is that homogeneous parents do not socialize their children to be of different types to themselves (even if there were large expected utility gains from doing so) which can slow the pace of cultural evolution.¹²

for $K \in \{A, N\}$ and γ is Euler’s constant. The specific functional form is only illustrative and the core ideas would go through for any symmetric distribution of preferences centred around 0.

¹²Of course, this could be added as a feature to the model. The friction would then

Timing The model timing is as follows:

1. There is an initial fraction of aspirational young, μ_t .
2. The young at time t choose their effort levels e with $\beta = 0$.
3. The young become adults and their earnings ability $\{a_H, a_L\}$ is realized with $\beta = 1$.
4. Adults vote over redistribution which determines $\tau \in [\tau_L, \tau_H]$ and pay-offs are realized.
5. The adult population matches, reproduces and socializes their children determining μ_{t+1} .

The paper looks for an equilibrium in the model where agents have rational expectations and optimize at every stage, subject to the young setting $\beta = 0$ when they choose their effort. The model is solved backwards.

Voting over Redistribution With probability ϕ the tax rate is τ_L in which case transfers are

$$T_L = \tau_L [\phi a_H + (1 - \phi) a_L]$$

and with probability $1 - \phi$, it is

$$T_H = \tau_H [\phi a_H + (1 - \phi) a_L].$$

Thus, there are different levels of redistribution depending on which group wins power.

Effort Levels Since they do not care about their future income, non-aspirational children set $e = 0$ since $\beta = 0$ and effort is costly. Equilibrium effort will be determined in a rational expectations equilibrium where individuals correctly anticipate that there will be a fraction ϕ of high income individuals in the population. Thus:

$$e^*(\phi) = \arg \max \{ -\lambda (1 - e) (1 - \phi \tau_L - (1 - \phi) \tau_H) [a_H - a_L] - c(e) \}.$$

depend on how much parents do not wish to create “social distance” between them and their children if, for example, aspirational children are inclined to look upon their parents negatively if they are of a different type.

At an interior solution, optimal effort therefore solves the first order condition:

$$(1 - \phi\tau_L - (1 - \phi)\tau_H)\lambda[a_H - a_L] = c'(e^*(\phi)).$$

Optimal effort is decreasing in expected taxes and increasing in $[a_H - a_L]$. Thus, higher inequality encourages higher effort. Note that, since the level of *expected* redistribution depends on ϕ , the individually optimal level of effort depends on the anticipated average societal effort level.

In solving for the rational expectations equilibrium, note that ϕ depends upon the proportion of aspirational individuals as follows:

$$\phi(\mu) = e^*(\phi(\mu))\mu.$$

The analysis focuses throughout on the case where:

$$\frac{\partial e^*(\phi(\mu))}{\partial \phi}\mu < 1.$$

This implies that there is a unique fixed point where $\phi(\mu)$ is increasing in μ – having a larger fraction of aspirational individuals increases the fraction of high income individuals in the population and reduces the expected level of redistribution.¹³

Using this, let $\bar{\tau}(\mu)$ be the expected level of income taxation as a function of the state variable μ which is given by:

$$\bar{\tau}(\mu) = \mu e^*(\phi(\mu))\tau_L + [1 - \mu e^*(\phi(\mu))]\tau_H. \quad (1)$$

All else equal, this is increasing in τ_H and decreasing in $\tau_H - \tau_L$. Equation (1) also confirms that having a larger group of aspirational individuals in the population lowers the expected level of redistribution.

The Value of Aspiration The paper has now assembled the ingredients needed to look at how the expected utility of being an aspirational individual varies with the fraction of other aspirational individuals in the population. This governs the socialization process along the equilibrium path. Assume that parents' socialization decisions depend on the expected utility of each type using adult preferences, i.e. $\beta = 1$. This can be thought of as choosing between two "ideal types", an aspirational type and a non-aspirational type.

¹³This condition is always satisfied in the case where the cost of effort is quadratic and there is an interior solution for effort.

It is useful to define the net gain from being aspirational (net of tax) as:

$$Z(\mu) = (1 - \bar{\tau}(\mu)) [a_H - a_L]$$

which is increasing in μ . Using this, the equilibrium effort level as a function of μ can now be written as $\hat{e}(\lambda Z(\mu)) = c'^{-1}(\lambda Z(\mu))$ which is a (weakly) increasing function.

The expected utility of a non-aspirational type when a fraction μ of the population is aspirational is given by:

$$V_N(\mu) = a_L + \mu \hat{e}(\lambda Z(\mu)) [a_H - a_L - Z(\mu)].$$

While for the aspirational type, expected utility is:

$$V_A(\mu) = V_N(\mu) + \Delta(\mu).$$

where

$$\Delta(\mu) = \hat{e}(\lambda Z(\mu)) Z(\mu) - c(\hat{e}(\lambda Z(\mu))) - \lambda(1 - \hat{e}(\lambda Z(\mu))) Z(\mu) \quad (2)$$

is the utility difference and contains two terms. The first term in (2) is positive and is the expected income gain from effort given the expected level of redistribution net of the effort cost. The second term in (2), which is negative, is the expected utility cost if aspirations are not met. The expression is negative since aspirational individuals face a utility loss if their aspirations are not met and the probability that this loss occurs depends on the equilibrium effort level, $\hat{e}(\lambda Z(\mu))$.

Given the importance of $\Delta(\mu)$ in the socialization process it is necessary to study how (2) behaves in order to understand how socialization affects the evolution of aspirational preferences as well as how policy evolves. The explicit micro-foundation developed here can be used to investigate how different features of the model affect $\Delta(\mu)$. This is developed in the section that follows.

4 Implications

This section explores some implications of the model, starting by studying the dynamic paths that can be taken where aspirational preferences evolve according to the model. It then looks at the implications for economic mobility. The step after that is to look at how inequality and redistribution change along the path described by the model. Finally, the section considers some welfare implications and how policy affects the path of aspirations.

4.1 The Dynamics of Aspiration

The model's dynamics can be studied by looking at how μ_t evolves over time. The dynamics of aspiration is governed by the following equation:

$$\mu_{t+1} - \mu_t = (1 - \alpha) \mu_t (1 - \mu_t) [2\rho(\Delta(\mu_t)) - 1],$$

which makes clear how the sign of $\Delta(\mu_t)$ plays a key role in determining whether the proportion of aspirational individuals increases over time. Next define the effort levels associated with the highest and lowest levels of redistributive taxation:

$$\begin{aligned} c'(\underline{e}) &= (1 - \tau_H) \lambda [a_H - a_L] \\ &\text{and} \\ c'(\bar{e}) &= (1 - \tau_L) \lambda [a_H - a_L]. \end{aligned}$$

We now have:

Proposition 1 *If $\underline{e} < \frac{\lambda}{1+\lambda}$ and \bar{e} and λ are close enough to one, then there exists $\hat{\mu} \in (0, 1)$ such that for $\mu_0 \geq \hat{\mu}$, over time there are increasing aspirations and declining redistribution with $\lim_{t \rightarrow \infty} \mu_t = 1$. For $\mu_0 < \hat{\mu}$ aspirations are decreasing over time with $\lim_{t \rightarrow \infty} \mu_t = 0$.*

Proof. Note first that

$$\Delta'(\mu) = Z'(\mu) [\hat{e}(\lambda Z(\mu)) (1 + \lambda) - \lambda + \hat{e}'(\lambda Z(\mu)) \lambda Z(\mu)]$$

using the first-order condition for effort. This implies that $\Delta'(\mu) > 0$ whenever $\Delta(\mu) > 0$ since $\Delta(\mu) > 0$ implies that $[\hat{e}(\lambda Z(\mu)) (1 + \lambda) - \lambda] > c(\hat{e}(\lambda Z(\mu))) / Z(\mu)$ and $\hat{e}'(\lambda Z(\mu)) Z(\mu) > 0$. Thus if there exists $\hat{\mu}$ such that $\Delta(\hat{\mu}) = 0$, then $\Delta(\mu) > 0$ for all $\mu \geq \hat{\mu}$. Now note that

$$\Delta(0) = [\underline{e}(1 + \lambda) - \lambda] (1 - \tau_H) [a_H - a_L] - c(\underline{e}) < 0$$

if $\underline{e} < \lambda / (1 + \lambda)$. Now consider

$$\Delta(1) = [\hat{e}(\lambda Z(1)) (1 + \lambda) - \lambda] Z(1) - c(\hat{e}(\lambda Z(1)))$$

As $\lambda \rightarrow 1$ then $\hat{e}(\lambda Z(1)) \rightarrow 1$ as $\bar{e} \rightarrow 1$. Then this becomes:

$$\Delta(1) = (1 - \tau_L) [a_H - a_L] - c(1) = \max \{e(1 - \tau_L) [a_H - a_L] - c(e)\} > 0.$$

By the intermediate value theorem, there exists $\Delta(\hat{\mu}) = 0$ for $\mu \in (0, 1)$. ■

The dynamic path displays a classic “tipping point” given by $\hat{\mu}$ and illustrated in Figure 1¹⁴ so that the economy described by the model gives rise naturally to multiple steady states due to the fact that whenever there is a positive gain to being an aspirational type, then there is a positive complementarity between the fraction of such types and the expected utility gain from being aspirational. More specifically, the proof shows that $\Delta'(\mu) > 0$ whenever $\Delta(\mu) > 0$, a result which is driven by the political externality which lowers expected redistribution along this part of the dynamic path. As with any tipping point, there is history dependence; which equilibrium the society converges to depends on the starting point. Specifically, a society which has few aspirational types will tend to converge towards having no aspirational types while a society that starts with many aspirational types will tend to acquire a larger fraction. Majoritarian politics reinforces the interests of the more numerous type in the population.

[Figure 1 about here]

The existence of multiple steady states requires that $\Delta(1) > 0$. However, this need not be the case especially if \bar{e} is far away from one and λ is large. In this case, the cost of failure from being aspirational can offset any prospective income gains and will prevent a society becoming aspirational. This explains why these two conditions are needed. The first condition in Proposition 1 is needed to ensure that $\Delta(0) < 0$. This will be the case when effort is low enough when the prospect of redistributive taxation is high. When $\Delta(\mu) < 0$, there need no longer be a complementarity between there being a large fraction of aspirational types and the gain/loss from being aspirational.

A Quadratic Example To illustrate this result more concretely, suppose that $c(e) = e^2/2$ and $\lambda = 1$. Then $e = Z(\mu)$ which has an interior solution if $(1 - \tau_L)[a_H - a_L] < 1$. In this case:

$$\Delta(\mu) = \left[\frac{(1 - \tau_H)[a_H - a_L]}{1 + \mu(\tau_L - \tau_H)[a_H - a_L]} \right] \times \left[\frac{(1 - \tau_H)[a_H - a_L]}{1 + \mu(\tau_L - \tau_H)[a_H - a_L]} - \frac{2}{3} \right].$$

¹⁴The specific shape of the curve shown in this figure is purely illustrative.

Then for the equilibrium described above we require that:

$$(1 - \tau_H) [a_H - a_L] < 2/3 < \left(1 - \frac{\tau_H + 2\tau_L}{3}\right) [a_H - a_L].$$

Moreover

$$\hat{\mu} = \frac{\frac{3}{2}(1 - \tau_H) [a_H - a_L] - 1}{(\tau_L - \tau_H) [a_H - a_L]}$$

is the critical value of μ .¹⁵ It is straightforward to check that, in this case, $\hat{\mu}$ is increasing in $[a_H - a_L]$ so that more underlying inequality implies that a society with a larger fraction of aspirational individuals is needed to generate a path where aspirations are growing over time.

While the logic of the multiple steady states in Proposition 1 and the quadratic example is quite specific to the specific modelling features used in this paper, the key mechanism that makes this possible is quite general, namely a complementarity driven by a political externality where having more of your type in the population means that your policy preferences are more likely to prevail. Indeed, this logic seems quite general and robust when political economy considerations and cultural dynamics are combined. Moreover, it is well known that complementarities lie at the heart of dynamic models with history dependence and multiple steady states.¹⁶

4.2 Growth, Inequality and Redistribution

The model can be used to explore the time path of incomes and inequality. As emphasized throughout, the *only* source of dynamics in the model is the evolution of aspirational preferences. All standard economic dynamics such as capital accumulation (physical and human) and technology are left out so as to focus on the novel features of the model.

¹⁵This lies between zero and one as long as

$$(1 - (1 - \tau_L) [a_H - a_L]) > \frac{(1 - \tau_H) [a_H - a_L]}{2} > \frac{1}{3}.$$

¹⁶See Krugman (1991) for some relevant background discussion.

Growth in this framework is possible if the fraction of aspirational individuals, μ_t , who put in effort increases. Income per capita in the economy is

$$[\mu_t \hat{e}(\lambda Z(\mu_t)) [a_H - a_L] + a_L],$$

which is increasing in μ_t .¹⁷ In cases where aspirations decline over time, this is accompanied by a decline in incomes which contrasts with income growth in increasingly aspirational societies.

The evolution of inequality is less clear-cut even in this simple model. The variance of the personal distribution of income is

$$\phi(\mu_t) [1 - \phi(\mu_t)] [Z(\mu_t)]^2 \tag{3}$$

which depends upon $Z(\mu_t)$ which, as was noted above, is increasing in μ_t . The reason why $Z(\mu_t)$ is important is that it affects the gain to having high income via the level of redistribution. It also affects the effort put in by aspirational individuals which, in turn, has an effect on $\phi(\mu_t)$, the fraction of high income individuals in the economy.

The quadratic form in (3) suggests that this measure of inequality might follow an inverted “U” shaped path over time with inequality first rising and then falling. When $\phi(\mu_t)$ is small, then increasing the proportion of aspirational individuals increases inequality. However, when there are sufficiently many aspirational individuals in an economy and $\phi(\mu_t) > 1/2$, then inequality will tend to decline.

We summarize this discussion as:

Proposition 2 *Increasing the fraction of aspirational individuals raises income per capita but has an ambiguous effect of the level of inequality.*

We now turn to the effect of changing aspirations in the economy on the poor, i.e. those with pre-tax incomes a_L . The poverty rate decreases as μ_t increases. To see this, note that the fraction of those with pre-tax income a_L , the headcount poverty measure, is $1 - \mu_t \hat{e}(Z(\mu_t))$ which is decreasing in μ_t .

¹⁷It would be straightforward to extend the model so that the young sacrifice period one earnings to invest in their future earnings so that their utility when young is $a_L [1 - c(e)]$ where $c(e) \in [0, 1]$. In that case, there would be a loss of income from effort offset by higher earnings when old. Hence income would still be increasing in μ under reasonable assumptions.

The average income of the poor may rise or fall as μ_t increases. To see this, observe that the expected post-tax income of the poor is given by:

$$a_L + \bar{\tau}(\mu_t) \mu_t \hat{e}(\lambda Z(\mu_t)) [a_H - a_L] = a_L + [\phi(\mu_t) [\tau_L - \tau_H] + \tau_H] \times [a_H - a_L] \phi(\mu_t) \quad (4)$$

which depends on the average level of redistribution $\bar{\tau}(\mu_t)$, which is decreasing in μ_t , and the average income in society which is increasing in μ_t . The realized income of the poor at any date will fluctuate according to the allocation of political power between the representatives of the high and low income groups.

It is perfectly possible for the expected level of redistribution towards the poor to fall as μ_t grows since the political power of low income individuals decreases. Specifically, we have:

Proposition 3 *Let $e^*(\bar{\phi}) = \bar{\phi}$, then if $\bar{\phi} > \frac{1}{2} \left[\frac{\tau_H}{\tau_H - \tau_L} \right]$, then there is a range of $\mu \in [\tilde{\mu}, 1]$, such that the income of the poor is decreasing in μ .*

Proof. Note that $\bar{\phi}$ is the fraction of high income individuals as $\mu \rightarrow 1$. Now differentiate (4) to obtain:

$$\phi'(\mu_t) [2\phi(\mu_t) [\tau_L - \tau_H] + \tau_H].$$

Now take the limit of this expression as $\mu \rightarrow 1$. This will be negative as long as $\bar{\phi} > \frac{1}{2} \left[\frac{\tau_H}{\tau_H - \tau_L} \right]$ as claimed in the statement of the Proposition. Hence, if this condition holds, there exists a value of $\tilde{\mu} < 1$ such that post-tax income of low income individuals is decreasing in μ when μ is above $\tilde{\mu}$ as claimed. ■

Whether the income of the poor decreases with higher μ depends on whether the rate at which redistribution falls is faster than the direct effect on average income which represents the size of the tax base. The condition stated in the Proposition guarantees that there is a range of μ above which the expected post-tax income of the poor is decreasing in μ .

To illustrate this result, look again at the quadratic example above with $\lambda = 1$. In this case, the expected income of the poor is given by

$$a_L + [a_H - a_L] \left[\frac{\mu(1 - \tau_H)[a_H - a_L]}{1 + \mu(\tau_L - \tau_H)[a_H - a_L]} \right] \left[\frac{\mu(1 - \tau_H)[a_H - a_L]}{1 + \mu(\tau_L - \tau_H)[a_H - a_L]} [\tau_L - \tau_H] + \tau_H \right].$$

And

$$\bar{\phi} = \frac{(1 - \tau_H)[a_H - a_L]}{1 + (\tau_L - \tau_H)[a_H - a_L]}$$

This gives an explicit expression for $\tilde{\mu}$ as:

$$\tilde{\mu} = \frac{\tau_H}{(\tau_H - \tau_L) [a_H - a_L] (2 - \tau_H)}.$$

The result in Proposition 3 holds as long as $\tilde{\mu} < 1$.

4.3 Intergenerational Mobility

Rather than focusing exclusively on static inequality, the framework can say something about the process driving mobility across generations and the link between an individual's social background and subsequent economic success. This is often a concern to policy-makers over and above how rewards are distributed at a point in time. The current model has a particular take on this process as it focuses on how preferences are socialized as the source of economic attainment. This focus contrasts with the bulk of the literature in economics which focuses on the inter-generational transfer of assets. Obviously, a more complete picture would look at the full range of influences on mobility. There are three kinds of families in the model depending on whether one, both or neither parent is the aspirational type.

A child with two non-aspirational parents is predicted by the model to have poor life chances as such children will themselves be non-aspirational. They may gain from society becoming more aspirational through transfers. However, they form a type of "underclass" in the model with little prospect of bettering their situation by virtue of their parental inheritance. To improve the life chances of those who are born to two non-aspirational parents requires some kind of direct intervention which allows them to escape from parental influence. It is for this group that early childhood interventions which affect non-cognitive skills are potentially most important. But conventional transfer policies for such families will have no effect on their economic prospects in the model.

Non-aspirational adults who match with an aspirational adult will have a high income child with probability $\rho(\Delta(\mu_t)) \hat{e}(\lambda Z(\mu_t))$ which is positive but less than one. Societies which are on an upward aspirational path will see the life chances of such children improving as the returns to being aspirational increase. This is because as shown in Proposition 1, the socialization term, $\rho(\Delta(\mu_t))$, is increasing in μ whenever $\Delta(\mu)$ is positive. This follows Milton Friedman's logic quoted above where inequality serves as an incentive

mechanism to encourage societal aspiration. Here, however, this affects the evolution of preferences as well as affecting efforts and income.

Children who are born into a background where both parents are aspirational have an even larger chance of having a high income and will do so with probability $\hat{e}(\lambda Z(\mu_t))$ which is strictly higher than for a child from a “mixed parentage” background. This probability is still less than one, so success is not guaranteed. The life chances of such children are also increased by having more aspirational individuals around but principally through the political externality which reduces expected redistribution and enhances the return to putting in effort.

The model focuses on the underlying social structure of families and the motivations of parents rather than income as the determinant of intergenerational mobility. However, the model predicts a correlation between income and child attainment which is not causal. To see this, let $S = \{I, J\}$ where $I, J \in \{A, N\}$ be an individual’s social background and let $Y(S)$ be the average income of an individual from a social background S . Then

$$\begin{aligned} Y(\{N, N\}) &= 2a_L \\ Y(\{N, A\}) &= 2a_L + \hat{e}(\lambda Z(\mu_{t-1})) [a_H - a_L] \\ Y(\{A, A\}) &= 2 [a_L + \hat{e}(\lambda Z(\mu_{t-1})) [a_H - a_L]]. \end{aligned}$$

It is straightforward to see that $Y(\{A, A\}) > Y(\{A, N\}) > Y(\{N, N\})$. The gain in expected income from having an additional aspirational parent is

$$\Omega = \hat{e}(\lambda Z(\mu_{t-1})) [a_H - a_L]$$

which is increasing in μ . So having more aspirational individuals tends to increase the return to coming from a “better” social background, i.e. one with more aspirational parentage. Hence more aspirational societies, those with higher μ_t , will also be those in which those who have aspirational backgrounds do better on average. This is a further complementarity predicted by the model.

Since aspirational individuals earn more on average, the model predicts a correlation between parental income and children’s attainment. However, this is not a causal link since it is generated by omitted parental characteristics as embodied in S . This is practically important since, if it is preferences inherited from parents that are holding their children back, then redistributing income to low income households in this framework will not increase

the life chances of these children. Indeed, since it lowers $Z(\mu_t)$, greater redistribution actually inhibits social mobility in this framework.

It would of, course, be straightforward to add a direct causal link from parental influence to income along the lines of Loury (1981), Solon (2004) and Hassler et al (2007) who focus on the role of parental investments in affecting intergenerational mobility. Even without adding such investments explicitly, one could make parental income an input into the effort technology. This could represent access to credit markets and/or better schooling through access to private schools or living in a nicer area with better schools. However, to the extent that socializing aspirational preference through parental background is at work as a source of immobility, the effect of targeted income based interventions to offset these sources of advantage would only deal with one specific source of immobility.

The framework can be used to consider policies which encourage aspirations e.g. by teaching non-cognitive and motivational skills in schools. This opens up the wider idea that one might be able to raise the aspirations of children by exposing them to a wider range of “cultural parents” beyond their biological parents. While a full development lies beyond the scope of this paper, this could be modeled by considering a mean shift in the “random utility” shock in the socialization model which favors aspirations so that this becomes $\rho(\zeta + \Delta(\mu))$ where the value of $\zeta > 0$ is influenced by policies targeted towards increasing aspirations. The effect of this policy is predicted to be heterogeneous, affecting only those with social background $\{A, N\}$.

Given entrenched intergenerational disadvantage, there is interest in the role of policies which target children who are from disadvantaged backgrounds and trying to improve their non-cognitive skills. Increasing their aspirations is a concrete example of this. The possibility of such policies can be incorporated into the framework as follows. Suppose that it is possible to invest so that a fraction, ξ , of children from an $\{N, N\}$ background become aspirational at any date t . The dynamics of aspiration will now be governed by the following equation:

$$\mu_{t+1} - \mu_t = (1 - \alpha) \mu_t (1 - \mu_t) [2\rho(\Delta(\mu_t)) - 1] + (1 - \mu_t) [1 - \alpha\mu_t] \xi \quad (5)$$

which depends directly on ξ . To study the aggregate implications of this, notice that the high aspirational steady state where $\mu = 1$ remains a possibility. More interesting is what happens to the low aspirations steady state. Here we have the following:

Proposition 4 *Suppose that a mobility intervention is implemented which is effective with probability ξ and define*

$$\mu(\xi) = \frac{\xi}{\alpha\xi + (1 - \alpha)(1 - 2\hat{\rho}(\Delta(\mu(\xi))))}.$$

Then if $\Delta(\mu(\xi)) \geq 0$, the low aspirations trap is eliminated.

Proof. To see this, solve for the steady state in (5) where

$$0 = (1 - \alpha)\mu[2\rho(\Delta(\mu)) - 1] + [1 - \alpha\mu]\xi$$

which is the low steady state in the model. We know that $\mu_{t+1} - \mu_t > 0$ whenever $\Delta(\mu_t) > 0$. Hence there will only be a high aspirations equilibrium if $\Delta(\mu(\xi)) \geq 0$ as claimed. ■

This analysis underlines that, in addition to the static income gains of those who benefit from this kind of intervention, a society with such interventions is also likely to have dynamic benefits and in an extreme case is less likely to be caught in a low aspirations trap than one without. Moreover for high enough ξ , the low aspirations equilibrium is eliminated completely. Even where the aspirations trap is not averted, having such a policy gives a positive lower bound to μ as given by $\mu(\xi)$ in Proposition 4. This finding is interesting in the context of policies which have been targeted at early childhood interventions for disadvantaged children. The focus has mainly been on their income gains. However, the analysis opens the possibility of wider gains operate through cultural externalities of the kind identified here.

It would be interesting in future work to consider how direct interventions which affect aspirations are part of a political equilibrium. Such policies need to be funded out of tax revenues and hence will reduce resources available for other redistributive programs. It is difficult therefore to motivate this based exclusively on the self-interest of adults in this model. One possibility would be to allow citizens to care about mobility as an independent goal of societies which would create a desire to implement such policies. It might also be natural to think of this in terms of the forward-looking political interests of parents at stage 1 of the model and how they care about their children's incomes and/or well-being.

4.4 Welfare

The framework can be used to consider whether in any sense aspirational societies have higher welfare. We have already seen that, in the core model,

national income will be higher. However, a proper analysis requires looking at the welfare of all groups and how it changes with μ . The model is now extended to consider what happens if welfare is based on the expected utility of each group given μ .

A priori, there is no reason to believe that the evolution of aspirational preferences will converge to a welfare maximizing outcome. The evolution of preferences depends on $\Delta(\mu)$ which is only one component of utility. Hence, it is perfectly possible for there to be a divergence between reasonable measures of welfare and the outcome to which the economy converges.

Before undertaking the analysis, it is important to acknowledge that there are some judgements to be made about the appropriate welfare criterion. For example, should welfare depend on the personal distribution of income accruing to adults or should it also reflect the disutility of effort $c(e)$? It is also debatable how to take into account the loss of those aspirational individuals who have strived for success but failed, i.e. those whose aspirations have not been fulfilled. Both of these might reasonably be part of well-being but which would not be captured in income-based measures.

As a first pass, the analysis is based only on incomes as our benchmark; we will look at a more conventional utility criterion subsequently. This has the practical advantage of being based on directly measurable features. Even so, incomes in the model also depend upon endogenously determined levels of redistribution. The measure used, therefore, is *expected* post-tax income for each group. For low income individuals this is

$$u^L(\mu) = a_L + \phi(\mu) \bar{\tau}(\mu) [a_H - a_L]$$

and for high income individuals it is:

$$u^H(\mu) = a_H - [1 - \phi(\mu)] \bar{\tau}(\mu) [a_H - a_L].$$

Following Atkinson (1970), we will aggregate expected incomes using the welfare criterion:

$$W(\mu : \gamma) = \frac{[1 - \phi(\mu)] [u^L(\mu)]^{1-\gamma} + \phi(\mu) [u^H(\mu)]^{1-\gamma}}{1 - \gamma} \text{ for } \gamma \geq 0.$$

With $\gamma = 0$, this is just expected income $[1 - \phi(\mu)] a_L + \phi(\mu) a_H$. As $\gamma \rightarrow \infty$, this is a maximin criterion which depends only on $u^L(\mu)$.

The first step is to study long-run payoffs and compare a society which has completed its dynamic path towards either of the steady states: $\mu = 1$ or $\mu = 0$. The following result follows immediately:

Proposition 5 *For all γ then $W(1 : \gamma) > W(0 : \gamma)$.*

This says that welfare is higher in aspirational societies according to the criterion that we are using regardless of the preference for equality. To see this, observe that $u^L(1) > u^L(0)$ since there is a still redistribution as μ goes to one and there is nothing to redistribute when $\mu = 0$. Moreover $u^H(1) > u^H(0)$ since the expected level of redistribution is lower when $\mu = 1$. Finally observe that $u^H(1) > u^L(1)$.

As has already been established, $\Delta(\mu)$ drives the evolution of citizens' preferences and for $\mu < \hat{\mu}$ a society converges to $\mu = 0$. Thus the model has the possibility of a poverty trap where, since the starting value for aspirations is low, leads to a welfare inferior outcome.

The endogeneity of policy through political choice influences the level of redistribution, incentives for effort and the nature of socialization. It is interesting to ask whether a poverty trap where μ converges to zero constitutes a political failure in the sense of Besley and Coate (1998) who argue that a political failure arises when there is a feasible policy sequence which can make everyone better off but which is not chosen in political equilibrium. In many interesting cases, this is driven by the failure of the political system to commit to future policy. In this model, this can arise due to a failure to commit to the kind of low level of redistribution which could incentivize citizens. To explore this formally, consider the possibility that there is lower level of redistribution than that which emerges along the equilibrium path in political equilibrium which would shift the society away from the low aspirations steady state. Specifically, consider restricting the level of redistribution such that $\tau_H = \tilde{\tau}$ and let

$$\tilde{Z} = (1 - \tilde{\tau}) [a_H - a_L]$$

be the expected income gain under this constrained level of redistribution. This restriction will lead to great effort being made and also to a greater advantage to being an aspirational type.

Now we have:

Proposition 6 *If there exists \tilde{Z} such that*

$$\hat{e}(\lambda\tilde{Z}) - c(\hat{e}(\lambda\tilde{Z})) - \lambda(1 - \hat{e}(\lambda\tilde{Z}))\tilde{Z} > 0 > \Delta(0)$$

then the low aspirations trap is a political failure, i.e. there exists a level of redistribution which, if committed to, would generate a Pareto superior outcome in the long-run.

Proof. For the low aspirations trap to be a political failure that we require that at \tilde{Z} , then $\Delta(0) > 0$ whereas at τ_L , $\Delta(0) < 0$ which is the condition stated above. ■

This result holds since, with redistribution at $\tilde{\tau}$, there is a gain to being the aspirational type even when $\mu = 0$. Limiting redistribution is always Pareto improving for a society which is in the low aspirations trap. Thus, the political process in this case is indeed a constraint on the development path of the economy and keeps a society in a low aspirations equilibrium.

Note however, that this does not imply that politics is the only possible constraint. If there are high effort costs and/or limited economic opportunities, i.e. if a_H is close to a_L , then there is less incentive to put in effort. A fundamental economic reform could increase $\Delta(\mu)$ and could potentially eliminate a low aspirations trap.

Even though it is better to be a low aspirations individual when $\mu = 1$ than with $\mu = 0$, this need not imply that $\mu = 1$ is the optimal outcome for a society. A society with $\mu = 1$ may not treat its poor well if the political power that high income individuals enjoyed leads them to redistribute less to the poor. As the welfare function favors low income individuals when $\gamma > 0$, then we might expect that societies actually have higher welfare when $\mu < 1$. Here we have the following result:

Proposition 7 *For large enough $\gamma (> 0)$ then if $\bar{\phi} > \frac{1}{2} \left[\frac{\tau_H}{\tau_H - \tau_L} \right]$ exists $\tilde{\mu} < 1$, such that $W(\tilde{\mu} : \gamma) > W(1, \gamma)$.*

Proof. We have already seen from Proposition 3 that when the conditions stated in this Proposition hold there is a value $\tilde{\mu}$ above which the post-tax income of low income individuals is decreasing in μ . As γ gets large, then the welfare function depends on u_L and hence overall welfare is decreasing in μ for $\mu \geq \tilde{\mu}$. ■

For large enough μ given the conditions stated, there is a trade-off between changes which raise national income and those which raise welfare, at least when the welfare function puts sufficient weight on the incomes of the poor. However, it is less clear what interventions can be chosen to make the situation better which would require a means of reducing the gain to being an aspirational type.

Finally, it is worth considering how basing welfare on utility rather than the expected income could affect the welfare conclusions. To see this, suppose

instead that we use:

$$\frac{(1 - \mu) V_N(\mu)^{1-\gamma} + \mu [V_N(\mu) + \Delta(\mu)]^{1-\gamma}}{1 - \gamma}.$$

In this case, the conclusion in Proposition 5 that $\mu = 1$ dominates $\mu = 0$ still holds. Thus, the idea of an aspirations trap in this framework, where welfare is lower, is quite robust. The conclusion that something short of $\mu = 1$ is optimal could also hold in this case as $\gamma \rightarrow \infty$.

One further interesting welfare issue follows from the possibility, that when making their socialization decisions, parents ignore the possibility that their children will be unsuccessful and hence suffer a loss of utility. Thus, suppose that parents set $\lambda = 0$ in their assessment of equilibrium path utility which influences their socialization but that the social welfare criterion includes such losses. In this case the social optimum would view the “true” welfare of individuals differently to their parents and this could tend to favor a society with fewer aspirational individuals. Indeed, it could even be the case that a low aspirations society has higher welfare than a low aspirations society with this possibility.

5 Aspirations and the Rat Race

Having more aspirational individuals in the population increases the income of everyone either directly or through redistribution. However, this ignores the possibility that an economy could have more of a tournament-like structure in the way that rewards are allocated and where the efforts of other members of the society reduce the probability that an individual becomes a high income individual. Thus putting in effort is in part a “rat race” where a few winners take all the rewards. We will now extend the model to incorporate this possibility and to explore its implications for the conclusions reached so far. There is now an additional externality in the model so it simplifies things to focus on the case where redistribution is given exogenously at $\bar{\tau}$ and define $\bar{Z} = (1 - \bar{\tau}) [a_H - a_L]$. This eliminates the political externality which has been the main driving force linking effort decisions so far and allows us to focus on the implications of our different model of the economy.

To capture the idea of a rat race formally, suppose that there is an upper bound on the fraction of high income jobs set at $\pi < 1$. If the proportion

of individuals who achieve exceeds the number of slots available, i.e. $e\mu > \pi$ then they are allocated a high income job with probability $\pi/e\mu = \gamma$. To simplify matters further, the analysis will focus on the case of a quadratic cost of effort $(1/2)e^2$. Then the optimal effort level is $e = \min\{\gamma, 1\} \lambda \bar{Z}$ which yields an equilibrium effort level for society as a whole of

$$\bar{e}(\mu) = \begin{cases} \lambda \bar{Z} & \text{if } \mu \leq \pi/\lambda \bar{Z} \\ \sqrt{\frac{\pi}{\mu} \lambda \bar{Z}} & \text{otherwise.} \end{cases}$$

The case where $\mu > \pi/\lambda \bar{Z}$ is where the rat race kicks in since effort per capita is lower if the fraction of aspirational individuals increases, i.e. there is now a negative externality from having more aspirational individuals in the population. In spite of this, however, total effort, $\mu \bar{e}(\mu)$, is increasing in μ in a rat race even though more aspiration does not lead to there being more high income individuals in the population. Thus, if $\mu > \pi/\lambda \bar{Z}$, the economy resembles a rent-seeking contest for a scarce set of rewards.

Now consider the gains from being an aspirational individual in this modified economy. This will depend on whether μ is high enough to induce a rat race. Hence¹⁸:

$$\Delta(\mu) = \begin{cases} \frac{1}{2} (\lambda \bar{Z})^2 + \lambda [\bar{Z} (\bar{Z} - 1)] & \text{if } \mu \leq \pi/\lambda \bar{Z} \\ \bar{Z} \left[\frac{\pi}{\mu} \left(1 + \frac{\lambda}{2} \right) - \lambda \right] & \text{otherwise.} \end{cases}$$

An immediate observation from this is $\Delta'(\mu) < 0$ whenever $\mu > \pi/\lambda \bar{Z}$ so having more aspirational individuals in the population reduces the return to being aspirational since it increases the intensity of the rate race. This has rather different implications for the dynamics of aspiration compared to the core model of the previous section. Specifically:

Proposition 8 *If $\frac{\bar{Z}}{\lambda} \left(1 + \frac{\lambda}{2} \right) > 1 > \frac{\pi}{\lambda} \left(1 + \frac{\lambda}{2} \right)$, then the economy converges globally to an interior equilibrium where the fraction of aspirational individuals $\hat{\mu} = \frac{\pi}{\lambda} \left(1 + \frac{\lambda}{2} \right) \in (0, 1)$.*

¹⁸To see this observe that the probability that a high aspirations individual achieves high income is

$$e \times \frac{\pi}{e\mu} = \frac{\pi}{\mu}$$

when $\mu > \pi/\lambda \bar{Z}$.

Proof. As in the core model, the dynamics will be governed by $\mu_{t+1} - \mu_t = (1 - \alpha) \mu_t (1 - \mu_t) [2\rho(\Delta(\mu_t)) - 1]$. Under the condition in the Proposition, $\Delta(0) > 0 > \Delta(1)$ and there is a unique value of μ at which $\Delta(\hat{\mu}) = 0$. Moreover $\mu_{t+1} - \hat{\mu} = (1 - \alpha) \hat{\mu} (1 - \hat{\mu}) [2\rho(\Delta(\hat{\mu})) - 1] = 0$ with $\mu_{t+1} - \mu_t > 0$ for all $\mu_t < \hat{\mu}$ and $\mu_{t+1} - \mu_t < 0$ for all $\mu_t > \hat{\mu}$. Thus there is global convergence to $\hat{\mu}$ for all $\mu \in [0, 1]$. ■

The reasoning behind this is fairly straightforward. Under the stated condition, there is gain to being aspirational when there is no rat race, e.g. $\mu \leq \pi/\lambda\bar{Z}$. However, eventually (for high enough μ) the rat race begins and being aspirational is less worthwhile. Eventually, the rat race is so intense that individuals are worse off being aspirational. The point at which the gains to be an aspirational type are zero is then a stable point. It is easy to see that the interior point is decreasing in λ , the loss aversion parameter and increasing in π , the potential fraction of high income jobs.

The possibility of a rat race also has consequences for the welfare economics of aspirational societies since the welfare of the aspirational type is positive as long as there is no scarcity of high income jobs. However, once high income jobs become scarce, i.e. $\mu > \pi/\lambda\bar{Z}$, then creating more aspirational types leads to an excessive aggregate effort level as individuals strive to capture these high-income positions while ignoring the negative externality that they are imposing on others.

In summary, this section has emphasised that there is a somewhat fundamental difference between two kinds of economies when assessing the role of aspirations. If the opportunities for aspirational individuals are not intrinsically scarce, then encouraging aspiration has positive consequences. However, if such opportunities are rationed, this is less clear-cut. In practice, there are elite positions in society such as access to certain universities and jobs, which have not expanded materially over time and, for which the idea of an aspirational rate race would seem relevant. It would, of course, be possible to combine the analysis of an externality coming through a rat race effect together with the externality coming through endogenous redistribution. This would complicate things since the direction of the externality would be unclear a priori. However, the possibility of aspirational individuals inducing a rat race would remain an important caveat to the analysis.

6 Some Evidence from The World Values Survey

This section looks at data from the World Values Survey, a large scale data set which has been collected since 1981 to explore values and beliefs of citizens across the world. Specifically, it measures a wide variety of attitudes and beliefs with coverage of nearly 100 countries. The first step will be to look at measures of aspirations in the data which could be thought of as representing one of the core ideas in the theoretical model, i.e. having an aspirational attitude. We will then look at how this is correlated with other attitudes which are also motivated by some of the core elements of the model using only within-country variation. The section also reports on cross-country patterns in the data using average responses to questions in country.

6.1 Measuring Aspiration

There is no straightforward way of bringing the stylized theory developed so far to the data. However, there *is* a question in the World Values survey which asks how far a respondent identifies themselves as valuing being rich and to value having a lot of money/expensive things. To map this to the model, it could be interpreted this as a measure of the reference point, r , in the theory. The specific question that will be used is:

"Using this card, would you please indicate for each description whether that person is very much like you, like you, somewhat like you, not like you, or not at all like you? It is important to this person to be rich; to have a lot of money and expensive things."

From this one can generate a dummy variable which is equal to one if the respondent answers either "very much like me, like me, somewhat like me or a little like me" and zero if the respondent answers "not like me and not at all like me". A respondent is classified as being aspirational if this dummy variable is equal to one. The question was asked in waves 5 and 6 of the World Values Survey. Of the 156453 respondents who answered this question in 77 different countries, an average of 58% are classified as aspirational using this criterion. In terms of country-level averages, this varies between 22% and 94% – suggesting a fair bit of cross-country cultural variation. Being

aspirational increased on average by 7% over the five year period between the survey waves.

As a robustness check, it is useful to look at another measure of being aspirational based on individual answers to the question:

“ Being very successful is important to this person; to have people recognize one’s achievements”

with a similar scale as to the core question. On the basis of this question, a respondent is classified as being aspirational if they answer "very much like me, like me, somewhat like me or a little like me" and zero otherwise. This is also asked in waves 5 and 6. Interestingly, this has quite a low correlation with the first measure (a correlation coefficient of around 0.24).

6.2 Within-Country Variation

Core Variables Following the theory, whether a respondent is aspirational as an independent characteristic reflecting their underlying preferences. The theory suggests that this should influence their effort put into earning income and educational attainment. That said, there is a standard concern about omitted variables we will check whether correlations between being aspirational and other variables of interest are similar if we control for age, gender, income and education. The Tables below therefore report correlations with and without these controls being included. All of these controls are based on questions asked in the World Values Survey. The survey attempts to collect information on the respondent’s household income on an internationally comparable basis across countries. However, this is quite difficult to do in a survey whose main focus is not on the economic situation of households. Moreover, data on income where there have been efforts to collect it on a comparable basis and adjusting for international differences in prices is quite limited and would dramatically reduce the sample size. That said, all specifications will include country fixed-effects which will take account of systematic country-specific factors. One income question which has been asked frequently and hence does not limit the sample size too much is the following:

"On this card is an income scale on which 1 indicates the lowest income group and 10 the highest income group in your

country. We would like to know in what group your household is. Please, specify the appropriate number, counting all wages, salaries, pensions and other incomes that come in."

This is answered on a ten point scale and a respondent is classified according to the answer that they give to this question. A potential concern with this variable is that it reflects a perception of how well off someone is relative to others. Individuals may also have limited knowledge of where they stand in the income distribution and could even include willful misrepresentation.¹⁹ For education, there is a variable in the survey that gives a three way classification of educational attainment – low, middle and high. Age differences are measured by placing respondents into one of three bins: 15 to 29, 30-49 and 50 and over. Self-reported gender is also used as a control.

Descriptive Statistics Table 1 gives the mean of the aspirations variable by income group and education. There is tendency for aspirations to be positively correlated with income which does make sense according the theoretical model. However, even among the lowest self-reported income group, around 48% of respondents classified themselves as aspirational compared to 64% in the highest income group so the gradient is quite modest. Aspiration actually seems to be highest in the middle education group. However, the lack of any strong relationship with educational attainment is quite striking. We also look at how aspiration varies by age and there is evidence of that the proportion of aspirational types decreases with age. However, the data do not permit us to distinguish this age-based from a cohort effect. It is an interesting question whether there are shifts over the life-cycle and a richer model could allow for aspirations to be updated over the life cycle in response to peer interactions and other influences. Table 1 also shows that men are more likely be classified as aspirational than women. This is also an interesting feature to bring into a future model given the advances in women's economic status in many countries but this would require a richer model of socialization where boys and girls are treated differently by their parents and other societal influences. However, this finding is also consistent with the idea that there are fewer labor market opportunities for women compared to men so that the gains from being aspirational are lower for women than men.

¹⁹This banded variable in the World Values Survey which is collected separately by country strongly predicts the income band data in surveys where both are available.

Table 1 here

Correlations This section reports correlation between aspirations and a range of variables. The theory suggests that people who are aspirational will tend to value work more (as a crude measure of e) and the World Values Survey asks respondents how much they value work in their life. We code this as a dummy variable called "Importance of Work" which is equal to one if the respondent says that work is "very important or rather important" and zero if they regard it as "not very important or not at all important". Across the sample where we also have respondent information on aspirations, 89% say that work is important.

Given the focus of the theory on intergenerational transmission, it is also possible to look at whether respondents say that hard work is an important value among their children based on a question which asks the respondent to report whether they regard hard work to be a quality which it is important for a child to learn at home. This is turned into a dummy variable which is equal to one if this is mentioned as a quality that the respondent values and it is labelled "Hard Work Important for Children". Across the sample where we have information on aspirations, this mean of this dummy variable is 58%.

Another crude way to get at the link to intergenerational socialization is to look at whether individuals regard it as important to make their parents proud. This is somewhat difficult to map to the theoretical mechanism. However, one could hypothesize that those respondents with non-aspirational parents would not regard being aspirational as making their parents proud. However, if the lack of aspiration is due to parental indifference to the fate of their children, there could be a positive correlation between wanting to make your parents proud and having an aspiration to be rich. This is coded as a dummy variable which is equal to one if the respondent says that one of their main goals in life is to make their parents proud and the variable is labelled as "Making Parents Proud".

Being aspirational can also be related to two ways of measuring political preferences. The first uses answers to the question which asks respondents how, on a scale between 1 and 10, they rate the proposition that governments taxing the rich and subsidizing the poor is "an essential characteristic of democracy" where 1 means "not at all essential" and 10 "essential". Below, this variable is labelled "Pro-redistribution" and it has a mean score of 6.4

in the full sample. The second way of looking at political preferences is on a standard left-right political scale. This asks respondents to place their views on a scale where 10 is right wing and 1 is left wing. This variable is called "Right Wing Score" and has a mean of 5.7 across the sample (having full support across the range of possible scores).

For outcome variable x_{ict} for respondent i in country c in wave t , the Table below reports the result of regressions of the following kind:

$$x_{ict} = \alpha_t + \alpha_c + \gamma a_{ict} + \beta z_{ict} + \varepsilon_{ict}$$

where $\{\alpha_t, \alpha_c\}$ are wave and country dummies, a_{ict} is the aspirations dummy variable and z_{ict} are gender, age, income and educational controls.

The results are reported in Table 2. In each case, the results are shown with and without controls. The first two columns look at correlations with whether the respondent thinks work is important. Here, there is a positive and strongly significant correlation which becomes insignificant once controls are included. In columns (3) and (4), the left hand side variable is whether hard work is valued in children and there is a statistically significant correlation with our measure of being aspirational which is now more strongly significant once controls are included. When looking at a measure of whether an individual views it as important to make their parents proud (columns (5) and (6)), there is a highly consistent and significant result with and without controls. The remaining columns, (7) through (10), consider policy preferences and politics. Table 2 shows that individuals that are aspirational as measured here are less likely to say that redistribution is a priority and more likely to self-identify as right wing.

Table 2 here

In Table 3, the results are reported for the second way of classifying an individual as aspirational and are broadly similar although there does not seem to be a significant correlation with redistributive preferences in this case.

Table 3 here

Summing Up This evidence is at best suggestive. However, it does help to breath some life into an otherwise highly stylized theoretical exercise.

There appears to be a link between valuing hard work and desiring less redistribution among those who are aspirational and both of these correlations are in line with what we would expect from the theory even though it is not a direct test of any part of the mechanism. It is worth noting that these correlations are generally robust the inclusion of controls for age, gender, income and education.

6.3 Between-country Evidence

To look at how the average level of aspirations varies across countries, the next Table will correlate the mean of the aspirations measure at a country level with country characteristics. In contrast to the within-country evidence, there is a robust *negative* correlation between the proportion of the population in a country who are classified as being aspirational and the level of income per capita in a country. One straightforward way of seeing this is in Figure 2 which plots the mean of the answer to the aspirations question against the log of income per capita in the Penn World Tables.

Figure 2 here

This finding may seem puzzling given that the theory emphasised a positive correlation between income and the proportion of aspirational individuals in the population. However, the rat race model developed in section 5 above where opportunities for aspirational individuals are limited can make sense of this. To make this more precise, let μ_c be the fraction of aspirational individuals in country c . If $\mu_c > \pi/\lambda\bar{Z}$ in the model of section 5 then the covariance between average income and μ_c across countries is:

$$cov\left(\sqrt{\frac{\pi}{\mu_c}}\lambda\bar{Z}[a_H - a_L] + a_L, \mu_c\right) < 0. \quad (6)$$

which is consistent with the cross-sectional pattern in Figure 2 if we make the very strong assumption that the other parameters take on similar values across countries.

While it might be tempting to conclude from this that the rat-race model is a more plausible way of thinking about the issue, it would be premature to rush such a conclusion given that all parameters of the model are likely to vary cross-sectionally in arbitrary and complex ways. Even though the model does give a steer for one factor that could have some relevance in

cross-country income differences, the fact that we have set aside all standard explanations for cross-country income differences is also a major caveat when trying to use any simple model to interpret Figure 2.

Note also that, in a more general setting, it would be important to consider the possibility that countries use *other* countries' incomes as a reference point for defining their aspirations while the model developed above assumes that this is determined from what constitutes high income in the country in which an individual resides. Access to global media could mean that aspirations become an internationally determined reference point, at least for some citizens who have access to such information. How the use of technologies, such as social media, which enables a more global perspective for comparisons affects how attitudes evolve is an interesting area to which the ideas developed here could be relevant. As noted above, the issue of aspirations failure, following Ray (1988, 2006), is increasingly being thought of as source of poverty.

7 Wider Issues and Future Research

This paper has taken a highly specific approach and deliberately taken a one-dimensional view of a complex set of issues. The primary purpose has been to explore how endogenous preferences (in the form of aspirations) can be incorporated into our understanding of the dynamics of income distribution within and between countries. The analysis leaves many open challenges and suggests a number of directions for future research.

The approach to preference change studied here could be applied to many different dimensions of preference. It provides a tractable framework for thinking about preference socialization and how institutions and policies can affect this. The indirect evolutionary approach of Güth (1995) and Güth and Yaari (1992) provides a nice balance of strategic and non-strategic behavior. However, it could also be extended to allow for a more strategic approach to socialization as studied, for example, in Bisin and Verdier (2001).

The paper has worked with standard preferences determining the level of redistribution. However, it would be interesting to think about how preferences evolve when people care about social objectives which affect redistribution. If there were more forward-looking behavior, then voters could also care about the impact of their redistributive policy choices on how societies' preferences evolve. More generally, the literature in political economy has

studied situations where preferences are fixed and then derived implications of institutions defined as “rules of the game” for the way in which economies work. The approach taken here could see a potential role for a feedback mechanism from institutions to preferences which affect the sustainability of a particular institutional arrangements.²⁰

The model of intergenerational transmission of advantage developed here is extremely simple and could be enriched in a variety of ways. One direction would be to bring back more traditional sources of economic advantage and consider how these affect the arguments. Moreover, direct parental investments would give a further reason for an individual’s socio-economic background to matter. These, however, are complementary mechanisms to those studied here. One of the trickier issues raised by the framework presented here from a policy point of view is the idea that parents endow children with preferences since this creates concerns about how policies aimed at social engineering should be designed and how far they intrude upon family life. Some forms of early childhood intervention outside the home is clearly deemed acceptable in most societies when it is voluntary. However, the threshold for removing children from their home environment completely (even when apparently in their best interest) is much more difficult. Recent experiments on moving to opportunity of the kind study in Chetty and Hendren (2015) also constitute an interesting form of social engineering.

While the focus has been on aspiration, the idea that there is a range of behavior which the young may engage in with a poor appreciation of its long-run consequences is much wider than this. Other examples where the ideas in this paper would be relevant include criminality, abuse of drugs and alcohol, and smoking. To the extent that this has irreversible consequences and a strong cultural basis in family background, dynamic cultural forces intertwined with policy choices will potentially be important.

Delving more deeply into the nature of socialization mechanisms is an important issue for further work. We have focused here on parental influence. But cultural parents and peers are a much wider group. Integrating our understanding of preference socialization with social network formation is an important agenda item. While you cannot choose who your parents are, these other forms of social influence are dependent on choices raising a range of interesting and difficult modelling issues.

²⁰Ticchi, Verdier and Vindigni (2014) and Besley and Persson (2016) look at the co-evolution of values and institutions in a model of socialization of values.

The approach developed does not appear as successful as a means of looking at differences in aggregate incomes across countries. This is perhaps not too surprising given the myriad of complex factors which shape this. However, there is scope for bringing the importance of preference change into such debates. This links back to wider discussions in the economic development literature about a potential role for cultural factors in affecting economic progress. This paper has provided a framework that could be helpful in thinking about culture as an endogenously evolving factor which responds to policies which are themselves determined by existing preferences. The range of issues to which these ideas could, in principle, be applied is vast.

One limiting feature of the framework is that there are only two distinct preference types in the population. In reality, there is likely to be a wider range of types with transition possibilities across the range. How far relaxing this would change any of the conclusions or insights generated here remains to be seen.

There are also a range of policy challenges which the world faces that seem unlikely to be met until preferences change. Chief among these is climate change where current generations seem reluctant to pay a significant price in terms of the way that they live to support a more sustainable future. Trying to make policy changes in the teeth of widespread opposition by citizens is unlikely to be successful. Thus, the dynamics of preferences seem critical in understanding how this is likely to play out. Another area where changes in preferences and values are important concerns attitudes towards acceptable forms of inequality, particularly what is deemed fair in the design of policies and allocation of resources.

Finally, it is clear that there is much more scope for looking at data which is relevant to the ideas in the model. One interesting line of research is to look at how using data on migration of particular groups with measures of attitudes and economic success. Migration may itself be a product of aspirations which is then transmitted to the offspring of migrants. Bringing this together with longitudinal data sets which track people over time may also yield insights into whether sources of aspirational preferences are indicative of parental influence or other peer groups.

8 Concluding Comments

This paper has suggested a framework for analyzing socialization of aspirational preferences with implications for the evolution of an economy. This framework has a feedback mechanism based on the dynamics of redistribution as the aggregate attitudes of a population evolve. It predicts that aspirational societies will have higher income and less redistribution. However, lower income individuals may still gain from being in an aspirational society to the extent that they benefit from redistribution when the size of the pie is larger. The model is able to articulate the logic of an aggregate “aspirations trap” in which low levels of aspiration lead to low payoffs for aspirational types which then fosters a decline in aspirations over time.

The dominant tradition in economics fosters a reluctance to make preferences endogenous. A major concern is that once this degree of freedom is allowed then anything can trivially follow. However, this paper has incorporated endogenous preferences in a highly structured way. The key element of the model which drives the results is the feedback from the payoffs that different types have in the societal equilibrium to preference evolution. This is a form of societal adaptation which could have implications in a wide range of economic settings. In broad terms it suggests a reason why preferences will tend to conform to the kind of society that evolves. But that same process can also lead to self-reinforcing decline as well as progress.

Aspirations traps can occur at either an individual level by patterns of partnering or at a societal level where policies grow to reflect majority views. Just what kind of policy intervention is warranted in many situations is not straightforward. There may be little political support for policies that try to lean against the values that are nurtured in family settings even if these are an important source of advantage and disadvantage. Parents quite naturally want the best for their own children which they will tend to see through their own eyes. However, this can lead to entrenched disadvantage. Likewise, feedback effects into policy and politics may work either to the detriment or benefit of any given society. Democratic decision making is no guarantee of success in the kind of model suggested here raising the difficult question of how far external political action is justified from the outside looking in. Respect for the sovereignty of family values and democratic political sovereignty of a nation does not provide a cast-iron guarantee of

long-run success once preferences are endogenous.

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References

- [1] Aghion, P. and P. Bolton, [1997], “A Theory of Trickle-down Growth and Development” *Review of Economic Studies*, 64, 151-172.
- [2] Alesina, A. and P. Giuliano, [2011], “Preferences for Redistribution” Chapter 4 in J. Benhabib, M. Jackson and A. Bisin (eds), *Handbook of Social Economics*, Volume 1A, 93-131, Amsterdam: Elsevier.
- [3] Appadurai, A. [2003], “The Capacity to Aspire,” in *Culture and Public Action*, eds. V. Rao and M. Walton, Stanford: Stanford University Press.
- [4] Atkinson, A., [1970], “On the Measurement of Inequality,” *Journal of Economic Theory*, 2, 244-263.
- [5] Bales, R. and T. Parsons, [1955], *Family, socialization and interaction process*, Glencoe, Illinois: The Free Press.
- [6] Bandiera, O., I. Barankay and I. Rasul, [2007], “Incentives for Managers and Inequality Among Workers: Evidence from a Firm Level Experiment” *Quarterly Journal of Economic*, 122, 729-75.
- [7] Banerjee, A. and A. Newman, [1993], “Occupational Choice and the Process of Development,” *Journal of Political Economy*, 101, 274-298.
- [8] Banerjee, A. and S. Mullanaithan [2010], “The Shape of Temptation: Implications for the Economic Lives of the Poor.” Working Paper 15973, National Bureau of Economic Research.
- [9] Becker, G., and N. Tomes, [1979], “An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility.” *Journal of Political Economy*, 87, 1153 – 89.
- [10] Becker, G., and N. Tomes, [1986], “Human Capital and the Rise and Fall of Families,” *Journal of Labor Economics* 4, S1– S39.
- [11] Benabou, R., [1996], “Inequality and Growth,” *NBER Macroeconomics Annual* edited by B. Bernanke and J. Rotemberg, 11-74.
- [12] Benabou, R. and J. Tirole, [2006], “Belief in a Just World and Redistributive Politics,” *Quarterly Journal of Economics*, 121, 699-746.

- [13] Bernard, T., S. Dercon and A.S. Taffesse, [2011], “Beyond Fatalism - An empirical exploration of self-efficacy and aspirations failure in Ethiopia,” Centre for the Study of African Economies Working Paper Series 2011-03, University of Oxford.
- [14] Bernheim, B.D., D. Ray and S. Yeltekin, [2015], “Self-Control and Poverty,” *Econometrica*, 83, 1877-1911.
- [15] Bertrand, M., S. Mullanaithan and E. Shafir, [2004], “A Behavioral-Economics View of Poverty,” *American Economic Review*, 94, 419-423.
- [16] Besley, T. and S. Coate [1997], "An Economic Model of Representative Democracy", *Quarterly Journal of Economics*, 112, 85-114.
- [17] Besley, T. and S. Coate [1998], "Sources of Inefficiency in a Representative Democracy: A Dynamic Analysis", *American Economic Review*, 88, 139-156.
- [18] Besley, T. and T. Persson, [2016], “Democratic Values and Institutions,” unpublished typescript.
- [19] Bisin, A. and T. Verdier, [2000], “Beyond the Melting Pot: Cultural Transmission, Marriage and the Evolution of Ethnic and Religious Traits,” *Quarterly Journal of Economics*, 115, 955–988.
- [20] Bisin, A. and T. Verdier, [2001], “The Economics of Cultural Transmission and the Dynamics of Preferences,” *Journal of Economic Theory*, 97, 298–319.
- [21] Bisin, A. and T. Verdier, [2011], “The Economics of Cultural Transmission and Socialization,” Chapter 9 in J. Benhabib, M. Jackson and A. Bisin (eds), *Handbook of Social Economics*, Volume 1A, 339-416, Amsterdam: Elsevier.
- [22] Blundell, R., M. Costa-Dias, C. Meghir and J. Shaw [2015] “Female Labor Supply, Human Capital and Welfare Reform,” available at http://www.ucl.ac.uk/~uctp39a/BDMS_Mar_2015_RBMCD_CM.pdf (accessed November 2015)
- [23] Boudieu, P., [1986], “The Forms of Capital,” in *Handbook of the Theory of Research for the Sociology of Education* edited by J.E. Richardson, Westport CT: Greenwood, 241-258.

- [24] Bourdieu, P. and J-C. Passeron, [1990], *Reproduction in Education, Society and Culture*, London: Sage.
- [25] Boyd, R., and P. J. Richerson. [1982], “Cultural transmission and the evolution of cooperative behavior,” *Human Ecology*, 10, 325-351.
- [26] Boyd, R., and P. J. Richerson. [1985], *Culture and the Evolutionary Process*, Chicago: University of Chicago Press.
- [27] Cavalli-Sforza, L. L., and Feldman, M. W., [1981]. *Cultural Transmission and Evolution*, Princeton University Press, Princeton, N.J.
- [28] Chetty, R. and N. Hendren, [2015], “The Impacts of Neighborhoods on Intergenerational Mobility: Childhood Exposure Effects and County-Level Estimates,” unpublished typescript available at http://equality-of-opportunity.org/images/nbhds_paper.pdf (accessed July 2016).
- [29] Chetty, R., N. Hendren, P. Kline, and E. Saez, [2014], “Where is the land of opportunity? the geography of intergenerational mobility in the United States,” *Quarterly Journal of Economics*, 129, 1553–1623.
- [30] Cunha, F. and J. Heckman [2009] “The Economics and Psychology of Inequality,” *Journal of the European Economic Association*, 7, 320–364.
- [31] Dalton, P., S. Ghosal and A. Mani, [2015], “Poverty and Aspirations Failure,” *Economic Journal*, 126, 165–188.
- [32] Durkheim, E., [1893], *The Division of Labor in Society*, 1964 edition, New York: Free Press.
- [33] Erikson, R. and J. Goldthorpe, [1992], *The Constant Flux: Study of Class Mobility in Industrial Societies*, Oxford: Clarendon Press.
- [34] Fernandez, R. and R. Rogerson, [2001], “Sorting and Long-run Inequality,” *The Quarterly Journal of Economics*, 116, 1305-1341.
- [35] Fong, C., [2001], “Social Preferences, Self-Interest, and the Demand for Redistribution.” *Journal of Public Economics*, 82, 225-246.
- [36] Friedman, M., [1953], “Choice, Chance, and the Personal Distribution of Income,” *Journal of Political Economy* 61, 277-90.

- [37] Genicot G. and D. Ray, [2015] “Aspirations and Inequality,” NBER Working Paper No. 19976.
- [38] Güth,W., [1995], “An Evolutionary Approach to Explaining Cooperative Behavior by Reciprocal Incentives,” *International Journal of Game Theory*, 24, 323–344.
- [39] Güth,W. and M. Yaari, [1992], “Explaining Reciprocal Behavior in Simple Strategic Games: An Evolutionary Approach,” in U. Witt (ed.) *Explaining process and change: Approaches to evolutionary Economics*, Ann Arbor: University of Michigan Press, 23–34.
- [40] Hassler, J., J. V. Rodríguez Mora and J. Zeira, [2007], “Inequality and Mobility,” *Journal of Economic Growth*, 12, 235-259.
- [41] Heckman, J., [2007], “The technology and neuroscience of capacity formation,” *Proceedings of the National Academy of Sciences*, 104, 13250–13255.
- [42] Hsiaw, A. [2013], “Goal-Setting and Self-Control,” *Journal of Economic Theory*, 148, 601-626.
- [43] Jäntti, M. and S. Jenkins, [2015], “Income Mobility,” Chapter 10 in *Handbook of Income Distribution* edited by A. Atkinson and F. Bourguignon, Volume 2, 807–935, Amsterdam: Elsevier.
- [44] Kahneman, D. and A. Tversky, [1979], “Prospect Theory: An Analysis of Decision under Risk.” *Econometrica* 47, 263–291.
- [45] Kanbur, R., [1979], “Of Risk Taking and the Personal Distribution of Income,” *Journal of Political Economy*, 87, 769-797.
- [46] Kanbur, R. and A. Wagstaff, [2014], “How useful is Inequality of Opportunity as a Policy Construct,” World Bank Policy Research Working Paper, 6980.
- [47] Koszegi, B. and M. Rabin. [2006], “A Model of Reference-Dependent Preferences.” *Quarterly Journal of Economics*, 121, 1133–1165.
- [48] Kremer, M., [1997], “How Much does Sorting Increase Inequality?,” *Quarterly Journal of Economics*, 112, 115-139.

- [49] Krugman, P., [1991], "History versus Expectations," *Quarterly Journal of Economics*, 106, 651-667.
- [50] Kuran, T. and W. Sandholm [2008], "Cultural Integration and Its Discontents," *The Review of Economic Studies*, 75, 201-228.
- [51] Kuznets, S. [1955], "Economic Growth and Income Inequality," *American Economic Review*, 45, 1-28.
- [52] Loury, G., [1981], "Intergenerational Transfers and the Distribution of Income," *Econometrica*, 49, 843-867.
- [53] Meltzer, A. and S. Richards [1981], "A Rational Theory of the Size of Government", *Journal of Political Economy*, 89, 914-927.
- [54] Osborne, M. and A. Slivinski [1996], "A Model of Political Competition with Citizen-candidates", *Quarterly Journal of Economics*, 111, 65-96.
- [55] Persson, T. and G. Tabellini [2000], *Political Economics: Explaining Economic Policy*, Cambridge, MA: MIT Press.
- [56] Polanyi, K. [1944/2001], *The Great Transformation: The Political and Economic Origins of Our Time*, 2nd ed. Foreword by J. E. Stiglitz introduction by Fred Block. Boston: Beacon Press.
- [57] Prendergast, C., [2013], "The Empirical Content of Pay-for-Performance," unpublished typescript, University of Chicago.
- [58] Ray, D., [1998], *Development Economics*, Princeton: Princeton University Press.
- [59] Ray, D., [2006], "Aspirations, Poverty and Economic Change," in *What Have We Learnt About Poverty*, edited by R. Benabou, A. Banerjee and D. Mookherjee, Oxford: Oxford University Press.
- [60] Roberts, K. [1977], "Voting over Income Tax Schedules", *Journal of Public Economics*, 8, 329-340.
- [61] Romer, T. [1975], "Individual Welfare, Majority Voting, and the Properties of a Linear Income Tax", *Journal of Public Economics*, 4, 163-185.

- [62] Rutter, M., [2006], *Genes and behavior: nature-nurture interplay explained*, Oxford: Blackwell Publishers.
- [63] Saez-Marti, M. and F. Zilibotti, [2008], “Preferences as Human Capital: Rational Choice Theories of Endogenous Preferences and Socioeconomic Changes”, *Finnish Economic Papers*, 21, 81-94.
- [64] Solon, G., [2004], “A model of intergenerational mobility variation over time and place,” in M. Corak (ed) *Generational Income Mobility in North America and Europe*, Cambridge: Cambridge University Press.
- [65] St Paul, G. and T. Verdier, [1993], “Education Democracy and Growth,” *Journal of Development Economics*, 42, 399-407.
- [66] Ticchi, D., T. Verdier, and A. Vindigni [2013], “Democracy, Dictatorship and the Cultural Transmission of Political Values,” IZA Discussion Paper, No. 7441.
- [67] Varian, H., [1980], “Redistributive taxation as social insurance,” *Journal of Public Economics*, 14, 49-68.

Table1: Aspirations, Income and Education

	Mean	Standard Deviation	Observations
Income Group 1	0.48	0.50	12203
Income Group 2	0.50	0.50	12374
Income Group 3	0.54	0.50	18084
Income Group 4	0.57	0.50	20408
Income Group 5	0.58	0.49	30032
Income Group 6	0.63	0.48	21365
Income Group 7	0.66	0.48	16916
Income Group 8	0.68	0.47	10006
Income Group 9	0.66	0.47	3485
Income Group 10	0.64	0.47	3052
Education: Low	0.56	0.50	40716
Education: Middle	0.59	0.50	67457
Education: High	0.57	0.50	37067
Age: 15-29	0.68	0.47	45234
Age 30-49	0.60	0.49	61298
Age: 50+	0.46	0.50	49569
Male	0.61	0.49	74903
Female	0.55	0.50	81403

Table 2: Aspirations and Other Attitudes

Variable	(1) Importance of Work	(2) Importance of Work	(3) Hard Work Important for Children	(4) Hard Work Important for Children	(5) Making Parents Proud	(6) Making Parents Proud	(7) Pro- redistribution	(8) Pro- redistribution	(9) Right Wing Score	(10) Right Wing Score
Aspirational	0.017*** (0.004)	0.005 (0.003)	0.013* (0.007)	0.021*** (0.006)	0.021*** (0.004)	0.021*** (0.004)	-0.119*** (0.039)	-0.077** (0.036)	0.148*** (0.037)	0.142*** (0.035)
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	154148	135973	156449	137728	151665	134033	150009	133324	115429	104324
R ²	0.0402	0.0428	0.1811	0.1906	0.1280	0.1332	0.1005	0.1017	0.0907	0.1005

Notes: Sample covers 78 countries for 2007 and 2012. All specifications include country and wave dummies. Controls are ten dummies for income group, three for education group, gender and three age bands. Standard errors are adjusted for clustering at the country level. A “*” denotes significant at 10%, a “**” significant at 5% and “***” significant at 1%.

Table 3: Aspirations and Other Attitudes (Success Measure)

Variable	(1) Importance of Work	(2) Importance of Work	(3) Hard Work Important for Children	(4) Hard Work Important for Children	(5) Making Parents Proud	(6) Making Parents Proud	(7) Pro- redistribution	(8) Pro- redistribution	(9) Right Wing Score	(10) Right Wing Score
Aspirational	0.065*** (0.007)	0.051*** (0.006)	0.011 (0.007)	0.019*** (0.006)	0.088*** (0.007)	0.090*** (0.007)	-0.003 (0.044)	-0.053 (0.043)	0.080** (0.037)	0.102*** (0.035)
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	153575	135449	155811	137176	151199	133567	149538	132870	115154	104053
R ²	0.0455	0.0669	0.1818	0.1937	0.1359	0.1430	0.0910	0.1017	0.0818	0.0910

Notes: Sample covers 78 countries for 2007 and 2012. All specifications include country and wave dummies. Controls are ten dummies for income group, three for education group, gender and three age bands. Standard errors are adjusted for clustering at the country level. A “*” denotes significant at 10%, a “**” significant at 5% and “***” significant at 1%. Question for being aspirational is whether it is important to this person to be successful.

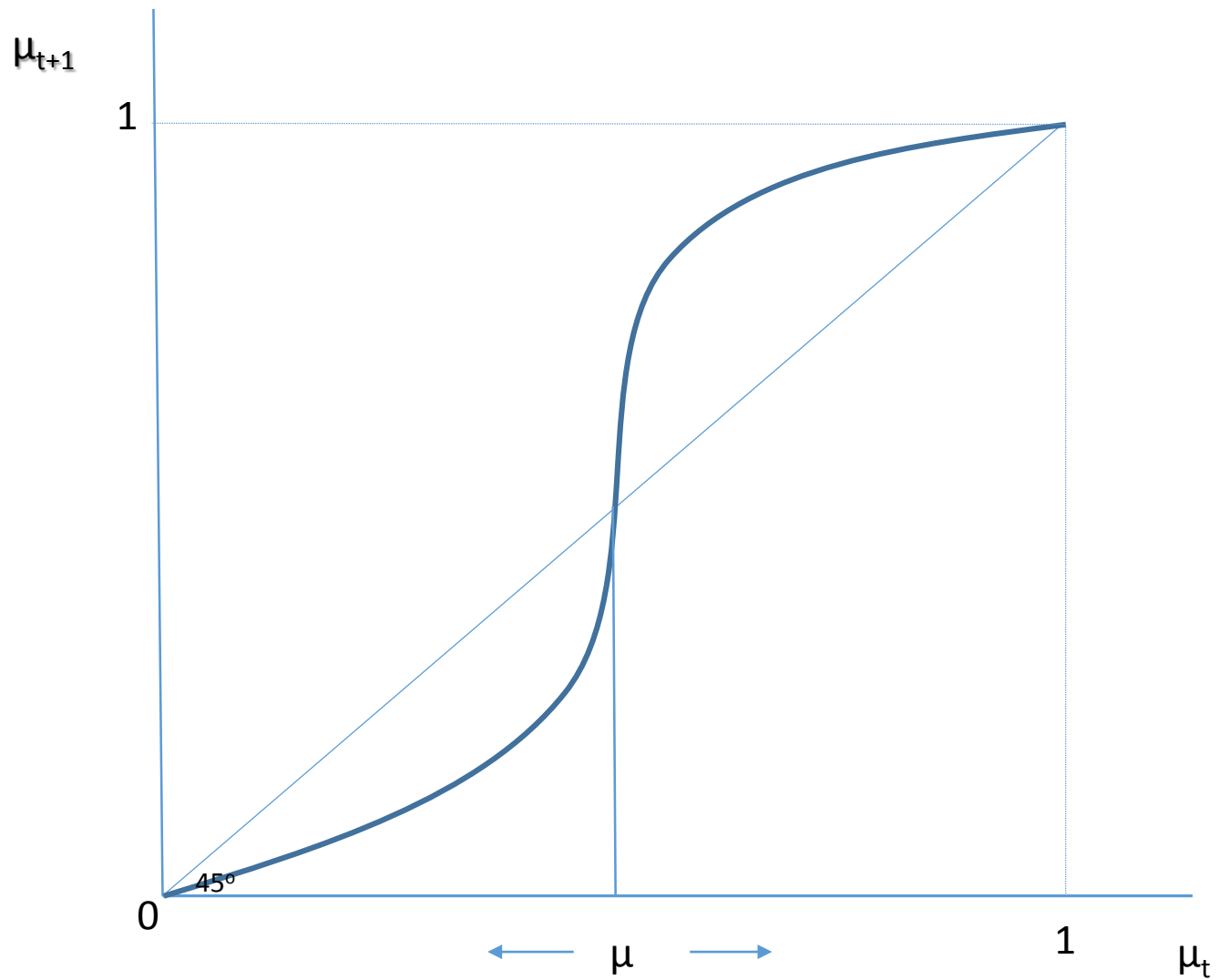


Figure 2

