PRESIDENTIAL ADDRESS: ASPIRATIONS, SOCIAL NORMS, AND DEVELOPMENT

Eliana La Ferrara
Bocconi University, IGIER and LEAP

Abstract
I study the role of aspirations in economic development drawing on the existing theoretical and empirical literature and provide some new empirical findings using individual level data on aspirations across countries. After discussing the relationship between aspirations and individual investments, I present estimates on the correlates and determinants of students' aspirations in the OECD's Programme for International Student Assessment data. I focus in particular on socioeconomic status, inequality, and institutional features that lead to horizontal segregation of education systems. I then address the question of whether and how aspirations can be changed, covering recent policy interventions that leverage psychological factors, stereotypes and norms, and material endowments. (JEL: O15, I24)

1. Introduction

Economists have long acknowledged the existence of "poverty traps", that is, self-reinforcing mechanisms whereby the poor make economic choices that lead them to remain in a state of poverty. Traditional theories have linked poverty traps to a variety of economic and institutional mechanisms, among which the most commonly cited are credit constraints (Banerjee and Newman 1993; Galor and Zeira 1993), undernutrition (Dasgupta and Ray 1986), and land and labor market imperfections. All of these constitute constraints that are "external" to the individual. More recently, behavioral theories have called attention to the role of "internal" constraints deriving from psychological factors, such as temptation (Banerjee and Mullainathan 2010) and the demands that poverty imposes on cognitive function (Mani, Mullainathan, and

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E-mail: eliana.laferrara@unibocconi.it(La Ferrara)

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Shafir 2013).[1] These internal constraints may induce the poor to believe that they do not have the capabilities for being successful in certain domains (Sen 1999).

A specific form of internal constraints comes from "aspirations", as highlighted in Ray (1998, 2006) and Appadurai (2004). Their seminal contributions generated a growing body of work on "aspiration failures" and "aspiration traps", that is, on the role that individual aspirations may play in generating poverty traps. Appadurai's (2004) key concept is that of a "capacity to aspire". The basic idea is that poor individuals may start with lower aspirations than rich individuals, for example, because they anticipate that resource constraints will not allow them to get very far in life. Due to these lower aspirations, the poor may choose lower levels of investment than the non-poor: for example, they may invest less in their children's education, they may fail to adopt technological innovations, and so on. This will perpetuate their state of economic disadvantage, leading to a vicious circle. In Ray's (2006) and Genicot and Ray's (2017) formulations, the poor do not lack the capacity to aspire: they do have aspirations that are affected by how society evolves (in particular, by income inequality), but the unattainability of what they aspire to plunges them into a trap. The notion that aspiration failures may be strictly linked to poverty has gained momentum. In her Tanner Lectures, Duflo (2012) addresses the question of "whether a deficit of hope can be the source of a poverty trap, and, conversely, whether hope can fuel an exit from the poverty trap".[2]

A policy implication of the aforementioned reasoning is that, the same way as breaking a poverty trap may require a "big push" in someone's resource endowment (e.g., Sachs 2005; Balboni et al. 2019), breaking an "aspiration trap" may demand exposure to new information or new role models that may induce individuals to revise their goals. However, is it always good to increase aspirations, or is there a risk of generating unrealistic expectations (Ray 2006)? What individual and institutional features explain existing differences in aspirations? Also, how does society contribute to determine what is feasible or acceptable for an individual? Aspirations that are conducive to better socioeconomic outcomes for some groups may in some cases run against the prevailing social norm.

In this paper, I discuss potential answers to the aforementioned questions drawing on the existing theoretical and empirical literature and provide some new empirical findings using individual level data on aspirations across countries. In Section 2, I start by briefly examining the notion of aspirations and the early contributions that inspired the inclusion of this concept in economic models. I then review two prominent models linking aspirations and poverty and propose a simple unifying framework in Section 3. Section 4 contains original empirical results on educational and job aspirations of adolescents in a large cross section of countries. In Section 5, I review the recent

1. For a review of poverty trap theories and a stylized theoretical framework to encompass them, see Barrett, Carter, and Chavas (2018, Chap. 1).

2. Duflo (2012, p. 29). Available at https://www.povertyactionlab.org/sites/default/files/documents/TannerLectures_EstherDuflo_draft.pdf

literature on how to change aspirations, ranging from policy interventions that focus on psychological factors, to stereotype and norm change, to programs that provide material endowments. The last section concludes.

2. What Are Aspirations and How Are They Formed?

According to the Oxford Dictionary, an aspiration is "a hope or ambition of achieving something". Aspirations therefore are *not* expectations: we may aim or hope to achieve something, yet not necessarily realistically *expect* to achieve it. The notion of aspiration, in its broadest sense, allows an individual to entertain ambitions that may or may not be within the range of outcomes that the individual's situation allows her to achieve. Although rational expectations internalize constraints, nothing in the notion of aspirations seems to require that they do—however, we will see that existing theories typically require aspirations to be "consistent" in equilibrium.

Another distinction that we could make is between aspirations and goals. Following again the Oxford Dictionary, a goal is "the object of a person's ambition or effort". A goal can be seen as an objective, measurable target: an individual may set out to reach a certain number or sequence of goals, which could ultimately allow her to realize her aspirations. Aspirations can thus, at least in principle, be conceptualized as a higher order variable compared to goals. Yet this is not typically reflected in the analytical representations proposed so far.

An even more encompassing notion is that of "hope", as discussed by Lybbert and Wydick (2018). These authors distinguish between optimism about the future that does not entail any degree of agency from the individual (which they denote as "wishful hope") and the case where the individual has high levels of agency (which they call "aspirational hope"). The economics literature that I will discuss in this paper mostly reflects the latter concept.

Finally, aspirations should be distinguished from the "locus of control" as conceptualized in the psychology literature (e.g., Lefcourt 1982) and used in the economics literature (e.g., Heckman and Kautz 2012). Whereas the locus of control denotes the extent to which people believe that they control the factors that influence their lives, aspirations do not necessarily entail control on the part of the individual.

To gain some insights on how aspirations are formed, we can draw on two fundamental contributions that paved the way for subsequent research: Appadurai (2004) and Ray (2006). Appadurai's (2004) insight is that the capacity to aspire is a "navigational capacity": it consists of the ability to explore possibilities and is nurtured by repeated experimentation and interaction with members of their social network. This creates a wedge between the poor and the rich. In the words of the author, "the capacity to aspire is not evenly distributed in any society [. . .] and the relatively rich and powerful invariably have a more fully developed capacity to aspire [. . .] because of their many opportunities to link material goods and immediate opportunities to more general and generic possibilities and options" (Appadurai 2004, p. 68). Taking up the navigational metaphor, richer individuals use their "map" more frequently because they

have more connections and more access to ideas and opportunities; poorer individuals have fewer opportunities to share knowledge and use their maps less. This process constrains the way in which the poor explore their future and potentially leads to lower aspirations.

Ray (2006) goes further in conceptualizing the role of social connections and proposes the notion of "aspiration window", that is, the set of experiences, places, and individuals used to make comparisons and form a view of what may be attainable in the future. The difference between what an individual aspires to and what she actually achieves is the "aspiration gap". Ray (2006) postulates that it is this gap, and not the level of aspirations per se, that determines investment. In particular, individual investment will be low when the aspiration gap is either very small or very large. When the gap is small, the difference between their current status and potential future status is also small, so incentives to exert effort are low. On the other hand, when the gap is very large, individuals may anticipate that, even with high effort, they will not manage to achieve the target level to which they aspire, and decide to give up altogether. The latter effect captures the "frustration" from overaspiring and will be more formally discussed in the next section.

In general, the insights from early contributions on the role of aspirations point to the importance of social referents in determining aspirations, the prospect of social mobility (which affects perceived returns from investment), and the potential risks of misaligned aspirations compared to effectively attainable goals. These are all issues that we shall return to in the theoretical and empirical analysis later.

3. Theoretical Framework

Starting from the conceptual basis of Appadurai (2004) and Ray (2006), a few recent articles have incorporated the concept of aspirations into formal models (e.g., Bogliacino and Ortoleva 2013; Dalton, Ghosal, and Mani 2016; Genicot and Ray 2017). In what follows, I briefly present the last two of these models and propose a simple unifying framework.

3.1. A Model of Aspiration Traps

Dalton et al. (2016) propose a model where the decision maker—henceforth, child—inherits her initial capital, k, and derives utility from two additively separable sources: final wealth, y_c, and its *relative* level with respect to her aspirations, a_c. To maximize utility, she must decide whether or not to exert costly effort, $e \in \{0, 1\}$, that will determine final wealth.[3] The production function has the functional form $y_c = f(e, k) = (1 + e)k$, which ensures complementarity of effort and capital.

3. For simplicity, we focus on the version of the model with discrete effort.

Summarizing, the objective function of the individual is

$$U_c(e, a_c, y_c) = b(y_c) + v\left(\frac{y_c - a_c}{y_c}\right) - c(e), \tag{1}$$

where $b(\cdot)$ describes the direct effect of final wealth, $v(\cdot)$ describes the effect of aspirations, $c(\cdot)$ describes the cost of exerting effort, and $U_c(\cdot)$ satisfies standard assumptions.[4]

There are two types of agents in this setting and consequently two different ways to endogenize aspirations at equilibrium: a rational agent internalizes in her aspirations the effect of exerting effort and therefore maximizes utility while consistently adjusting aspirations to the effort put in, that is, imposing $a_c = f(e, k)$ in the maximization. A behavioral agent, on the other hand, maximizes while taking a_c as given; however, it is still required that effort and aspirations are ex post consistent at a proper solution. This is further clarified in the following mathematical definitions.

DEFINITION 1. Given k, an effort–aspirations pair (e^*, a_c^*) is a *rational solution* if (a) $e^* \in \arg\max_{e\in\{0,1\}} U_c(e, f(e,k), f(e,k))$ and (b) $a_c^* = f(e^*, k)$.

DEFINITION 2. Given k, an effort–aspirations pair $(\tilde{e}, \tilde{a}_c)$ is a *behavioral solution* if (a) $\tilde{e} \in \arg\max_{e\in\{0,1\}} U_c(e, \tilde{a}_c, f(e,k))$ and (b) $\tilde{a}_c = f(\tilde{e}, k)$.

It is possible to show that there exists a level of initial capital k^* such that the unique rational solution is to exert high effort and have consistently high aspirations ($e^* = 1$ and $a_c^* = 2k$) whenever $k > k^*$; vice versa, whenever $k < k^*$, the unique rational solution is to exert low effort and have low expectations ($e^* = 0$ and $a_c^* = k$).

A similar result holds for behavioral solutions: there exist k_h and k_l (where, under additional assumptions, $k_l \leq k^* \leq k_h$) such that, if $k > k_h$, the unique behavioral solution is high effort and high aspirations; if instead $k < k_l$, the unique behavioral solution entails low effort and low aspirations; finally, if $k_l \leq k \leq k_h$, we have that both high and low effort–aspirations pairs are behavioral solutions.[5]

These two results imply the possibility of two different types of poverty traps. The usual poverty, due to lack of external resources, arises when the capital level is below k^*. However, when $k^* \leq k \leq k_h$, the model induces a novel behavioral poverty trap whereby the sufficiently poor agent with sufficiently low aspirations ends up choosing the suboptimal low effort level specifically because she started with low aspirations.

4. In particular, it is assumed that (a) $b(\cdot)$ is twice differentiable, strictly increasing, and strictly concave over final wealth; moreover, $b(0) = 0$ and the coefficient of relative risk aversion is such that $r(y) = -y(b''(y)/b'(y)) < 1$; (b) $v(\cdot)$ is twice differentiable, has $v'(\cdot) > 0$, and is such that for every feasible x, $v'(x) - v''(x)(1-x) \geq 0$; and (c) $c(1) > c(0) = 0$.

5. This happens provided that $v(-1) \leq 0$ and $v(1/2) < 0$. The first assumption means that having high aspirations $\tilde{a}_c = 2k$ when $e = 0$ and $y_c = k$ has a negative impact on utility. On the other hand, imposing $v(1/2) = v((2k-k)/2k) < 0$ implies that having low aspirations and overshooting them because high effort is exerted produces a negative impact on utility. These two assumptions guarantee the existence of the behavioral poverty trap and its welfare implications.

Dalton et al. (2016) also provide a mechanism to explain the process of aspiration formation, effort choice, and aspiration revision through the feedback received. We may think that, when an agent is born, she is endowed with some amount of capital and with a level of aspirations randomly drawn from some probability distribution. Taking initial conditions as given, the agent decides the effort level that maximizes utility and observes the amount of wealth produced. Finally, aspirations are adjusted in accordance with the observed wealth. Under the same assumptions that guarantee $k_l \leq k^* \leq k_h$, the behavioral poverty trap outcome is always welfare dominated.

The intuition for the behavioral poverty trap is that a poor person will put in a lower effort than a rich person for two reasons. The first is that, at the initial level of aspirations, the marginal benefit of effort is lower for the poor due to the assumption of complementarity between effort and capital (and this is so even in a rational equilibrium). The second reason is that, due to the feedback from effort to aspirations, eventually the aspiration of the poor will be lower than that of the rich, and this further reduces the marginal benefit of effort in equilibrium. The main policy implication is that effective interventions should not only target external constraints, but also aim at raising the aspirations of the poor.

3.2. A Model with Aspiration Frustration

Genicot and Ray (2017) propose a model where the setting is reversed, in the sense that the decision maker belongs to the older and not the younger generation. An individual—henceforth, parent—derives utility from her own consumption, x, and from leaving some inheritance k to the following generation. Moreover, the parent has an aspiration threshold, a_p, on the level of wealth that her child will inherit.[6] Crossing the threshold creates a discontinuity in marginal returns that increase after the threshold. The parent has the following utility function:

$$U_p(x, a_p, y_c) = u(x) + w_0(y_c) + w_1(\max\{y_c - a_p, 0\}), \tag{2}$$

where $u(\cdot)$ is the utility derived from own consumption, $w_0(\cdot)$ is the direct effect of child's wealth, and $w_1(\cdot)$ is the "milestone utility" that the parent derives when the child's wealth exceeds the aspiration threshold. All three components of $U_p(\cdot)$ are assumed to be increasing, smooth, and concave, strictly so for $u(\cdot)$. The objective function (2) is maximized under two additional constraints: the resource constraint $y_0 = x + k$ and the production function of child's wealth: $y_c = f(k)$, where $f(\cdot)$ is assumed to be smooth, strictly increasing, and concave. It is worth noting that it is not the bequest per se, k, that enters the utility function of the parent, but rather the level of child's wealth induced, $y_c = f(k)$.

6. In the original model, aspirations are not exogenous. Instead, they are endogenized in a dynamic macroeconomic model that uses the distribution of wealth in a continuum of agents. Here, I choose to focus on the individual decision problem of the single agent and therefore sidestep the discussion of this issue, which is nonetheless a key part of Genicot and Ray's model.

To solve the parent's maximization problem, it is necessary to proceed in three steps. First, we need to substitute for $x = y_0 - f^{-1}(y_c)$; second, we need to perform two separate maximization on the convex and closed intervals $[0, a_p]$ and $[a_p, f(y_0)]$; finally, the candidate solution yielding the highest utility value needs to be chosen.[7]

Genicot and Ray (2017) provide a very intuitive graphical representation of this optimization problem, as shown in Figure 1.

The utility obtained from the wealth of the next generation is $w_0(y_c) + w_1(\max\{y_c - a_p, 0\})$, the thick piecewise concave curve. The utility cost of bequeathing wealth to their child, $u(y_0) - u(y_0 - f^{-1}(y_c))$, is instead represented by the thinner convex curve. The parent's objective function is maximized when the vertical distance between the two curves is the largest. If the optimal solution exceeds a_p, as in panel (a) of the figure, the aspiration is "satisfied". If the solution y_c^* instead falls short of a_p, as in panel (b), the aspiration is "frustrated".

An increase in aspirations translates into a shift to the right of the kink of the piecewise concave function in Figure 1. If initial aspirations are not too high and the optimal solution is to the right of a_p, a higher threshold stimulates the agent to save more and leave a greater bequest to future generations. However, if aspirations are raised too much, a frustration effect is triggered: the new maximum point moves below the new aspiration threshold and below the initial level of y_c. Indeed, the marginal utility of consumption becomes so high that, even though crossing the threshold would grant additional incentives to save, it is still optimal to remain below and consume more immediately.

In other words, the model allows to capture the effects caused by excessive aspirations and, to some extent, cautions against fostering unreachable aspirations among the poor. Heuristically, it is much easier to generate frustration effects when y_0 is low, as the same level of wealth in the future generations requires lower consumption and therefore higher marginal utility of consumption.

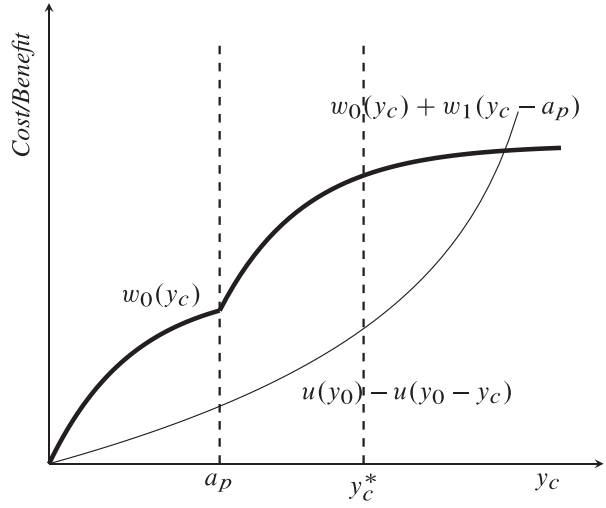
3.3. Integrating the Two Models

In what follows, I combine the two models into a simple two-stage principal–agent setting, where the parent takes the role of the principal and the child is the agent.[8] Indeed, the only small tweak necessary is that we resort to the production function introduced in the model by Dalton et al. (2016).

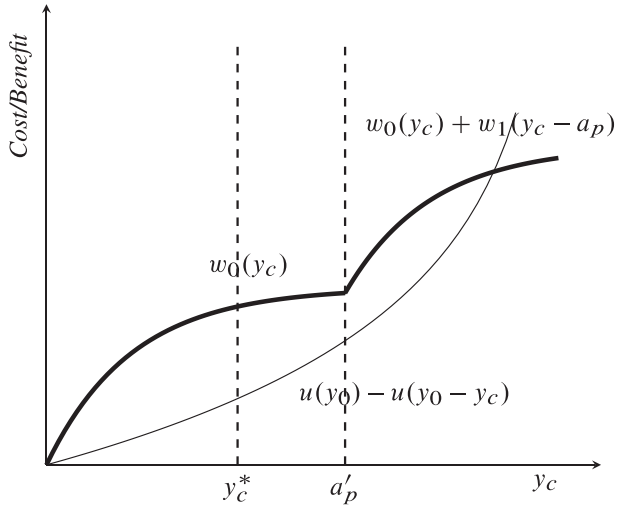
For the purpose of simplifying exposition, consider a "rational" child in the sense of Dalton et al. (2016), so that there is only one additional threshold to consider in the Genicot–Ray framework. Moreover, assume that the parent has perfect information on the second stage and that she is able to derive the threshold that triggers high

7. In performing the second step, it is assumed that $f(y_0) > a_p$. Otherwise, we would obtain the trivial case where maximization is simply on $[0, f(y_0)]$.

8. For an alternative formulation in which parents and children differ because the latter perceive the cost of effort to be higher, see Schwenkenberg (2010).



(a) Aspirations are fulfilled.



(b) Aspirations are frustrated.

FIGURE 1. Parent optimization.

effort. Finally, assume that the child is shortsighted; that is, she considers only her present wealth in her utility and not the resources available in following period, when she becomes a parent herself. Under these admittedly strong assumptions, the second stage of the problem is identical to that presented in Section 3.1.

As for the first stage, we obtain a production function of the form

$$f^*(k) := f(k, e^*(k)) = \begin{cases} k, & \text{if } k < k^*, \\ 2k, & \text{if } k \geq k^*. \end{cases} \tag{3}$$

The function (3) implies that the marginal productivity of capital is doubled when the parent is able to induce the high effort outcome. Obviously, this function is not invertible over the entirety of the real numbers; however, the approach provided by Genicot and Ray is still valid with minor modifications. Hence, to find solutions we still need to split the domain in subintervals and maximize locally to find candidate solutions.

We have three possible cases depending on the functional forms and level of a_p specified in the problem: (a) $k^* \geq a_p$, (b) $k^* \leq a_p \leq 2k^*$, and (c) $2k^* \leq a_p$.[9]

In the first scenario, we need to solve three separate maximization problems:

$$\max_{y_c \in [0, a_p]} \; u(y_0 - y_c) + w_0(y_c), \tag{4}$$

$$\max_{y_c \in [a_p, k^*]} \; u(y_0 - y_c) + w_0(y_c) + w_1(y_c - a_p), \tag{5}$$

$$\max_{y_c \in [2k^*, 2y_0]} \; u(y_0 - y_c/2) + w_0(y_c) + w_1(y_c - a_p). \tag{6}$$

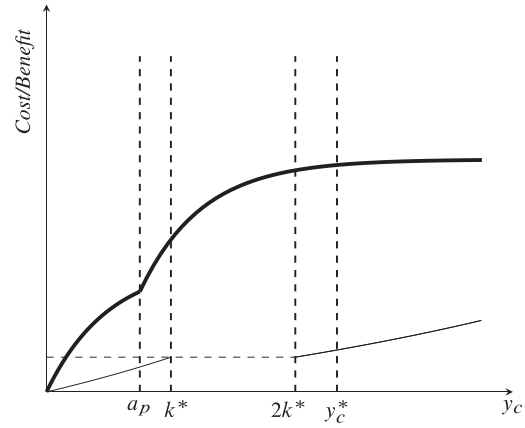
In the second scenario, we only need to consider the two possibilities: $[0, k^*]$ and $[2k^*, 2y_0]$. Finally, when $2k^* \leq a_p$, the approach is analogous to the first case and the intervals to be considered are $[0, k^*]$, $[2k^*, a_p]$, and $[a_p, y_0]$. Note that the gap in the domain is an artifact of the discrete effort specification, which is less cumbersome to analyze than the case of continuous e. However, for a given k, the rational solution is unique even in the case of continuous effort, as proved in Dalton et al. (2016). Hence, excluding degenerate cases where the solution function is discontinuous in k, the model can, in principle, be generalized.

Figure 2 illustrates these three possible scenarios. The frustration effect is now more difficult to obtain, especially so when the threshold a_p is above k^*. Indeed, to the right of k^*, the cost function not only "jumps" to the right while still starting from the same vertical value, $u(y_0) - u(y_0 - k^*)$, but also becomes flatter, due to the complementarity of capital and effort. This, coupled with the strict monotonicity of $w_0(\cdot)$ and $w_1(\cdot)$, yields the result.

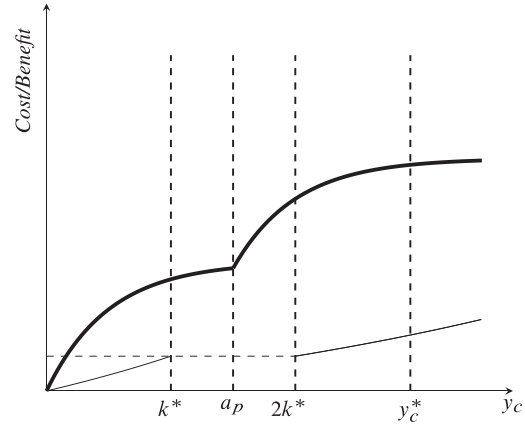
This integrated model suggests that a positive correlation between effort, aspirations, and economic outcomes should be observed in the data. However, we may still expect to observe some negative correlation for individuals who have exceedingly high aspirations with respect to the resources available. In terms of policy implications, this framework gives a somewhat more optimistic outlook compared to the model proposed by Genicot and Ray (2017): when an increase in parent's aspirations allows to exceed the bequest threshold k^*, there is a substantial gain in welfare; moreover, the probability of frustration effects for those with already high aspirations is lower than that in the previous model.

We could extend the model to the case where the child acts as behavioral decision maker. The maximization problem, however, becomes more convoluted and it is not

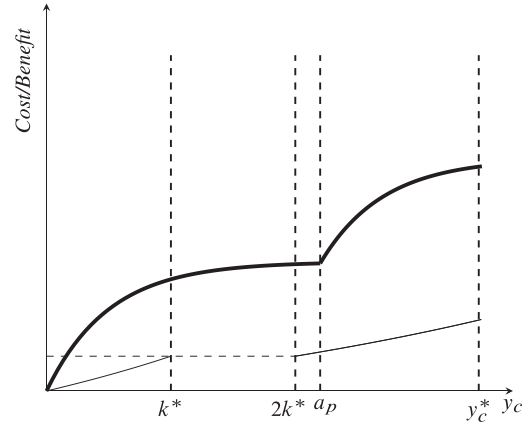
9. To avoid discussing a trivial multiplicity of cases, assume $y_0 > 2k^*$.



(a) Case (i): $a_p \leq k^*$



(b) Case (ii): $k^* \leq a_p \leq 2k^*$



(c) Case (iii): $a_p \geq 2k^*$

FIGURE 2. Integrated model: possible scenarios.

easy to obtain clear results and meaningful policy implications. First, one more threshold has to be considered in the first stage as now we have k_l and k_h, instead of just k^*. Also, it becomes necessary to specify what happens when the parent offers an amount of capital such that $k_l < k < k_h$, that is, when both behavioral solutions are possible. Any deterministic choice is obviously excessively restrictive and thus we need to specify some probability distribution over the two possible outcomes representing the parent's conjecture. Deciding which conjectures can be reasonably justified is a challenge in itself. We might assume that, similarly to Dalton et al. (2016), there is some random mechanism for the formation of initial aspirations of the child, which follows the feedback and readjustment process described earlier. Formally, $a_{0,c} \sim G_0$, where we could assume G_0 to be supported on A_0, a convex subset of the real line. G_0 would induce a probability distribution over the two outcomes in the second stage: as shown in the original paper, given k, the level of initial aspirations induces the behavioral solution and aspirations are then adjusted through the feedback process. Complications arise because the probability distribution over outcomes is itself dependent on k. In this scenario, we would obtain the analogue of a problem of utility maximization under uncertainty where the probability over the states of the world is itself dependent on the choice variable. The optimization can still be mathematically tractable if simple functional forms are used, but results become sensitive to the choice of G. Moreover, one appealing feature of the integration presented is that it enriches the predictions of the original models while still keeping the original framework intact. Instead, the new approach would not allow us to solve for y_c directly. It would be necessary to maximize with respect to k, so that the simple solution strategy and its intuitive graphical representation would be lost.

3.4. Discussion

The stylized framework presented earlier has several limitations. One is that it does not explicitly study the effect of increased inequality on aspirations. In Genicot and Ray (2017), parents' aspirations depend on distribution of income around them, which generates very interesting equilibrium dynamics of inequality and aspiration levels. Other papers have modeled the effect of inequality on aspirations and ultimately on growth in the presence of status seeking (e.g., Corneo and Jeanne 2001; Stark 2006; Bogliacino and Ortoleva 2013). Depending on the framework and on the extent of inequality, the relationship may be positive or negative. Ultimately, it depends on whether the observation of people with much higher status acts as a stimulus to invest and achieve more or generates frustration and hopelessness. The degree of exposure to people with different incomes also matters, as in Mookherjee, Napel, and Ray (2010), where parents' aspirations for their children depend on the earnings of their neighbors, so that income segregation, and not only inequality, matters for investments in education and occupational outcomes.

Also, the aforementioned framework does not incorporate social pressure, stereotypes, and norms. A person's income or the income of people around them may not be enough to determine their aspirations. Neighbors and communities to

which individuals belong are not only "passive" groups to compare oneself to: they often exert "active" judgment on what we should do. What aspirations would be "acceptable" from a social standpoint? For example, should women acquire higher education, work outside their home, and own businesses or land? The answers to these questions vary widely across contexts.

The literature on social image shows that people care about what others think of them (e.g., Bursztyn and Jensen 2017). Therefore, other people's beliefs matter when setting aspirations. More work is needed to understand the interplay between reference points and societal beliefs and norms. For example, it could be interesting to endogenize the reference group and the emergence of social norms as a result of individuals' past choices, as in Benabou and Tirole (2011).

4. Correlates and Determinants of Aspirations

After discussing the theoretical underpinnings of aspirations, in this section I analyze available evidence on the correlates and determinants of aspirations and bring new evidence from a large cross section of young individuals across countries. I start by exploring correlations with poverty, income, and inequality, then move to analyzing the role played by school systems and tracking, and finally discuss the effect of stereotypes and beliefs held by the main actors involved in these systems, that is, teachers and peers.

4.1. The Role of Poverty, Income, and Inequality

As highlighted in the previous sections, economic theory predicts a potential positive correlation between income and aspirations, and in particular the possibility that poverty may be associated with aspiration failures. In an interesting paper, Bernard, Dercon, and Taffesse (2012) use survey data from about 1,200 households in Ethiopia to shed light on this point. They find that fatalistic beliefs are quite widespread in the population: many respondents express low self-efficacy and external locus of control. However, poorer respondents are more likely to do so. Furthermore, poorer individuals have narrower "aspiration windows". For 90% of the respondents, their role models are more or less immediate neighbors, and this possibly explains why about 70% of the individuals see the possibility of becoming as successful as their role models within five years. Less than 30% say that they would be willing to move elsewhere, even if this translated into an improvement in their living conditions. External locus of control is correlated with limited self-efficacy and lower desire for change. When asked about borrowing intentions, people with internal locus of control appear more willing to borrow and make long-term investments in productive activities.

In a recent paper, Dalton, Ruschenpohler, and Zia (2018) study the aspirations of small-scale retailers in Indonesia to understand whether low aspirations may explain low business growth. They collect panel data on about 1,300 businesses in Jakarta

over two consecutive years and measure aspirations about growth in business size, employees, customers, and sales. They distinguish between "imagination failure" (i.e., lack in ability to imagine an ideal business in the long run) and "planning failure" (i.e., inability to set a time frame to realize an ideal business). They find that entrepreneurs do aspire to grow their businesses on average, with an average aspired growth in size of 23% and in sales of 160% within the next year. When compared to the actual business outcomes one year later, these numbers turn out to be too optimistic: over 40% of the businesses do not realize their aspired customers and employment growth, and about 84% fall short of their aspired sales growth. This leads these entrepreneurs to revise their aspirations toward more realistic levels when asked during the second round. Finally, the authors report significant heterogeneity in aspirations, with over 50% of the respondents saying that they do not aspire to grow beyond current levels within a year. This is more likely to happen, the lower the business profits, consistent with the hypothesized relation between poverty and aspirations. The counterpart on the investment front is clear: entrepreneurs with lower aspirations at baseline are less likely to expand their business, to develop business plans, and to make process innovations (including record keeping).

Although the aforementioned papers provide a useful perspective on the aspirations of adults in low-income settings, it is instructive to study the patterns in the aspirations of a younger population across different countries. One reason for focusing on the young is that they may be especially sensitive to aspiration failures, especially when they are at critical junctures in their education and career choices and they have to make long-term investments.

An interesting source of data on young people is the OECD's Programme for International Student Assessment (PISA). This is a survey administered every three years to 15-year-old students in a large cross section of countries. PISA does not collect data precisely on aspirations, but has some interesting data on students' expectations, which can give an idea about how young individuals see their future prospects. Existing empirical studies that have data on both aspirations and expectations find a strong correlation between the two (e.g., Carlana, La Ferrara, and Pinotti 2017). Furthermore, because expectations are likely to internalize constraints, relative to pure "aspirations", we may see the measured level of expectation as a lower bound for the potential aspiration. Given this, and given the lack of comparable data on aspirations across countries, it seems instructive to conduct a first empirical investigation by using expectations as a proxy outcome.

As relevant outcomes, I consider two main questions from the PISA student questionnaires. The first is: "Which of the following [education levels] do you expect to complete?" From this question, I construct a dummy "Expect to finish university" that takes value 1 if the individual responds that she expects to complete a degree equivalent to level 5A or 6 of the International Standard Classification of Education. This is the key indicator of educational aspirations that I use in the analysis later. The second relevant question in the PISA questionnaire is: "What kind of job do you expect to have when you are about 30 years old?" From this variable, I construct the dummy

"Expect top job", which takes value 1 for students who expect to have a job with an international socioeconomic index (ISEI) $\geq$65 at the age of 30.[10]

Figure 3 plots the average share of students who expect to finish university in each country against GDP per capita in that country (top panel), the fraction of the country's population who is below the $1.90 poverty line (middle panel), and the Gini coefficient (bottom panel). The source of the country level variables on the horizontal axis is the World Bank Open Data. No relationship appears in the aggregate between educational expectations and GDP per capita, whereas the correlation with the poverty headcount ratio and with inequality is positive. A similar pattern emerges in Figure 4 when looking at students' expectations to have a top job.

A more informative picture of the correlates of educational and job expectations can be obtained through multivariate analysis. In Table 1, I regress the variables *Expect to finish university* (columns (1)–(4)) and *Expect top job* (columns (5)–(8)) on a series of individual and country characteristics. Columns (1) and (5) include basic controls (and a summary index of the student's socioeconomic status provided by PISA); in columns (2) and (6), I replace the index of socioeconomic status with indicators for parents completing university and parents working; in columns (3) and (7), I control for the student's performance in math, science, and reading; finally, columns (4) and (8) include country fixed effects (instead of broad region fixed effects as in the other columns). A detailed definition of all variables used in the analysis can be found in the Online Appendix, with summary statistics in Table A.1.

Gender is strongly and robustly correlated with the probability of finishing university, with an effect ranging from 8 to 9.5 percentage points, depending on the specification, that is, a 15% increase over the mean in the most conservative specification. The effect on the probability to have a top job is smaller in size (2.5–3.6 percentage points, i.e., a 6% increase over the mean in the most conservative specification). Also, gender no longer correlates with job expectations once we control for parents' education and employment status (column (6)).

Socioeconomic status is also a significant predictor of expected future outcomes. One standard deviation in the index of socioeconomic status is associated with a 13.4 and 8.2 percentage point increase in the expected probability of finishing university in columns (1) and (4), respectively, representing a 27% and a 16% increase over the mean. The corresponding (statistically significant) effects for job expectations are in the order of 17% and 8% increase over the mean (columns (5) and (8), respectively). When we consider some of the key components of the socioeconomic status index, namely, mother's and father's education and working status, they are also significantly associated with their children's expectations. In particular, having parents who completed university is strongly associated with a student's expectation of finishing university himself or herself.

10. Answers to the original open-ended question were coded to four-digit ISCO codes and then mapped to the ISEI (Ganzeboom and Treiman 2003). The ISEI score varies from 10 to 89, with higher values corresponding to a higher socioeconomic status. We followed Sikora and Pokropek (2011) in setting at 65 the ISEI score cutoff to define jobs with top occupational status scores.

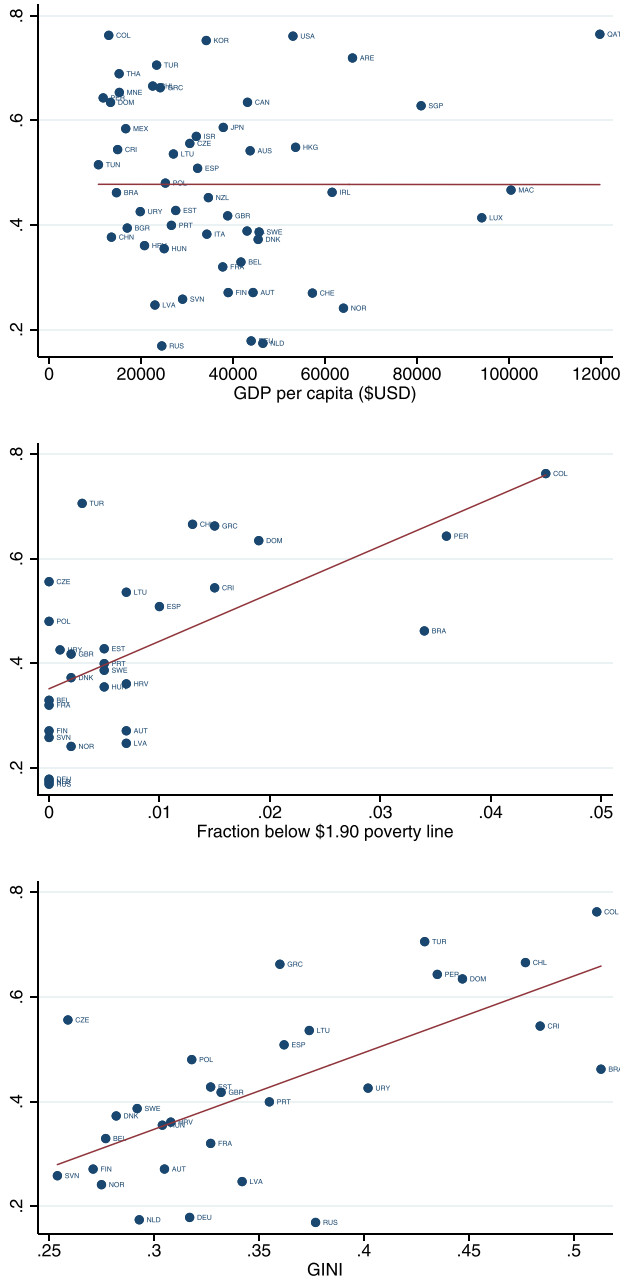


FIGURE 3. Share of 15-year-old students expecting to finish university. Source: PISA data.

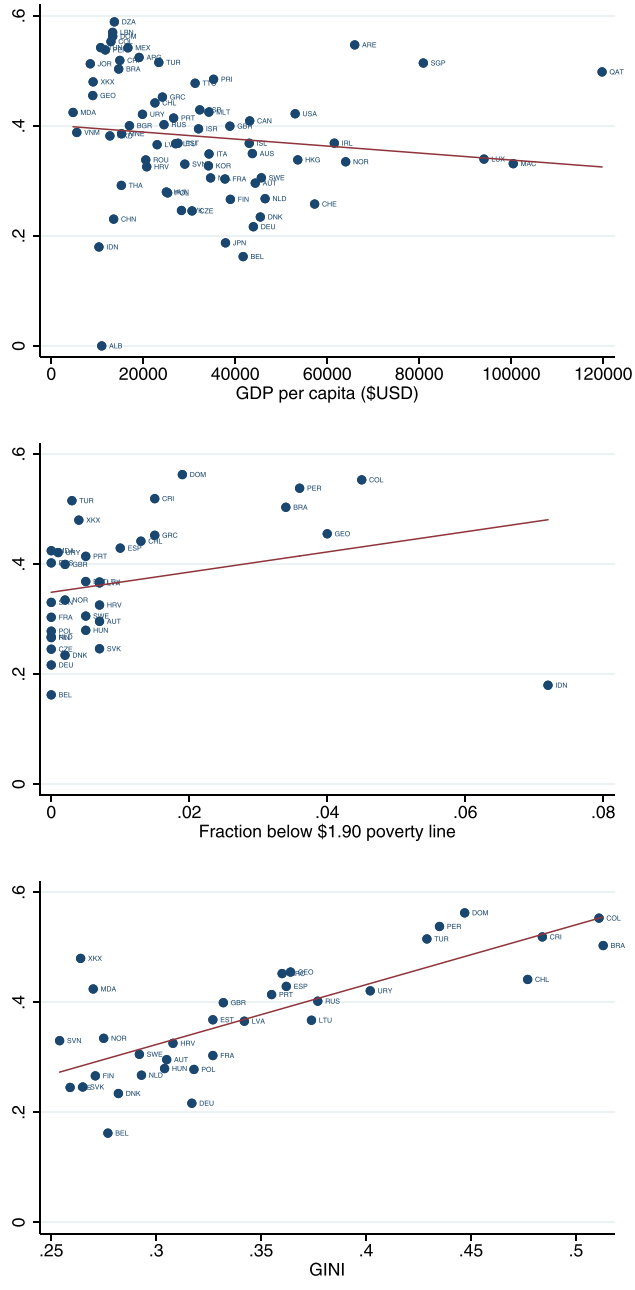


FIGURE 4. Share of 15-year-old students expecting top job. Source: PISA data.

TABLE 1. Correlates of educational and job experiences.

	Expect to finish university				Expect top job			
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	0.0956***	0.0944***	0.0822***	0.0912***	0.0364**	0.0271	0.0267*	0.0535**
	(0.0178)	(0.0172)	(0.0160)	(0.0131)	(0.0166)	(0.0167)	(0.0146)	(0.0195)
Socioeconomic status	0.118***		0.0608***	0.0604***	0.0614***		0.0275***	0.0236***
	(0.0103)		(0.00851)	(0.0105)	(0.00446)		(0.00402)	(0.00588)
Mother completed university		0.104***				0.0512***		
		(0.00892)				(0.00514)		
Father completed university		0.145***				0.0662***		
		(0.0124)				(0.00758)		
Mother working		0.000261				0.0140*		
		(0.0160)				(0.00795)		
Father working		0.0589***				0.0489***		
		(0.0202)				(0.00758)		
Performance in math			0.0868***	0.0664***			0.0382***	0.0353***
			(0.0150)	(0.0160)			(0.00545)	(0.00856)
Performance in science			−0.0146	0.0133			0.0364***	0.0393***
			(0.0248)	(0.0100)			(0.00753)	(0.0106)
Performance in reading			0.0913***	0.0797***			0.0246***	0.0433***
			(0.0119)	(0.0125)			(0.00708)	(0.00767)
Urban	0.0428**	0.0656***	0.0217*	0.0217	0.0429***	0.0647***	0.0353***	0.0235*
	(0.0174)	(0.0230)	(0.0114)	(0.0127)	(0.00721)	(0.00980)	(0.00854)	(0.0129)

TABLE 1. (Continued.)

	Expect to finish university				Expect top job			
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GDP per capita	0.326	1.772	1.141	−6.221	−2.872	−1.382	−1.644	−9.573**
	(2.551)	(2.540)	(2.606)	(7.408)	(1.994)	(1.873)	(1.903)	(4.272)
Male unemployment	−0.0549	−0.0598*	−0.0563	−0.0697	−0.0169	−0.0155	−0.0136	−0.0239*
	(0.0370)	(0.0312)	(0.0375)	(0.0550)	(0.0121)	(0.0107)	(0.0117)	(0.0118)
Female unemployment	0.0588**	0.0607**	0.0598**	0.0697*	0.0190**	0.0172**	0.0165**	0.0245**
	(0.0278)	(0.0230)	(0.0279)	(0.0404)	(0.00884)	(0.00724)	(0.00803)	(0.00997)
% completed tertiary, women	−0.0138*	−0.0120*	−0.0116*	−0.00791	−0.00462*	−0.00384	−0.00337	−0.00558
	(0.00695)	(0.00613)	(0.00689)	(0.00961)	(0.00273)	(0.00235)	(0.00256)	(0.00348)
% completed tertiary, men	0.0126	0.0117*	0.0113	0.00457	0.00491	0.00456	0.00409	0.00981**
	(0.00753)	(0.00674)	(0.00750)	(0.0122)	(0.00331)	(0.00304)	(0.00317)	(0.00419)
Constant	0.596***	0.366**	0.548***	0.634**	0.299***	0.122***	0.241***	0.494***
	(0.164)	(0.149)	(0.161)	(0.278)	(0.0469)	(0.0453)	(0.0513)	(0.121)
Observations	324,665	267,792	267,790	199,432	362,873	296,949	296,943	219,745
R-squared	0.175	0.154	0.259	0.254	0.085	0.082	0.123	0.109
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	No	No	No	No
Mean dep. var.	0.497	0.519	0.519	0.455	0.385	0.403	0.403	0.396

Notes: OLS coefficients with standard errors in parentheses clustered by country. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. GDP per capita has been rescaled by a factor of 1/1,000,000.

In columns (3) and (7), I include among the controls the respondent's performance in math, science, and reading, standardized at the country level to have mean 0 and standard deviation 1. Although these variables are potentially endogenous, it is interesting to note that all three measures significantly correlate with job expectations, whereas for educational expectations only performance in math and reading seem to matter.[11] Finally, the coefficients on individual controls are virtually unaffected when including country fixed effects (columns (4) and (8)).

Table 2 re-estimates the benchmark specification of columns (1) and (4) of Table 1, adding among the regressors income inequality in the country where the respondent lives, measured by the Gini coefficient.[12] I find that inequality is not a significant predictor of educational expectations (column (1)), whereas it positively correlates with the expectation of having a top job. In terms of magnitude, the estimate in column (5) suggests that one standard deviation in Gini is associated with an 11 percentage point increase in the probability of a top job, that is, a 28% increase over the mean.[13]

In columns (2) and (6), I interact Gini with regional dummies to test whether the role of inequality varies across regions. The omitted category to which the coefficient on the stand-alone Gini variable refers is Western Europe. In this region, the results confirm an insignificant role in explaining educational expectations and a positive (even larger) role for job expectations. The coefficient on inequality is not significantly different in Eastern Europe for either outcome, whereas it is a bit smaller (but still positive) for Latin America for job expectations.

In columns (3) and (7), I test whether the relationship between inequality and expectations differs depending on students' socioeconomic status. We find that higher inequality is associated with lower educational expectations for students of higher socioeconomic status (column (3)). The relationship with job expectations is positive, but smaller in magnitude, the higher the student's socioeconomic status (column (7)). The results are virtually unaffected when including country fixed effects (columns (4) and (8)).

4.2. The Role of Education Systems

I next move to studying the role of institutions that regulate access to education. In particular, education systems differ in their degree of horizontal differentiation, or tracking, that is, the extent of differences in instruction within a grade. In "comprehensive" education systems, all students of a given age, say 15-year-old students, follow the same program. In "stratified" systems, students are instead streamed into different programs according to their interest and/or school performance.

11. Note that the inclusion of these variables substantially increases the explanatory power of the regression.

12. The average value of Gini in the sample is 0.365, with a standard deviation of 0.078.

13. When introducing Gini in quadratic form instead of linearly, the estimates are suggestive of a hump-shaped relationship, but neither the coefficient on Gini nor that on its square is statistically significant. The results are available.

TABLE 2. Inequality and expectations.

	Expect to finish university				Expect top job			
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Socioeconomic status (SES)	0.0594***	0.0610***	0.170***	0.209***	0.0297***	0.0301***	0.126***	0.136***
	(0.00939)	(0.00894)	(0.0429)	(0.0328)	(0.00586)	(0.00591)	(0.0173)	(0.0154)
GINI	−0.294	0.554	−0.449		1.431***	2.240***	1.306***	
	(0.957)	(2.079)	(0.957)		(0.279)	(0.775)	(0.286)	
South America * GINI		−0.0393				−0.0175***		
		(0.0390)				(0.00619)		
Eastern Europe * GINI		−0.00231				−0.00652		
		(0.0180)				(0.00608)		
GINI * SES			−0.00263**	−0.00336***			−0.00230***	−0.00249***
			(0.00105)	(0.000848)			(0.000365)	(0.000307)
Observations	199,432	199,432	199,432	199,432	219,745	219,745	219,745	219,745
R-squared	0.254	0.258	0.256	0.303	0.113	0.115	0.115	0.118
Controls[a]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Country FE	No	No	No	Yes	No	No	No	Yes
Mean dep. var.	0.455	0.455	0.455	0.455	0.396	0.396	0.396	0.396

Notes: OLS coefficients with standard errors in parentheses clustered by country. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. a. Controls included but not shown: female, urban, GDP per capita, male unemployment, female unemployment, % women completed tertiary, % men completed tertiary, and performance in math, science, and reading.

Table A.2 in the Online Appendix reports some useful information on school stratification across countries, derived from OECD (2010). The first dimension is the number of programs available to 15-year-old students: some countries offer a single program to everyone, whereas others differentiate into more or less academic and vocational tracks. There is considerable variation in this variable, which ranges from an average of 1.1 in systems with low differentiation (e.g., Scandinavia, United Kingdom, North and South Americas), to 3 in systems with medium differentiation (part of continental and Eastern Europe, East Asia), to 4.3 in highly stratified systems such as those of German-speaking countries.

Another dimension is the age at which students are tracked into different types of schools. This also differs significantly across countries, with an average age of 16 years in systems with low stratification, 14.5 in the middle range, and 11.2 in highly stratified systems. Early tracking is potentially a concern if we aim to guarantee equal learning opportunities to students with different socioeconomic background. In fact, parental background and resources tend to play a bigger role when students are young, so that children from low socioeconomic status families may be at a disadvantage in early tracking systems. OECD (2010) reports that in school systems where the first age of selection occurs earlier, school performance and socioeconomic status are more strongly correlated.

Tracking and Students' Expectations. In Table 3, I test whether individual expectations to finish university or to get a top job are correlated with various measures of school stratification in the countries where they live, after controlling for a number of individual and country level controls.[14] The first is the age of selection. As shown in the table, students' educational expectations are positively but not significantly correlated with the age at which countries start tracking (columns (1)–(3)). On the other hand, delaying by one year the age of selection would increase the probability of getting a top job by about 2.5 percentage points (a 6.5% increase over the mean). This magnitude corresponds to the effect that a 0.6 standard deviation increase in math performance or a 0.8 standard deviation increase in reading performance would have on the same outcome (see the coefficients on the variables *Math performance* and *Reading performance* in column (5)). When I include among the regressors the interaction between age of selection and student performance, the effect of age of selection on job expectations is attenuated for students who have higher performance in reading (column (6)).

Turning to the number of programs available to 15-year-old students, this variable is uncorrelated with students' expectations to complete university, whereas it has a positive (borderline significant) correlation with job expectations. The share of schools that admit students on the basis of academic performance and/or recommendation of feeder schools (*Selective schools* in the table) is not significantly correlated with either

14. The regressors included but not shown in the table are gender, socioeconomic status, urban location, performance in math, science, and reading, GDP per capita, male and female unemployment, and country level share of people who completed tertiary education.

TABLE 3. School stratification and expectations.

	Expect to finish university			Expect top job		
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Age of selection	0.0343	0.0337	0.0337	0.0231*	0.0247**	0.0245*
	(0.0277)	(0.0273)	(0.0273)	(0.0130)	(0.0122)	(0.0122)
Programs available at 15	0.0170	0.0203	0.0204	0.0171	0.0228	0.0225
	(0.0304)	(0.0305)	(0.0305)	(0.0187)	(0.0184)	(0.0184)
% selective schools	0.124	0.0973	0.0968	−0.0157	−0.0257	−0.0254
	(0.114)	(0.118)	(0.118)	(0.0738)	(0.0713)	(0.0709)
% grouping schools	−0.448*	−0.434	−0.435	0.0337	0.0130	0.0145
	(0.252)	(0.259)	(0.259)	(0.131)	(0.130)	(0.129)
Performance in math		0.0827***	0.0602		0.0385***	0.0397**
		(0.0151)	(0.0409)		(0.00556)	(0.0188)
Performance in science		−0.0241	−0.00847		0.0338***	0.0187
		(0.0267)	(0.0303)		(0.00598)	(0.0235)
Performance in reading		0.0966***	0.0961**		0.0317***	0.0784***
		(0.0135)	(0.0418)		(0.00754)	(0.0241)
Age of selection∗ Performance in math			0.0491			−0.00158
			(0.0871)			(0.0361)
Age of selection∗ Performance in science			−0.0331			0.0267
			(0.0546)			(0.0484)
Age of selection∗ Performance in reading			0.000223			−0.0910**
			(0.0865)			(0.0428)
Constant	0.349	0.313	0.315	−0.0554	−0.131	−0.132
	(0.472)	(0.464)	(0.464)	(0.215)	(0.199)	(0.198)
Observations	315,086	315,086	315,086	351,715	351,715	351,715
R-squared	0.191	0.271	0.272	0.084	0.121	0.122
Controls[a]	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Mean dep. var.	0.499	0.499	0.499	0.388	0.388	0.388

Notes: OLS coefficients with standard errors in parentheses clustered by country. *, **, and *** denote significance at the 10, 5, and 1% levels, respectively. a. Controls included but not shown: female, socioeconomic status, urban, GDP per capita, male unemployment, female unemployment, % women completed tertiary, and % men completed tertiary.

type of expectations. Finally, the share of schools that group students by ability for all subjects within a grade (*Grouping schools*) is negatively correlated with the expected probability of finishing university (column (1)), but not of getting a top job.

In Table 4, I test whether the age of selection plays a differential role depending on the student's socioeconomic status or the extent of inequality in the country where he or she lives. Column (1) shows that the effect of postponing the age at which students are tracked on the expectation of completing education is more positive, the higher the socioeconomic status of the student.[15] The expected probability of having a top job,

15. Although the coefficient on the stand-alone SES variable is negative in column (1), the effects of increasing SES over the range of our data are uniformly positive (age of selection varies between 10 and 17).

TABLE 4. Heterogeneous effects of school stratification.

	Expect to finish university			Expect top jobs		
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Age of selection	0.0357	0.00161	0.198***	0.0254**	0.00771	0.0432**
	(0.0244)	(0.0164)	(0.0508)	(0.0116)	(0.00679)	(0.0159)
Age of selection * SES	0.0130***			0.00271		
	(0.00217)			(0.00230)		
Socioeconomic status (SES)	−0.129***			−0.0154		
	(0.0330)			(0.0333)		
Age of selection * GINI			−0.514***			−0.0994**
			(0.147)			(0.0384)
GINI index			5.960***			2.360***
			(1.899)			(0.517)
Constant	0.292	−0.354	−2.267***	−0.140	0.177	−0.667***
	(0.409)	(0.381)	(0.650)	(0.189)	(0.163)	(0.214)
Observations	315,086	200,541	200,541	351,715	224,885	224,885
R-squared	0.274	0.264	0.273	0.121	0.110	0.112
Controls[a]	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Mean dep. var.	0.499	0.453	0.453	0.388	0.388	0.388

Notes: OLS coefficients with standard errors in parentheses clustered by country. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively. a. Controls included but not shown: female, socioeconomic status, performance in math, science, and reading, urban, GDP per capita, male unemployment, female unemployment, % women completed tertiary, % men completed tertiary, programs available at 15, % selective schools, and % grouping schools.

instead, increases in the same way with age of selection regardless of the student's socioeconomic status (column (4)).

In columns (3) and (6), I explore heterogeneity with respect to Gini (columns (2) and (5) report benchmark estimates for the restricted sample for which Gini is available). For both educational and professional expectations, I find that an increase in age of selection significantly increases students' expected achievement, but less so in countries with more inequality.

Overall, the results in Tables 3 and 4 suggest that early tracking is a robust predictor of students' job aspirations (less so for educational aspirations), and other measures of horizontal differentiation contribute to predicting either type of expectations (with the exception of grouping by ability, which predicts educational expectations). A relevant question concerns the distributional implications of these effects.

Distributional Effects of Tracking: Who Underaspires? In a recent paper, Carlana et al. (2017) study the aspirations and high school choice of immigrant and native students in Italy, a country where tracking occurs at age 14. In the Italian system, high school is divided into three separate streams: an academic oriented track (*liceo*) that is the most demanding and typically leads to college degrees and white-collar jobs; a technical track that gives access to college but also offers practical training in nonmanual jobs (e.g., graphic designer, accountant); and a vocational track that prepares for immediate employment in manual, lowskilled jobs. The authors show that, conditional on academic ability (proxied by standardized test scores in math and

reading), immigrant boys are systematically more likely to choose the vocational track compared to the other two when they finish middle school. For girls, this happens in the lower part of the ability distribution but not in the upper part. Family background contributes to explaining the differential but does not fully account for it: barriers perceived by the students (including discrimination in society and in labor markets) are a significant factor, as is the fact that teachers are more likely to recommend vocational schools to immigrants compared to natives, again after controlling for ability. This suggests the importance of changing students' perceptions of what they can achieve, as well as teachers' attitudes toward different groups, to guarantee equal opportunities in access to education and jobs.

A different, complementary mechanism is proposed by Goux, Gurgand, and Maurin (2017), who study high school choice in the French context. Different from Italy, where everyone is allowed to enroll in the high school of their choice, in France admission to different tracks depends on the student's performance. In particular, at the end of grade 9 school principals and teachers decide the list of students who are allowed to enroll in the academic track. The others have various options, among which that of attending a vocational school, with an assignment mechanism that also depends on the marks obtained during the ninth grade. In such a system, the problem may be the opposite of that identified earlier, namely, not that of talented students who underaspire due to lack of information or motivation, but rather that of students who nurture expectations to enroll in schools to which they end up not being admitted due to weak academic records. These students may be disappointed by the outcome of the process, and eventually drop out of the system altogether.

This discussion underlines the potential for policy interventions that change relevant dimensions of horizontal differentiation, or at a minimum try to mitigate detrimental effects for marginalized groups. In Section 5.1, I discuss some examples, focusing on programs designed to affect school choice by immigrant children in tracked schooling systems.

4.3. The Role of Other People's Expectations and Stereotypes

Although in the aforementioned analysis I have focused on students' own expectations regarding their future, a crucial role in shaping young people's aspirations is played by the beliefs that relevant adults hold about them. Parents are the obvious reference point. A number of authors have studied how parental attitudes and expectations shape children's own views as well as performance. For example, Dhar, Jain, and Jayachandran (2019) use survey data from the state of Haryana, India, to examine the correlation in gender attitudes across generations. They show that when parents hold discriminatory views about the roles and rights of women, their children are significantly more likely to hold the same views. This is especially true among marginalized groups such as scheduled caste communities.

Dossi et al. (2019) address a related question using a large administrative data set covering public schools in Florida. First, they use two different strategies to identify which families have a preference for boys. The first strategy relies on fertility stopping

rules, that is, on differential fertility patterns of parents with first-born girls. The second strategy uses direct revelation of maternal attitudes toward gender roles as reported in the 1979 National Longitudinal Survey of Youth. In both cases, the authors show that in families that have a preference for boys, girls have significantly lower performance in standardized math tests. This is consistent with children internalizing parental expectations on their relative ability and adjusting their educational investments (or performance) in response.

A second relevant category of adults is that of teachers. In a path-breaking contribution, Rosenthal and Jacobson (1968) showed that teachers' expectations affected the performance in IQ tests of elementary school children. They ran an experiment in a Californian school where teachers were told that some of the pupils in their class (randomly chosen by the researchers) were expected to outperform their classmates. At the end of the year, these students were objectively more successful, likely because teachers had internalized those predictions and differentially supported the students. Following this study, a large debate emerged on the so-called Pygmalion effect, whereby individuals internalize positive expectations about their performance and actually perform better as a result; and the mirror concept of "Golem effect", in which individuals react to others having a low opinion of them by underperforming. In both cases, others' expectations create a self-fulfilling prophecy and an exogenous shift in expectations is needed to break the circle.[16]

In recent work, Papageorge, Gershenson, and Kang (2018) exploit the fact that two different teachers provided expectations on the education attainable by each student to attain identification through teacher disagreement. They show that white teachers are more optimistic about white students' probability of finishing college relative to black students, and that teacher expectations in tenth grade affect the likelihood of college completion.

Although other people's expectations about a particular individual may or may not be grounded in specific knowledge about that individual, a significant role is often played by *stereotypes*. These are overgeneralized representations of the features that characterize certain groups.[17] From a cognitive standpoint, they have the advantage of making information easier to process, but they may also lead to oversimplified judgment and may result in (possibly involuntary) discriminatory behavior.

In their seminal contribution, Steele and Aronson (1995) showed that individuals who are made aware of the negative image that society holds of their group may experience stress and fear of confirming this negative image and hence underperform in tasks that require effort. This phenomenon, which came to be known as the "stereotype threat" hypothesis, has been investigated in several contexts. For example, Hoff and Pandey (2006) studied whether publicly revealing the caste of young boys in Indian villages affected their performance in cognitive tasks. They found that low-caste boys did not perform differently from high-caste boys when the task (solving mazes) was

16. For a review of the empirical literature on this topic, see Jussim and Harber (2005).

17. For a formal representation of stereotypes, see Bordalo et al. (2016).

performed in an "anonymous" condition, whereas they underperformed when their name and (low) caste were announced prior to the task.

Carlana (2019) shows that in a school setting teachers' stereotypes significantly affect student performance and aspirations. She exploits variation in the teachers to whom middle school students in Italy are assigned and studies the effects of teachers' gender stereotypes on students' math performance. Stereotypes are measured using an Implicit Association Test (IAT). This is a computer-based tool first developed by Greenwald and Banaji (1995) and builds on the idea that when people are asked to associate concepts with visual cues about gender or race, the speed at which they perform the association reveals how common those associations are in the subject's mental processes. Carlana (2019) finds that girls whose teachers hold more negative gender stereotypes have lower confidence in their math ability and underperform in standardized math tests compared to boys. These girls also enroll in less demanding high schools, following the track recommendation of their teachers.

Focusing on racial as opposed to gender stereotypes, Alesina et al. (2018) document the relationship between teachers' stereotypes toward immigrants and their bias in grading. Working with a sample of over 1,300 teachers in Italy, they measure stereotypes through an IAT that scores the time taken to associate immigrant and native sounding names with good and bad attributes. These authors exploit the fact that at the end of middle school students in Italy receive two separate assessments for math and literature: the first is given by the students' teachers on the basis of a nonblindly graded test. The second comes from a standardized test that is blindly graded by different teachers. The authors show that immigrant students receive systematically lower grades compared to native students in the test graded by their own teachers, holding constant their performance in standardized tests. Furthermore, for math teachers the gap systematically correlates with the teacher's own IAT, suggesting that it reflects bias. Alesina et al. (2018) also conduct an experiment randomizing whether teachers receive feedback on their IAT scores in time to adjust their end-of-semester grades and show that teachers exposed to the treatment increase the grades given to immigrants relative to those given to natives. This is consistent with the possibility that teachers may (at least in part) be unaware of the implicit bias they have toward certain groups and that policies that reveal stereotypes may contribute to reducing bias.

5. Can Aspirations Be Changed?

The discussion so far has highlighted a multiplicity of factors that contribute to shaping individual aspirations. This means that different approaches can be attempted to change people's aspirations. In what follows, I will start by discussing existing evidence on programs that have leveraged psychological factors, for example, by working on people's self-efficacy and motivation (whose crucial role is underlined by Bandura 1997), to shape their goals and ultimately their investments. I will then move to approaches that work on the reference points that people see around themselves and consider relevant, and in particular the possibility of using role models. I will also

discuss attempts to shape what society considers appropriate and feasible for certain groups, thus indirectly shaping the aspirations of these groups: in so doing, I will focus on stereotypes and social norms. Finally, I will review some of the existing evidence on how changing material endowments changes the aspirations of the poor.

5.1. Changing Self-Efficacy and Motivation

A recent set of studies has designed and evaluated programs aimed at overcoming psychological barriers faced by marginalized groups, especially in the education sector.

Carlana et al. (2017) evaluate an innovative program designed in collaboration with the Italian Ministry of Education: "Equality of Opportunity for Immigrant Students" (from now on, EOP). This program targeted high-achieving immigrant students in middle schools and provided tutoring and career counseling, with the aim of aligning their high school choice with their academic potential. The program consisted of two components. The first built on social cognitive career theory and included several meetings in which students discussed their aspirations and reflected upon their own potential through a series of psychological exercises. The second was a more standard academic tutoring aimed at providing students with the necessary skills for successfully completing ambitious high school tracks, especially in terms of method for studying.

The authors worked with a sample of 145 middle schools in Northern Italy and randomly assigned 70 of them to EOP. The remaining 75 served as control group. The outcome measured included survey data on students' aspirations, motivation, and perceived barriers, as well as administrative data on exam performance and high school track choice. The results show that EOP had substantially different effects on boys and girls. Immigrant boys, who in the absence of the intervention were systematically more likely than natives to "underaspire", responded to the program by increasing their aspirations and self-confidence. They also reduced the importance that they attributed to external barriers (such as economic factors, parental preferences, and prejudice) in shaping their future. This led treated immigrant boys to improve their school performance and close the gap with native students in terms of the probability of choosing a demanding high school track (technical or academic).

Immigrant girls instead started off with very comparable track choices to those of native girls. The program had little if any effect on them: although they perceived fewer barriers, their educational aspirations and exam performance were not affected by EOP, nor was their track choice relative to the control group. These results suggest that psychological interventions have the potential of re-aligning expectations and incentives when there is an initial misalignment, and are instead neutral when there is no imbalance to correct.

Whereas the program described earlier targeted students with high potential who for some reasons were underaspiring in their career choices, a number of other programs have adopted a complementary approach, targeting low-achieving students who were lagging behind and possibly entertaining expectations that were not realistic given their school performance and the institutional constraints of the education system of their countries.

Goux et al. (2017) evaluate a program in France that targeted low-achieving students in middle school to help them with high school track choice. The problem addressed by this intervention is that in the French system, different from the Italian system, entry into high school tracks is restricted based on school performance and only the best students are admitted into tracks that are in high demand. As a consequence, students who apply to better tracks but are then only assigned to less desired tracks may feel disappointed and drop out of school altogether. This is particularly true for students with lower socioeconomic status who lack adequate information on the assignment system. This empirical fact, documented by the authors, is consistent with the risk of "frustrated aspirations" discussed in the theoretical framework.

For students randomized into the intervention, parents were invited by school principals to attend two collective meetings in which each student's aspirations were discussed and compared with realistic options given their performance. The authors find that, in response to treatment, students shifted their applications in a way that allowed them to get their desired track more often. Furthermore, grade repetition was reduced and dropout rates fell by almost one half.

Martins (2014) evaluates a program run by a private nonprofit in Portuguese schools, exploiting staggered rollout across schools. The program consisted in several sessions held in small groups or one to one, where selected low-achieving students received tutoring in noncognitive skills (e.g., self-esteem, motivation) and were taught a method for studying. The results indicate that the program reduced grade repetition and dropout, although improvements in performance for subjects that were particularly intensive in cognitive skills (such as math) were modest.

Rodriguez-Planas (2012) uses a randomized experiment to evaluate an after-school program in the United States that provided mentoring, academic tutoring, and financial incentives to low-achieving students with the aim of helping them graduate from high school and pursue post-secondary education. The effects are measured at three points in time: at the end of high school, three years later, and five years later. The results show that the program was effective in the short run, increasing high school completion and college enrollment by about 20%, but the effects disappeared in the medium and long run. Financial incentives, in particular, seem to have crowded out intrinsic motivation of the students, with potentially negative long-term effects.

5.2. Changing Reference Points, Stereotypes, and Norms

Improving aspirations may require not only overcoming internal constraints such as psychological barriers, but also exposing individuals to new reference points and diminishing the significance of negative stereotypes or discriminatory norms that exist in society.

Role Models. The first way to create new reference points is through the use of role models. Role models have a powerful influence on young people's expectations and aspirations, as widely discussed in the psychological literature. For example, Marx and Roman (2002) show that women's performance in math tests improved when

the test was administered by female experimenters, especially when the latter's math competence was revealed. Porter and Serra (2019) show that exposure to female role models who majored in economics increases female students' enrolment in economics classes and their interest in choosing an economics major.

Congruence between their orientation and the type of role model is instrumental to achieving an effect. Lockwood, Jordan, and Kunda (2002) report on a lab experiment that primed individuals about "promotion goals" (i.e., achieving success) and "prevention goals" (avoiding failure) and then examined the effect of role models on subjects' motivation. They find that promotion-focused individuals were motivated by positive role models that showed how to be successful, whereas prevention-focused subjects were most motivated by negative role models that represented ways to avoid failure.

Nguyen (2008) conducted an experiment in Madagascar comparing the effects of providing statistical information on returns to education and exposing pupils in schools to successful role models. She experimentally varied the type of role model shown, who could be from a poor or a rich background. The author finds that statistics were effective in reducing the gap between actual and perceived returns, and that school attendance and test scores significantly improved in schools that were randomly assigned to receive the statistical information treatment. Role models, on the other hand, had little if any impact on average, but a strong impact on poor children when the type of role model shown was someone from a poor background becoming successful. Again, this underlines the importance of congruence when designing role model interventions.

Lafortune, Riutort, and Tessada (2018) worked with an adult population, randomizing the inclusion of a role model component in a training program for micro-entrepreneurs in Chile. The intervention consisted in having some alumni of the program who had become successful entrepreneurs attend one of the classes and describe their experience. The role model intervention was compared to an alternative treatment consisting of a one-to-one consulting session with a teaching assistant that helped translate course content into practical guidelines. The authors find that both interventions led to an increase in the participants' household income of about 15% compared to the control group, but the role model intervention was much more cost effective.

An interesting twist on the aforementioned approach is to generate exposure to role models not through in-person contact, but through the media. Two recent studies have evaluated the effects of showing success stories of micro-entrepreneurs through short documentaries or TV series. Bernard et al. (2014) worked in rural Ethiopia producing four 15-min documentaries in which local men and women who had succeeded in setting up a small business were sharing their experience. The authors find that random exposure to these videos improved the viewers' aspirations and locus of control, and that treated parents invested more in their children's education. The effects persisted five years after the end of the intervention.

Bjorvatn et al. (2015) conducted a related experiment, this time in urban Tanzania and with high school students. A random group of schools was incentivized to watch an entertainment education show that was broadcasted on TV and portrayed the lives

of six young entrepreneurs. The treatment increased students' aspirations to become entrepreneurs and their entrepreneurial traits. Two years after the intervention, students exposed to the show had a 30% higher probability of starting a business compared to the control group. However, the program had the unintended consequence of worsening student academic performance in high school and their likelihood of continuing with post-secondary education, possibly due to the emphasis on work and the lack of focus on the role of education. This result suggests the importance of tailoring the message that role models convey to the characteristics of the target audience.

The studies described earlier engineered exposure to role models by creating opportunities for in-person contact or by displaying success stories on the screen. In everyday life, however, role models are also found in the communities where people live and in the organizations and institutions of which they are part. Beaman et al. (2012) analyze how exposure to role models created by political reservations in India affects villagers' aspirations. In particular, they exploit variation generated by a 1993 law that reserved leadership positions in village councils to women in a randomly selected group of villages. Using a survey of over 8,000 adolescents and their parents in 495 villages, the authors compare villages where council positions were reserved for women at least once with villages where they were never reserved. They find that in the former group the gender gap in aspirations diminished, for both parents and children, that girls' educational attainment caught up with that of boys, and that girls spent less time on household chores.

Stereotypes and Norms. The case of political reservations in India sheds light on another important channel for changing aspirations and individual choices. In addition to changing perceptions and educational goals, exposure to female leaders changed stereotypes related to the occupational roles of men and women, and norms about what position it was acceptable for a woman to hold in society.

In an influential study, Beaman et al. (2009) exploit the same natural experiment to investigate the effects on explicit and implicit bias. From a theoretical point of view, a statistical discrimination mechanism can explain why, following an initial preference for male candidates by voters, greater exposure to male leaders makes it easier to screen male candidates. This in turn leads to higher expected performance of male versus female candidates, thus reinforcing the initial stereotype. Female quotas "force" voters to learn about the quality of female leaders, eventually shifting expectations and stereotypes.

To test this theory, the authors collected data on attitudes among villagers in West Bengal, India. They asked about explicit views on the effectiveness of male and female leaders, but also conducted an IAT to reveal implicit attitudes. They found no difference in explicit taste for male leaders across villages that had or had not received female quotas. However, implicit attitudes or stereotypes on occupational roles (as measure by the IAT) changed. Men in reserved villages were less likely to associate leadership roles with men and domestic work with women, relative to men in unreserved villages. Perceived effectiveness of female leaders also increased for men. Interestingly, these results were not found for female respondents.

Gender norms are clearly not easy to change, especially in a setting like India in which certain customs perpetuate a view that clearly separates men's and women's roles. In an attempt to tackle these attitudes in a phase when young people are still malleable, Dhar, Jain, and Jayachandran (2018) designed a randomized experiment to evaluate a multiyear program targeting adolescents in schools. The program engaged boys and girls in classroom discussions where they shared view and experiences on gender roles. The authors find that this approach led to sizeable improvements in adolescents' gender attitudes and led boys to take more active part in doing household chores. Bursztyn, González, and Yanagizawa-Drott (2018) study gender norms related to female labor force participation in Saudi Arabia. They find that, although the majority of married men privately support women's participation in the labor force, they significantly underestimate the extent to which other men support it. Through a field experiment, they show that correcting this misperception among a group of married men changes their wives' labor supply.

In the future, it would be interesting to study whether scalable and cost-effective interventions (e.g., media programs) can combine role modeling with portrayal of new norms that counteract stereotypes to improve people's aspirations. Research on commercial TV programs shows that exposure to different lifestyles can affect family outcomes such as fertility, divorce, and domestic violence (Chong and La Ferrara 2009; Jensen and Oster 2009; La Ferrara, Chong, and Duryea 2012; Kearney and Levine 2015).[18] More generally, the interplay between the possibilities represented by role models and the constraints imposed by societal norms is a fascinating area for future research.

5.3. Changing Material Endowments

Most development programs aim at alleviating constraints related to resource endowments. It is therefore important to understand whether and how such programs affect the aspirations of the beneficiaries. This would be the case if these programs contributed to alleviating constraints (e.g., liquidity constraints) that the poor consider an impediment to their future prospects, or if these interventions change preferences, for example, by inducing the beneficiaries to place more weight on future outcomes. For example, cash transfer programs often include a component of "social marketing" whereby the participants meet regularly and discuss development objectives. Also, the alleviation of material deprivation through external resources may reduce stress and improve people's mental health (Haushofer and Shapiro 2016), which could facilitate the formation of positive aspirations.

Bandiera et al. (2019) evaluate a program implemented by the NGO BRAC in Uganda, aimed at increasing adolescent girls' human capital endowments. The program

18. More recently, Banerjee, La Ferrara, and Orozco (2019) experimentally vary exposure to an educational TV series in Nigeria to study changes in attitudes and behavior related to HIV–AIDS and sex. For a review of evidence on the use of educational entertainment in development policy, see La Ferrara (2016) and DellaVigna and La Ferrara (2015).

combines standard vocational training focused on income-generating activities with "soft skills" related to reproductive health, sex, and marriage. The combination of these two aspects recognizes that internal constraints may be an obstacle to fully taking advantage of hard skills, and that empowering girls by improving their self-confidence and awareness may be crucial. Also, the intervention is delivered in "girls' clubs", so as to reach girls who dropped out of school.

The authors use an experimental design where clubs are randomly assigned across communities and interview about 5,000 adolescent girls at three points in time: baseline, two years after the intervention (midline), and four years after the intervention (endline). They find large effects on girls' self-employment at endline, and sizeable reductions in teen pregnancies and early marriage. Also, aspirations related to marriage and childbearing are significantly impacted in the long run: girls exposed to treatment wish to marry later and postpone childbearing. Other types of aspirations show effects in the short run that do not persist at endline.

Interesting results emerge also from Banerjee and Duflo's ongoing work on the ultra-poor (or "graduation") program in West Bengal, India. This type of program, which is now widely implemented in the developing world, consists in a productive asset transfer, combined with some form of training. In the case of West Bengal, the asset transfer was followed by 13–40 weeks of basic income and 18 months of coaching on life skills, health, and savings. In addition to measuring impacts on poverty and employment outcomes, the authors collected data on expectations and aspirations that the beneficiaries had both for themselves and for their children. Ten years after the start of the program, no impact could be detected on aspirations for themselves (e.g., regarding the type of job or the desire to move outside their village). Aspirations for children's education, on the contrary, were significantly affected, with a higher share wishing for their children to complete secondary or higher secondary education in the treatment group. Interestingly, the improvement in aspirations was not matched by a similar improvement in expectations, which remained unaffected.

Finally, Macours and Vakis (2018) study the interplay between material endowments and role modeling in the context of a conditional cash transfer program in Nicaragua. In particular, they study how social interactions with local leaders contribute to changing people's aspirations in a way that allows to sustain program impacts after the flow of cash terminates. Exploiting random female leaders and regular beneficiaries to different cash transfer packages, the authors show that two years after the end of the program households exposed to leaders who received the largest package had higher aspirations and expectations for their children. This is especially true for aspirations and expectations about children's future jobs (i.e., the likelihood of having a professional job or a skilled salary job), for future earnings and living standards. Interestingly, when distinguishing among households that received different types of packages, these positive effects only emerge for the households that got the largest package (i.e., a package matching that of the leader). This underlines once again the importance of congruence between the role model and the beneficiary.

6. Conclusions

Based on theoretical as well as empirical results, aspirations are a potentially important determinant of individuals' educational investments and occupational choice. This opens the way for policy interventions aimed at changing people's aspirations as a way of lifting them out of poverty. As the discussion in the last section showed, such interventions should not be considered an alternative, but rather a complement, to traditional programs that target skills and resource endowments.

An important caveat is that "overshooting" of aspirations may actually turn to be detrimental, as opposed to beneficial, to development, if it leads to unrealized expectations and frustration.

Also, more work is needed to understand how social constraints and norms shape what aspirations are considered feasible and acceptable for different individuals. Messages that are understood and are potentially appealing to the target individuals may not translate into higher aspirations and investments if these individuals internalize counteracting pressure from their social referents.

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Supplementary Data

Supplementary data are available at *JEEA* online.