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Aspirations in Rural Pakistan

An Empirical Analysis

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EXECUTIVE SUMMARY

To aspire means "to seek to attain or accomplish a particular goal" (Merriam-Webster 2012). Aspirations play an important role in everyday decision-making (Camerer et al. 1997). They help determine whether individuals make investments to better themselves economically and socially (Maertens 2012) and whether they engage in potentially profitable economic risk-taking (Mo 2012). As such, policies that raise aspirations can play a vital role in poverty reduction strategies.

This report examines four important questions related to aspirations in rural Pakistan:

1. How high are average aspirations levels in rural Pakistan, and how do they vary across different types of individuals and households?
2. What external and internal factors, including cognitive processes, help shape aspirations?
3. What policies or community institutions might raise aspirations levels?
4. What are potential benefits associated with raising aspirations levels?

Understanding what leads rural Pakistanis to aspire or fail to aspire is especially important given that Pakistan has an extremely young population that will need to find employment in the coming years (Nayab 2006). Pakistan has a quarter of its population under the age of 10 and 59% under the age of 25 (IFPRI/IDS 2012). It also has the world's fifth-largest population of 15-25 year olds (Bloom 2012). For rural populations highly dependent on agriculture, one consequence of high fertility is increasingly smaller average farm sizes, as family land assets become further divided. This problem is especially acute among the poor; in rural areas, the poorest per capita expenditure quintile has 4.0 children under the age of 15, whereas the richest has 1.2 children (IFPRI/IDS 2012). As Pakistan's working-age population grows, it is vitally important to understand what drives individuals to aspire to improve their outcomes and to invest in their future.

To examine aspirations in rural Pakistan, we carried out an aspirations module with almost 5,000 individuals as part of a comprehensive household survey. Using respondents' answers to questions about their aspirations in four dimensions (income, wealth, education, and social status), we constructed an index similar to those used by Beaman *et al.* (2012) and Bernard and Seyoum Taffesse (2012) to measure aspirations levels. Specifically, respondents were asked to report the level of personal income they would like to achieve, the level (value) of assets they would like to achieve, the level of education they would like a child of their same gender to achieve (re-coded as desired years of education), and the level of social status they would like to achieve (on a 10-step ladder of possibilities). An individual's index score is increasing in their desired levels of achievement in these four dimensions. The weight given to each dimension varies by individual, and equals the share of importance they assign to that dimension. To standardize aspirations levels, we measure each individual's aspirations level compared to the average aspirations of individuals in the same district. This allows us to investigate the factors that can explain within-district differences in aspirations levels. In short, why do some individuals aspire to achieve more or less than do others from the same district?

An individual's aspirations level is determined by various external and internal economic, social, cultural, psychological, demographic, and political factors (Appadurai 2004; Ray 2006). We first examine these factors, and show that very large numbers of rural Pakistanis feel they lack access to basic services and institutions that might influence aspirations. These include security, justice, and social safety nets, among others. Further, women and the poor feel they have even less access to these services than do men and the more well-off. Most respondents also live in communities lacking important infrastructure that has been shown in other contexts to boost economic growth. In particular, over a third live in villages without organized village meetings to discuss village affairs, only 16% have a railway station within walking distance, and 52% indicate that most of their village's internal roads are made of mud. On an internal, cognitive level, individuals generally feel that they have little control over what happens in their lives. In particular, individuals were more likely to disagree than agree that they have control over what happens in their life.

We next examine the characteristics that individuals and households with high aspirations levels share. Among other findings, we show that women have lower aspirations than men; the uneducated have lower aspirations than those with some education; the middle-aged (25-45) have lower aspirations than the young (age 18-25); and agricultural wage laborers have lower aspirations than rural non-farm workers. We also find that various internal factors are strongly correlated with aspirations levels, including an internal locus of control, self-esteem, religiosity, trust, envy, and a sense of poverty being due to external factors. This suggests some particular groups that are most at risk for aspirations failures, and that might be specifically targeted by policies aimed at raising aspirations.

Next, we quantify the relationship between aspirations and individuals' economic decisions and outcomes in several ways. We show that higher aspirations are associated with higher crop yields, less pre- and post-harvest loss, more savings, more cash loans (likely indicating greater access to and use of credit), and a greater propensity to operate a non-agricultural enterprise. This provides initial evidence that aspirations have real economic effects on the poor, and merit further analysis.

These findings have important policy implications. Good policy creates and cultivates the institutional conditions that permit and encourage individuals to aspire. We identify a number of potential policy levers associated with higher aspirations in rural Pakistan: holding organized meetings of village residents, improving the justice system, upgrading road surfaces (from mud to other types), expanding communication and transport links with other localities, and providing training of some type through NGOs.

While our research uncovers important associations between individual and community characteristics and aspirations, we are not able to pinpoint the direction of causality. Our results are suggestive, but further research is needed to understand the causal mechanisms at work. The literature on aspirations formation and the effects of aspirations is still very new. The report concludes with a number of promising directions for future work: the use of motivational experiments to exogenously raise aspirations levels (already being studied and used to influence policy in Ethiopia), the study of the effects of climate change and natural disasters on aspirations, and the use of governance experiments to explore policies that can effectively raise aspirations.

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I. INTRODUCTION

I.1. Aspirations and Poverty

To aspire can be defined as "to seek to attain or accomplish a particular goal" (Merriam-Webster 2012). This implies both setting a goal and an intention to obtain it. Aspirations play an important role in everyday decision-making (Camerer et al. 1997). They help determine whether individuals make investments to better themselves economically and socially (Maertens 2012), and whether they engage in potentially profitable economic risk-taking (Mo 2012). An individual's aspirations level is determined by various external and internal economic, social, cultural, psychological, demographic, and political factors.[1] These include their social circle, life experiences, personality, awareness, perception, reasoning, and judgment, all of which affect how they perceive their future (Appadurai 2004; Ray 2006).

As Simon (1956) points out, individual decision-making is constrained by at least three factors: a lack of information, cognitive limitations, and limited time to make decisions. A decision-maker consequently searches until a satisfactory (rather than optimal) solution is found. This process is guided by aspirations. Individuals with a high aspirations level may be more likely to make costly but rewarding investments. This report examines four important questions related to aspirations in rural Pakistan: 1) How high are average aspirations levels in rural Pakistan, and how do they vary across different types of individuals and households? 2) What external and internal factors, including cognitive processes, help shape aspirations? 3) What policies or community institutions might raise aspirations levels? and 4) What are potential benefits associated with raising aspirations levels?

Understanding what leads rural Pakistanis to aspire or fail to aspire is especially important given that Pakistan has an extremely young population that will need to find employment in the coming years (Nayab 2006). Pakistan has a quarter of its population under the age of 10 and 59% under the age of 25 (IFPRI/IDS 2012). It also has the world's fifth-largest population of 15-25 year olds (Bloom 2012). For rural populations highly dependent on agriculture a consequence of high fertility is increasingly smaller average farm sizes, as family land assets become further divided. This problem is especially acute among the poor; in rural areas, the poorest per capita expenditure quintile has 4.0 children under the age of 15, whereas the richest has 1.2 children (IFPRI/IDS 2012). As Pakistan's working-age population grows, it is vitally important to understand what drives individuals to aspire to improve their outcomes and invest in their future.

The aspirations of Pakistanis are also at an especially critical juncture given the country's deteriorating security situation, two major floods in the last 2.5 years, and an increasing likelihood of such extreme weather events due to climate change. In 2010 alone, floods in Pakistan affected 20 million people, destroying an estimated crop value of 1 billion US dollars (IFRC 2011). Not surprisingly, most households experienced a negative economic shock in the past two years, and did not seem able to implement any useful coping mechanisms that they felt helped them mitigate the effects of these shocks (RHPS 2012). The recent flooding has only heightened perennial concerns in Pakistan about a lack of basic necessities such as education, health, security, mobility, and access to information.[2] For example, only 39% of rural-dwelling adults are completely literate, and almost a third of children aged 10-12 are out of school—mostly due to either poverty, school closures, or security concerns (RHPS 2012). Without these basic necessities, aspirations levels may be exceptionally low, deepening poverty and triggering a vicious cycle that further reduces aspirations levels.

[1] See, for example, Gilboa and Schmeidler (1994), Camerer *et al.* 1997, Karndikar *et al.* (1998), Ray (1998), Dixon (2000), Bendor *et al.* (2001a, 2001b), Borgers and Sarin (2001), and Bernard, Seyoum Tafesse, and Dercon (2008).

[2] See, for example, Government of Pakistan Planning Commission (2011) for a discussion of problems and potential solutions related to community and youth engagement.

It is highly improbable that one moves out of poverty without aspiring to do so. Thus, a sufficient condition for the perpetuation of poverty is a general failure of the poor to aspire. Aspirations may relate to income, wealth, educational attainment, social status, or any other area one considers important. When an individual's aspirations are high relative to the average level in his district, his aspirations level is considered to be high. Conversely, when an individual's aspirations are low relative to the average level in his district, his aspirations level is considered to be low. Understanding what leads to high or low aspirations among the poor, and understanding how aspirations (as well as certain cognitive biases that help determine them) affect behavior provides useful information for effective, pro-poor policy formulation.

Ray (2004) introduced the concept of an aspirations gap, which is "the distance between what an individual might aspire to and the conditions she currently finds herself in." An individual can aspire to any level of achievement, ranging from absolute complacency with the status quo to limitless ambition to achieve something greater. The conditions in which an individual currently finds herself are defined by current levels of achievement but also and importantly by the opportunities present in one's community. Ray argues that the aspirations gap plays an important role in driving future-oriented behavior, such as costly investments aimed at raising future standards of living. If individuals are very far from or very near to their aspired standard of living, they are unlikely to invest heavily in reaching it. If it is attainable through some reasonable effort, they may be more likely to make the necessary investment. Therefore, it is critically important to understand what policies lower aspirations, raise aspirations, and which can ensure that aspirations levels remain high.

Aspirations failures occur when individuals do not proactively invest to improve their situation (Bernard, Seyoum Tafesse, and Dercon 2008). Such failures may manifest themselves in fatalism–a deep belief that one's destiny is preordained and beyond one's control–or a sense of frustration that can generate social tensions and violence (Ray 2006). Aspirations failures may occur for a variety of reasons, but are typically rooted in a belief that one's actions cannot affect one's outcomes. Believing that one's actions *can* affect outcomes is referred to as having an internal locus of control (Coleman and DeLeire 2003). Aspirations failures can thus be linked to having an external locus of control, or a feeling that success in life is determined by external forces.

There is a relatively new but budding empirical literature related to aspirations. Beaman *et al.* (2012) show that reserved leadership positions for women in village councils in India have led gender gaps in aspirations to close by 20% among parents and 32% among adolescents. Knight and Gunatilaka (2012) find that aspirations in China are increasing in previous income and in peers' income, but are negatively related to one's self-assessment of well-being. Bernard, Dercon, and Taffesse (2011) find that fatalism lowers the demand for long-term loans and the use of these loans for productive purposes. Macours and Vakis (2009) find that communication with motivated and successful local leaders in Nicaragua leads to higher aspirations and investment in human capital. And Coleman and DeLeire (2003) find that a greater sense of control over one's life leads to higher high school graduation and college attendance rates. Most of these studies are focused on a narrow aspect of aspirations, leaving much ripe ground for future inquiry.

1.2. Defining and Measuring Aspirations

To understand the factors associated with high vs. low aspirations levels, and to understand what external factors can help raise aspirations levels, we carried out an aspirations module as part of a comprehensive household survey covering over 2,000 households and over 13,000 individuals in rural Pakistan. The separate aspirations module was asked of almost 4,500 individuals, including the household head, the spouse of the head, and the youngest household member between the ages of 18 and 35. The survey households are located in 76 revenue villages—four randomly selected from each of 19 districts in the provinces of Punjab, Khyber Pakhtunkhwa (KPK), and Sindh. The number of districts from each province was selected according to that district's share of total rural households in the three provinces, which resulted in 12 districts from Punjab, 5 from Sindh, and 2 from KPK. Districts were chosen by probability proportional to size (PPS), which allowed districts containing more rural households to have a higher chance of being selected. 28 households were randomly chosen in each village.

In the comprehensive survey, we collected a detailed set of community-, household- and individual-level data on a range of topics including demographics, consumption, income, assets, education, savings, credit, and community characteristics. In addition to this relatively standard data, we collected detailed information on the aspirations of the household head, the head's spouse, and the youngest household member between the ages 18 and 35. This information allows us to observe where aspirations levels are high vs. low, what factors seem to explain this variation, and what factors might potentially raise aspirations levels.

We measure an individual's aspirations level using an index similar to that used by Beaman *et al.* (2012) and Bernard and Seyoum Taffesse (2012). The index is constructed using respondents' answers to questions about their aspirations in

four dimensions: income, wealth, education, and social status. Specifically, respondents were asked to report the level of personal income they would like to achieve, the level (value) of assets they would like to achieve, the level of education they would like a child of their same gender to achieve (re-coded as desired years of education), and the level of social status they would like to achieve (on a 10-step ladder of possibilities). This provided us with four aspired dimension levels for each individual surveyed. While there are a potentially infinite number of dimensions in which an individual could aspire, we argue that these four capture a large and important share of poverty-related aspirations.

We combined the four aspired levels into an index as follows. First, we normalized each respondent's level on each dimension by subtracting the average level for individuals in the same district, and then dividing this difference by the standard deviation for individuals in the same district. The resulting normalized outcomes—normally distributed with an average of 0 and a standard deviation (S.D.) of 1 within a district—represent the number of standard deviations from the district average that an individual's aspired level is located. Respondents with an aspirations level for a particular outcome above their district's average have a positive value on the normalized outcome, while those with an aspirations level below the average have a negative value. By first normalizing the four measures, we ensured that the four outcomes are directly comparable and can be aggregated into an index.

The final step in constructing the aspirations index consisted of taking a weighted average of the four normalized outcomes. We call the resulting measure the individual's aspirations level. The normalized outcomes were weighted according to the individual-specific preferences of each respondent, as in Bernard and Seyoum Taffesse (2012). Specifically, as part of the survey, each individual was asked to allocate 20 beans across the four dimensions of aspirations, with the amount allocated to a given dimension indicating the relative importance of that dimension. Individuals could choose to place all of their beans on one or two dimensions, or to spread them more evenly across dimensions. To compute the index, we summed across the four outcomes, multiplying each normalized outcome by the share of total beans (i.e. the individual-specific weight) placed on that dimension:

$$aspirations\ level = \sum_{n=1}^{4} \left(\frac{a_n^i - \mu_n^d}{\sigma_n^d} \right) \cdot\ w_n^i$$

Here, a_n^i is the aspired outcome of individual *i* on dimension *n* (income, assets, education, or social status). μ_n^d is the average aspired outcome in district *d* for outcome *n*. σ_n^d is the standard deviation (S.D.) of aspired outcomes in district *d* for outcome *n*. w_n^i is the weight individual *i* places on dimension *n*. Clearly, if an individual does not place any importance on a dimension, then aspirations in that dimension will not affect our measure of the aspirations level.

It is important to underscore that the aspirations level as defined above measures an individual's aspirations relative to the average level in their district. In Pakistan—a country with a population of approximately 200 million—there are just over 100 districts. Districts are the administrative subdivisions of provinces. They form the top tier of a three-tier system of local government, which is further subdivided into tehsils and union councils. Poverty and economic opportunities vary widely across districts. To the extent that the district average aspirations level represents what is possible to achieve in a district, then our measure of aspirations captures the distance between what is possible and what an individual aspires to achieve. Two individuals in different districts may wish to obtain the same levels of income, assets, education, and social status, but we would say that the individual in the poorer district has higher aspirations. This is because the individual in the poorer district starts from lower levels of these dimensions, on average. Thus, our measure of aspirations level in some sense captures the *gap* between what Ray (2004) calls "the conditions [one] currently finds [oneself] in" and what one aspires to achieve.

1.3. Roadmap

Section 2 provides an overview of factors that may affect aspirations levels in rural Pakistan. We describe the average level of these factors and show how they vary by gender and by education level. First, we describe external factors including security, justice, and safety nets. Next, we describe individuals' aspirations window—the set or type of people whose experiences can influence an individual's aspirations. Specifically, we describe average exposure to information and media, parental education, and perceived mobility. Next, we describe a number of cognitive processes that can influence aspirations levels: locus of control, perceptions of causes of poverty, attitudes to change, self-esteem, envy, trust, religiosity, mathematical literacy, discount rate, and risk aversion. Finally, we describe the relative importance the average individual places on the four dimensions of aspirations (income, assets, education, and social status). This helps one understand the environment in

which different individuals form their aspirations in rural Pakistan, including factors that might help or hinder aspirations levels.

In Section 3, we analyze aspirations formation. First, we describe what individual- and household-specific factors are associated with significantly higher or lower aspirations levels in a multivariate regression framework. This helps us understand what types of people and households are most likely to be susceptible to aspirations failures, and thus might be targeted by policies aimed at boosting aspirations. Next, we describe how aspirations are affected by the worldviews, cognitive biases, and attitudes of individuals. This sheds light on the cognitive processes that might lead individuals to fail to aspire. A deeper understanding of these factors is instrumental to designing policies that prevent aspirations failure and motivate individuals to make efforts to get out of poverty.

Section 4 analyzes external factors—especially features of an individual's community and its infrastructure and social protection mechanisms—that might be correlated with individual aspirations. This has direct implications for policy. When raising the aspirations of the poor is a policy goal, features that are associated with higher aspirations are likely to be relatively good investments when compared with features uncorrelated with aspirations levels.

In Section 5, we investigate why aspirations levels matter. In particular, we show how high aspirations correlate with productivity-enhancing investments of several types. This provides some evidence as to why raising the aspirations levels of the poor may be a worthy policy goal. Finally, Section 6 concludes and provides both policy implications and directions for further research.

2. ASPIRATIONS IN RURAL PAKISTAN: SOME STRIKING FEATURES

Understanding aspirations in rural Pakistan requires first understanding the external factors as well as the internal features and cognitive processes that help shape them. This knowledge can provide powerful insights into how policy might be used to increase aspirations. By identifying the factors correlated with individuals' aspirations levels, we can identify areas where policies might be most effective and determine the individuals that will likely be most affected by specific policies. In this section, we first describe external factors correlated with aspirations. We then turn to internal features and cognitive processes that may affect aspirations.

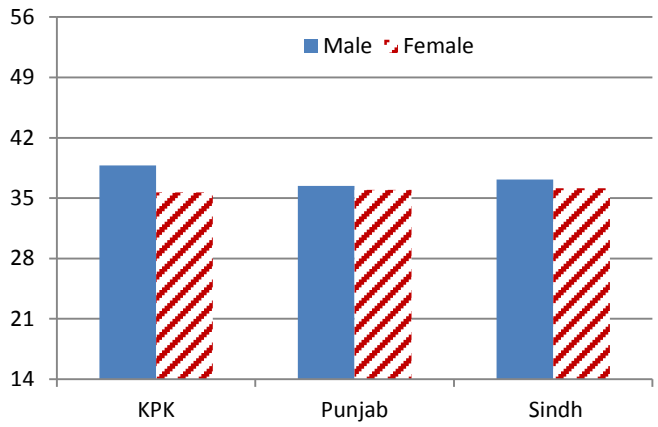
2.1. External factors: security, justice, and safety nets

2.1.1. SECURITY

Security is a perennial concern in Pakistan. Insecurity and violence have been shown to lower economic prosperity (González and Lopez 2007), and may have adverse consequences for aspirations levels. We measure security using an index based on the answers to 14 questions related to security in one's community. These questions include whether locks on a home are necessary, whether several different types of crimes are a problem in the community, where and when the individual feels safe outside the home, and whether the individual worries about the safety of other family members.[3] Each question has four possible responses (1, 2, 3, or 4) indicating the degree of agreement with a security-related statement. The index sums points across all 14 questions, leading to a score with a range of 14 to 56. Higher scores indicate a greater sense of security, and scores above 35 mean that individuals generally have more "secure" answers to these questions than "insecure" answers.

[3] The exact questions used are questions E.5.1.2, E.5.1.12 - E.5.1.17, E.5.1.20 - E.5.1.22, and E.6.2.7 - E.6.2.10 from the Aspirations Questionnaire (available upon request). Questions were coded so that high scores always indicate greater security.

Figure 2.1: Average on Security Index (Range: 14–56) by Gender and Province

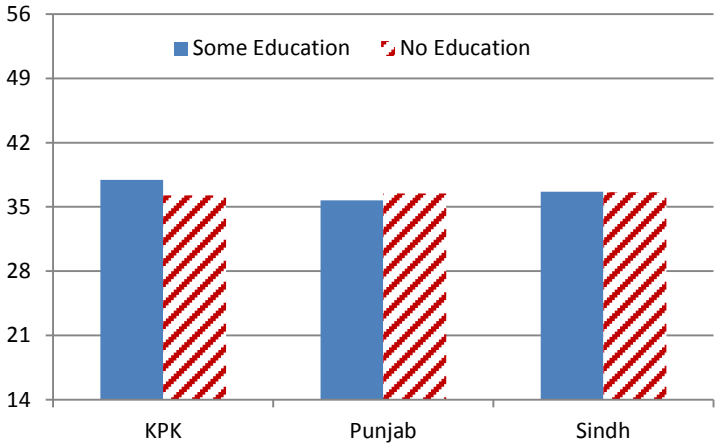


Source: Authors' calculation based on IFPRI/IDS (2012)

The average security score is 36.4, the standard deviation is 4.5, and the median score is 37. This suggests that slightly more people agree than disagree with each security-related statement, on average. However, one's sense of security varies significantly across different population segments and households. Figure 2.1 shows that men tend to feel slightly more secure than do women in every province. The difference between men and women is most striking in KPK, where men have a security index score that is about 3.1 points (over half a standard deviation, in that province) higher than that of women.

Overall, there is not a clear trend in differences in perceived security between educated and uneducated individuals, as shown in Figure 2.2. However, in KPK the educated do feel safer than the uneducated—on average by 1.7 points, or over a quarter of a standard deviation (for that province) safer. The scores of educated and uneducated individuals are quite similar in Punjab and Sindh; the uneducated feel slightly more secure in Punjab, and the educated feel very slightly more secure in Sindh. Thus, while we find some evidence that uneducated people feel less secure than the educated, this is generally only the case in KPK.

Figure 2.2: Average on Security Index (Range: 14–56) by Education Level and Province



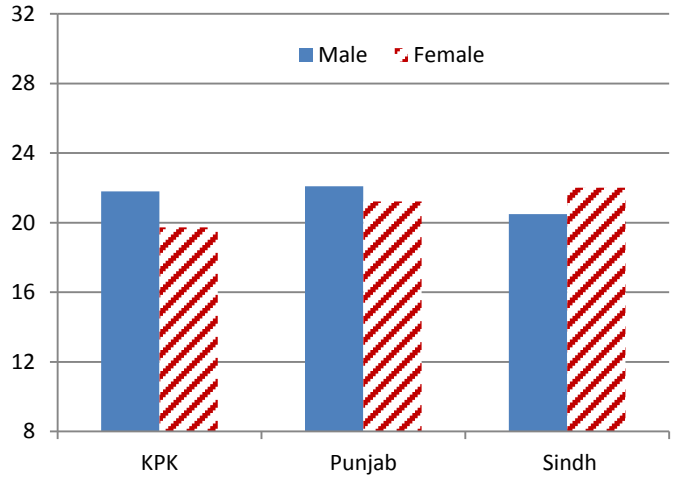
Source: Authors' calculation based on IFPRI/IDS (2012)

2.1.2. JUSTICE

Corruption and a poor justice system have also been shown to lower economic growth (Mauro 1995), and may similarly have adverse consequences for aspirations levels. We measure an individual's perceived level of justice in his community using an index based on the answers to eight questions. These questions include whether laws and law enforcement prevent crime, whether victims of crime can get access to justice, whether property rights are respected, and whether the police

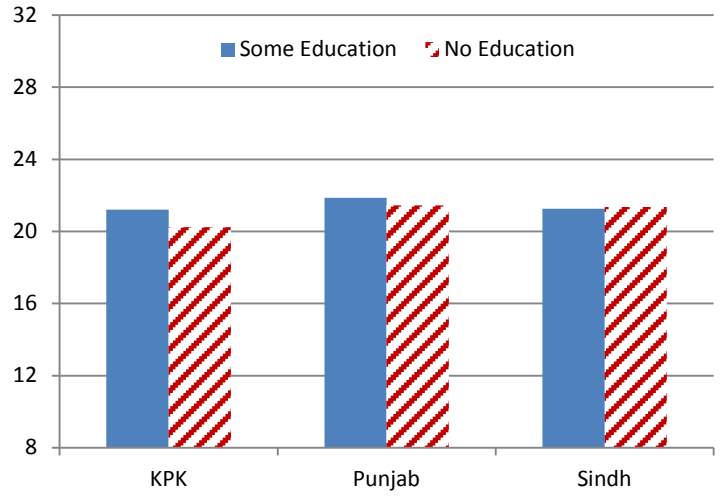
harass people unnecessarily.[4] Each question has four possible responses (1, 2, 3, or 4) indicating the degree of agreement with a justice-related statement. The index sums points across all eight questions, leading to a score with a range of 8 to 32. Higher scores indicate a greater sense of access to justice in one's community, and scores above 20 mean that individuals generally have more positive answers to these questions than negative.

Figure 2.3: Average on Justice Index (Range: 8–32) by Gender and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

Figure 2.4: Average on Justice Index (Range: 8–32) by Education Level and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

The average score for justice is 21.5, the standard deviation is 3.2, and the median score is 22. This suggests that the number of respondents that agree with the statements is slightly higher than the number of respondents that disagree with the statements. There is, however, a slight variation in the sense of access to justice between men and women in different provinces. Men in KPK and Punjab feel more confidence in the justice system than do women, as shown in Figure 2.3. In KPK, the average man has a confidence in the justice system that is 0.6 standard deviations (for that province) higher than the confidence level of the average woman. In Punjab, the average difference is less dramatic, and an average man is 0.3 standard deviations (for that province) more confident in the justice system than is the average women. However, these trends reverse in Sindh: women are on average 0.4 standard deviations (for that province) more confident in the justice

[4] The exact questions used are questions E.5.1.1, E.5.1.3 - E.5.1.8, and E.6.2.5 from the Aspirations Questionnaire (available upon request). Questions for which 1 indicates a high sense of access to justice were reverse-coded so that high scores on each of the 14 components always indicate greater sense of access to justice.

system than are men. These divergent differences suggest a gender gap in perceived access to justice that is not uniform across the country, and room for policy in KPK and Punjab to improve women's access to justice.

Both the educated and the uneducated in Sindh indicate that they have roughly the same level of confidence in the justice system, as shown in Figure 2.4. In contrast, the uneducated in KPK have less confidence in the justice system than do the educated (about 0.3 standard deviations less, for that province). A similar though much less dramatic story is true in Punjab, where the uneducated have a level of confidence in the justice system that is 0.1 standard deviations lower than the level of the educated. As in the case of gender, Sindh appears to have equal sense of access to justice across education levels, while KPK and Punjab have perceived deficits that might be addressed by policy.

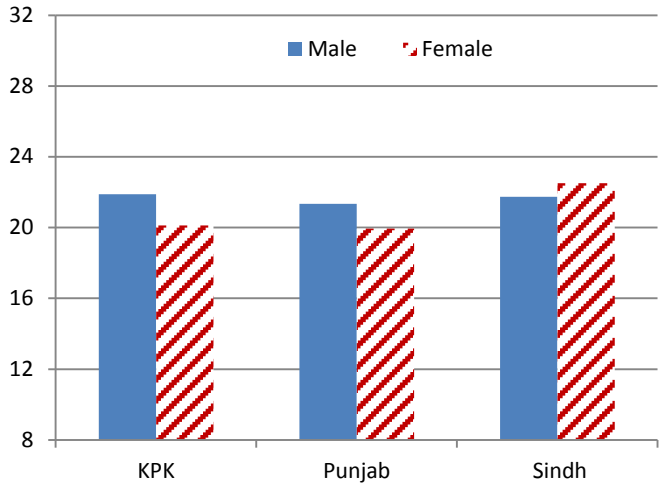
2.1.3. SAFETY NETS

Both informal and formal safety nets are important means by which households protect themselves from adverse economic shocks. They can be very useful for households to smooth consumption and investments, which ensures greater productivity and wellbeing (Townsend 1995). The availability of these safety nets is thus likely to have a direct effect on aspirations levels.

We measure an individual's perceived degree of access to safety nets using an index based on the answers to eight questions. These questions include whether family members, community members, the government, and NGOs will take action if the household faces unexpected economic hardship, and whether individuals can depend on their family to provide for them if they are unable to provide for themselves.[5] Each question has four possible responses (1, 2, 3, or 4), with higher numbers indicating greater agreement with a statement about being able to depend on some form of safety net. The index sums points across all eight questions, leading to a score with a range of 8 to 32. Higher scores indicate a greater sense of access to formal and informal safety nets, and scores above 20 mean that individuals generally have more positive answers to these questions than negative.

The average safety net score is 20.9, the standard deviation is 3.2, and the median score is 21. This suggests that about as many people agree as disagree with each safety net-related statement, on average. However, scores vary significantly across different categories of respondents and households. Figure 2.5 shows that men tend to feel that they can depend on a safety net more than do women in every province but Sindh. In KPK and Punjab, the sense of access to safety nets among men is 0.5 standard deviations above that of women. In Sindh, the opposite is true: women's sense of having safety nets is 0.2 standard deviations above that of men. This variation across provinces suggests an important underlying difference between women's and men's perceived access to safety nets and social support in KPK and Punjab that policy might address, but that is not present in Sindh.

Figure 2.5: Average on Safety Nets Index (Range: 8–32) by Gender and Province

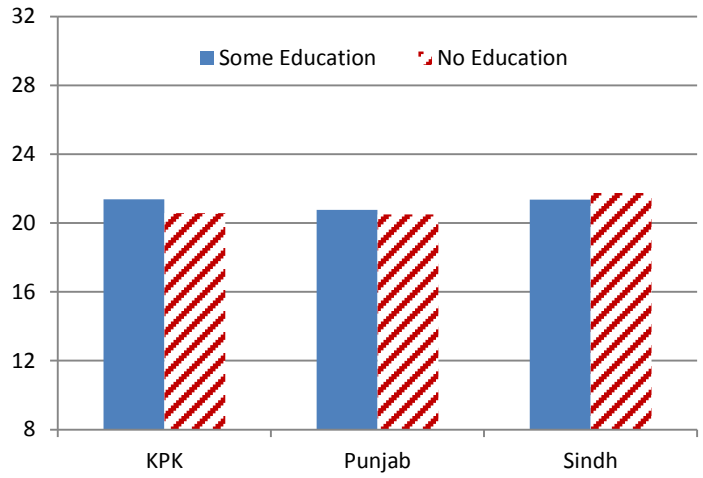


Source: Authors' calculation based on IFPRI/IDS (2012)

[5] The exact questions used are questions E.4.1.1 - E.4.1.4, E.4.1.6, and E.4.1.9 – E.4.1.11 from the Aspirations Questionnaire (available upon request). Questions for which 1 indicates highly secure were reverse-coded so that high scores on each of the 14 components always indicate greater security.

There are also differences in perceived safety nets between educated and uneducated individuals, as shown in Figure 2.6. However, these differences are relatively small and do not exceed a quarter of a standard deviation in any of the provinces.

Figure 2.6: Average on Safety Nets Index (Range: 8–32) by Education Level and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

2.2. The aspirations window: exposure to information and media, parental education, and perceived mobility

An individual "draws her aspirations from the lives, achievements, or ideals of those who exist in her aspirations window" (Ray 2004). The aspirations window is essentially the set or type of people whose experiences can influence an individual's aspirations. We analyze three important determinants of an individuals' aspirations window: exposure to media and information, parental education levels, and one's perceived mobility (i.e. willingness to leave the village).

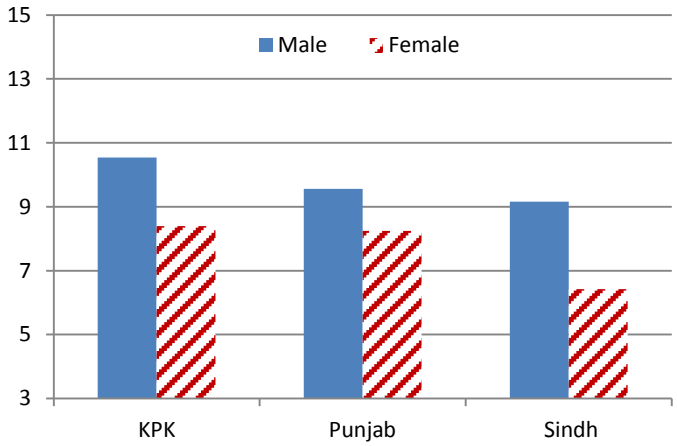
2.2.1. EXPOSURE TO MEDIA AND INFORMATION

Exposure to media and information can provide important knowledge that helps increase productivity and improve rural livelihoods (Jensen 2007). For example, people can learn about prices, commodity demand, weather expectations, job opportunities, or farming techniques. This information can make them more productive and better able to adapt to changing conditions. Second, people can learn about the standards of living of similar people in different cities. This might inspire them to work harder in order to achieve a better life, and can even promote migration. In both of these ways, exposure to media and information has the potential to positively impact aspirations levels.

We measure exposure to media and information using an index based on the answers to three questions: how often do you listen to the radio, watch television, and use a mobile/ cell phone? Each of these three questions has five possible responses, each associated with a different number of points: never (1 point), at least once a year (2 points), at least once a month (3 points), at least once a week (4 points), and every day (5 points). The index sums points across all three questions, leading to a score with a range of 3 to 15. Higher scores indicate more exposure to media and information.

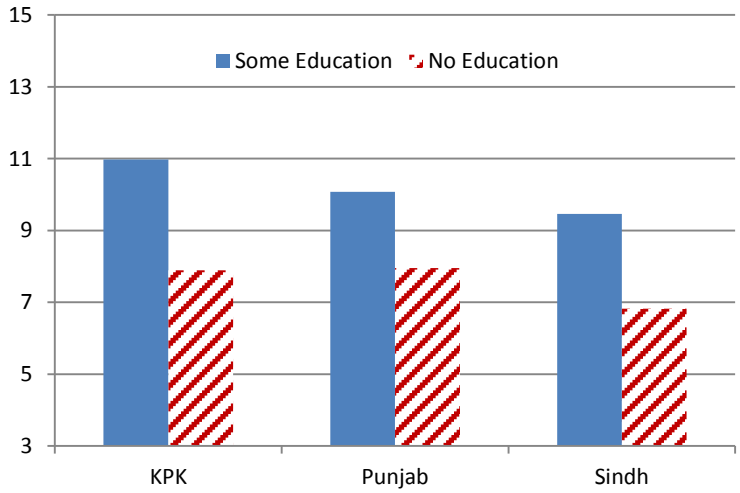
The average media and information exposure score is 8.7, the standard deviation is 3.4, and the median score is 9. This roughly suggests a once-per-month (3 points) average frequency of accessing the various types of media and information. However, exposure varies significantly across different categories of respondents. Figure 2.7 shows that women tend to be less exposed to media and information than are men, overall and in each province. The difference between men and women is most striking in KPK and in Sindh, where men have a score that is around two thirds of a standard deviation (for those provinces) higher than that of women.

Figure 2.7: Average on Exposure to Media Index (Range: 3–15) by Gender and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

Figure 2.8: Average on Exposure to Media Index (Range: 3–15) by Education Level and Province



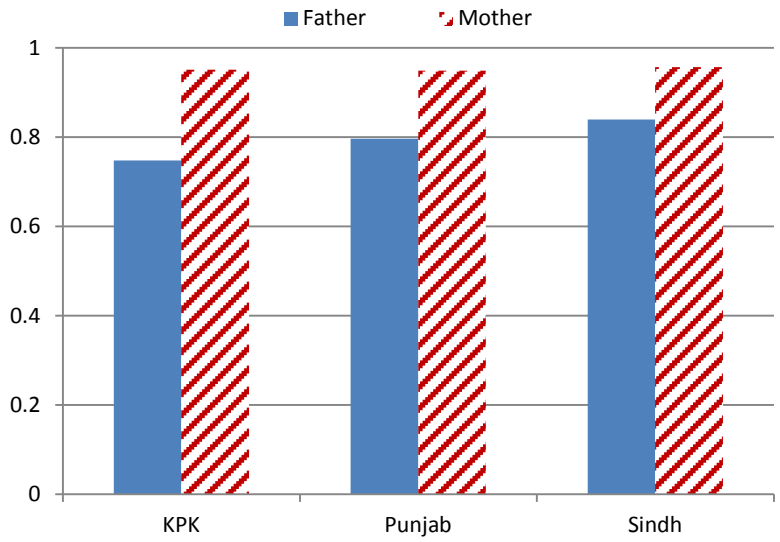
Source: Authors' calculation based on IFPRI/IDS (2012)

There are also differences in media and information exposure between educated and uneducated individuals, as shown in Figure 2.8. The scores of uneducated individuals tend to be between 2 and 4 points lower than those of educated individuals, with the most striking differences between uneducated and educated individuals in KPK. There, the uneducated have a media exposure score that is 3.1 points (almost a full standard deviation in that province) below that of educated individuals. The differences between educated and uneducated are smaller but still quite large in magnitude for Punjab and Sindh (the educated have scores that are on average 0.68 standard deviations above those of the uneducated in both provinces).

2.2.2. PARENTAL EDUCATION LEVELS

Parents are one of the most important influences on their children and can serve as role models, mentors, and support systems. As such, parents are likely to be at the center of one's aspirations window. Individuals whose parents have significant levels of achievement may be relatively more likely to have high aspirations. Conversely, low parental achievements may anchor an individual's aspirations at low levels. We collected data on an important aspect of parental achievement: the highest level of education obtained by each parent.

Figure 2.9: Share of Parents with No Education by Province



Source: Authors' calculation based on IFPRI/IDS (2012)

Average parental education levels are extremely low in rural Pakistan, motivating a dichotomous classification of parents into those with some education and those with no education. As Figure 2.9 shows, the share of parents with no formal education is remarkably high (greater than 70%) for each gender of parent and in each province. Across provinces, around 95% of individuals had mothers with no education. In KPK, three quarters of fathers had no education, while this proportion was even higher in Punjab, at 80%, and in Sindh, at 84%.

While uneducated parents may nonetheless value and cultivate the education of their children, this lack of parental education is a worrisome feature of the aspirations windows of rural Pakistanis. It has the potential to stoke the intergenerational transmission of poverty. Policies to increase education among girls, for example, need to take into account the fact that many girls' mothers and even fathers may lack any direct personal experience of the value of an education. Policymakers may want to draw on other role models or attempt to expand the aspirations windows of rural youth to include additional, educated individuals.

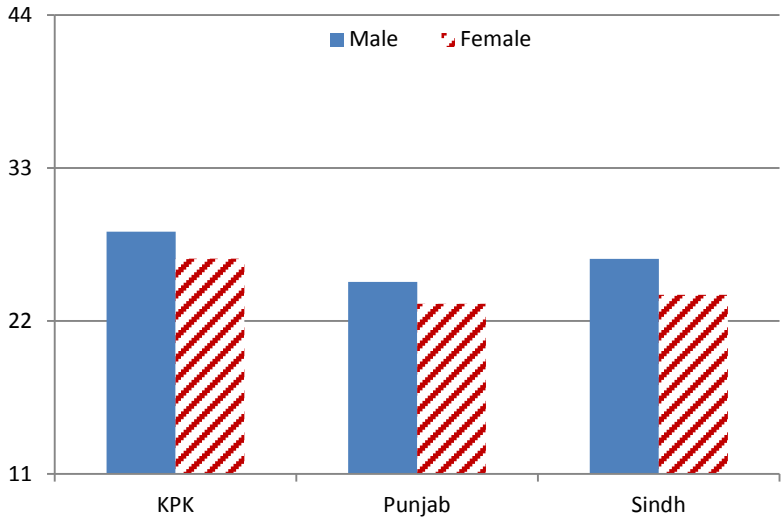
2.2.3. PERCEIVED MOBILITY

Another important aspect of an individual's aspirations window is the set of neighbors, friends, and acquaintances with whom she is likely to interact. With more interactions, an individual is more likely to encounter a person with very high aspirations. A critically important factor conditioning the number of people with whom an individual interacts is her perceived degree of mobility. Mobile individuals who feel the confidence and freedom to leave their village will likely meet more people with high aspirations.

We measure mobility using an index based on the answers to 11 questions.[6] These questions ascertain the extent to which an individual feels the confidence and freedom to leave her village. All questions are on a scale from 1 to 4. The index sums points across all 11 questions, leading to a score with a range of 11 to 44. Higher scores indicate greater perceived mobility, and scores above 27.5 mean that individuals generally have more "mobile" answers to these questions than not.

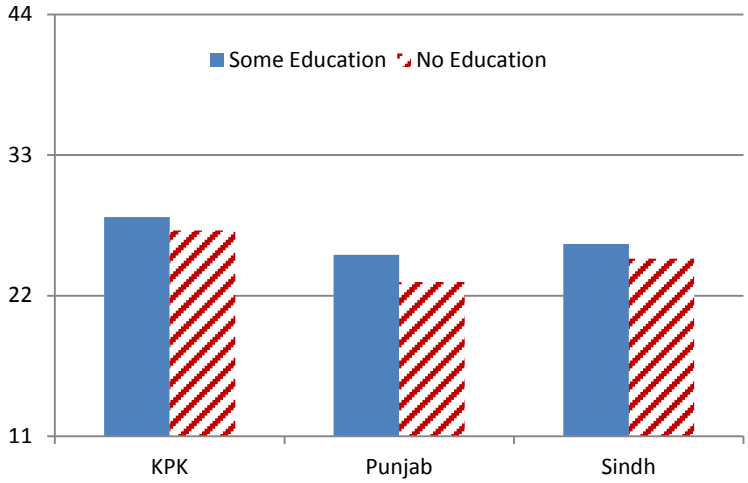
[6] The exact questions used are questions E.3.2 – E.3.12 from the Aspirations Questionnaire (available upon request). All questions were reverse-coded so that high scores always indicate greater mobility.

Figure 2.10: Average on Mobility Index (Range: 11-44) by Gender and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

Figure 2.11: Average on Mobility Index (Range: 11-44) by Education Level and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

The average mobility score is 24.6, the standard deviation is 5.2, and the median score is 24. The scores indicate a generally low level of mobility. An average score of 27.5 would indicate that as many people agree as disagree with statements expressing mobility, but we find that respondents on average had a score that is 2.9 points below this. However, there are large gender and education level differentials in mobility. Figure 2.10 shows that women feel far less mobile than men, overall and in every province. The difference between men and women is most striking in Sindh, where men have a mobility score that is 0.5 standard deviations (for that province) higher than that of women. For KPK and Punjab, these numbers are 0.4 and 0.3 standard deviations, respectively. Figure 2.11 shows that the uneducated are less mobile than the educated. In Punjab, the educated have a mobility score that is 0.4 standard deviations higher than that of the uneducated. For KPK and Sindh, there is a more modest, 0.2 standard deviation difference between the educated and the uneducated.

2.3. Cognitive processes: Locus of control, perceptions of causes of poverty, attitudes to change, self-esteem, envy, trust, and religiosity

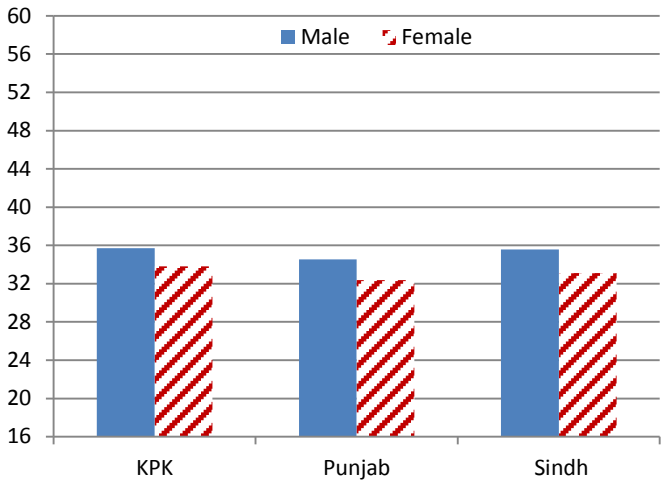
2.3.1. LOCUS OF CONTROL

Locus of control is a psychological concept measuring "a generalized attitude, belief, or expectancy regarding the nature of the causal relationship between one's own behavior and its consequence," and it is likely to influence an individual's behaviors and productive investments (Rotter 1966). Individuals with a strong *internal* locus of control believe that outcomes in their life are due to their own actions and effort, while those with a strong *external* locus of control have a more fatalistic view of the world (Maddux 1991).

We measure locus of control using an index based on the answers to 16 questions.[7] These questions ascertain the extent to which an individual believes that what happens in life is due to chance, powerful others, luck, and fate. Of these questions, 14 are on a scale from 1 to 4, and 2 are on a scale from 1 to 2. The index sums points across all 16 questions, leading to a score with a range of 16 to 60. Higher scores indicate a more internal locus of control.

The average locus of control score is 33.7, the standard deviation is 4.3, and the median score is 34. What is immediately apparently is that scores are quite low. An average score of 38 would indicate that as many people agree as disagree with statements reflecting an internal locus of control, but we find that people on average had a score that is 4.3 points below this. However, exposure varies significantly across different categories of respondents. Figure 2.12 shows that women tend to have a more external locus of control than men, overall and in each province. The difference between men and women is most striking in Sindh, where men have a score that is 0.7 standard deviations (for that province) higher than that of women. For Punjab and KPK, these numbers are 0.5 and 0.4 standard deviations, respectively.

Figure 2.12: Average on Locus of Control Index (Range: 16–60) by Gender and Province

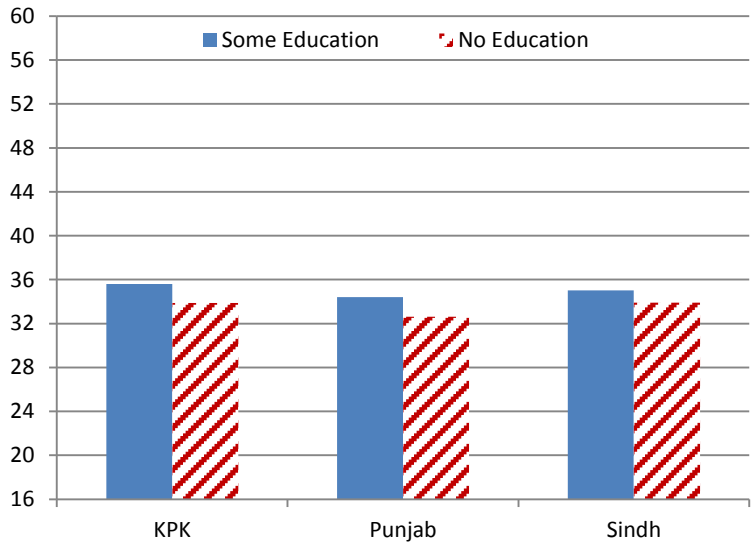


Source: Authors' calculation based on IFPRI/IDS (2012)

There are also differences in locus of control between educated and uneducated individuals, as shown in Figure 2.13. The scores of uneducated individuals tend to be between 1 and 2 points lower than those of educated individuals, with the most striking differences between uneducated and educated individuals in KPK and Punjab. In KPK, the uneducated have a locus of control score that is 1.7 points (0.4 standard deviations, for that province) below that of educated individuals. In Punjab, the uneducated have a score that is 1.8 points (also 0.4 standard deviations, for that province) below that of educated individuals. The difference between the educated and uneducated is smaller but still quite large in magnitude in Sindh (the educated have scores that are on average 0.3 standard deviations above those of the uneducated). These findings suggest a strong correlation between being educated and feeling power over one's life and destiny. Education may provide more opportunities to participate in income-generating activities, or it may simply be correlated with factors like income and wealth, which tend to create more such opportunities.

[7] The exact questions used are questions B.3.1 – B.3.14, B.2.1, and B.2.2 from the Aspirations Questionnaire (available upon request). Questions for which 1 indicates an internal locus of control were reverse-coded so that high scores always indicate a more internal locus of control.

Figure 2.13: Average on Locus of Control Index (Range: 16–60) by Education Level and Province

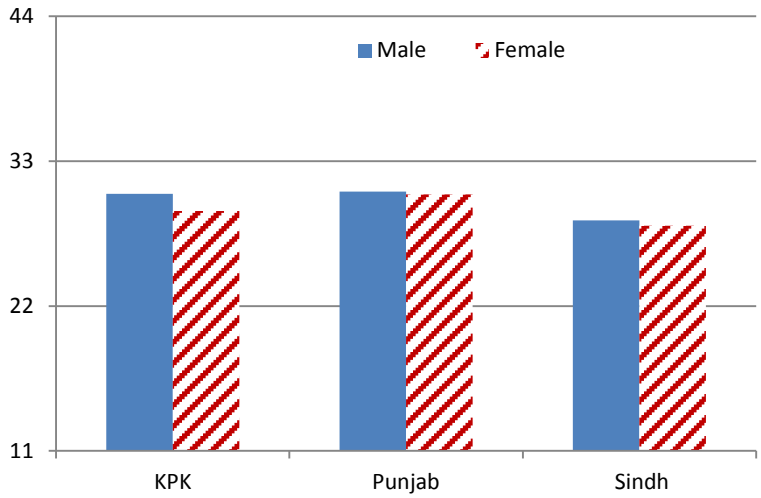


Source: Authors' calculation based on IFPRI/IDS (2012)

2.3.2. PERCEPTIONS OF CAUSES OF POVERTY

Closely linked to an individual's locus of control is her perception of the causes of poverty. Poverty may be associated with a fatalistic worldview. If poor individuals believe they are poor for reasons beyond their control, then they may not be motivated to make costly but ultimately beneficial investments to reduce their own poverty. We measure the extent to which poverty is seen as due to external factors using an index based on the answers to 11 questions.[8] These questions probe the extent to which poverty is thought to come about from misfortune, bad luck, and a society that fails to help and motivate the poor, as opposed to personal failures to improve one's situation. All questions are on a scale from 1 to 4. The index sums points across all 11 questions, leading to a score with a range of 11 to 44. Higher scores indicate a stronger feeling that poverty is due to external factors.

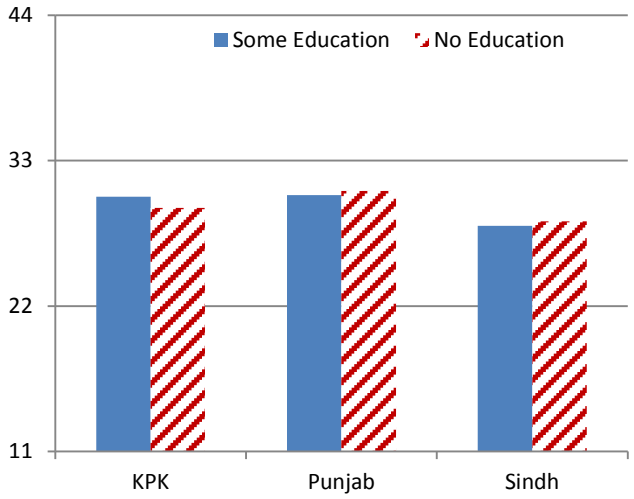
Figure 2.14: Average on Index of the Extent to Which Poverty is Seen as Due to External Factors (Range: 11–44) by Gender and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

[8] The exact questions used are questions B.5.1 – B.5.11 from the Aspirations Questionnaire (available upon request). Questions for which 1 indicates poverty being seen as due to cognitive processes (over which the individual has control) were reverse-coded so that high scores always indicate a feeling of poverty being due to external factors.

Figure 2.15: Average on Index of the Extent to Which Poverty is Seen as Due to External Factors (Range: 11–44) by Education Level and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

The average perceptions of poverty index score is 30.0, the standard deviation is 3.4, and the median score is 30. An average score of 27.5 would indicate that as many people agree as disagree with statements about poverty being due to external causes, but we find that people are 2.5 points more likely to think poverty is due to external factors. Also notable is the fact that perceptions of the cause of poverty vary little across gender in any of the provinces. Figure 2.14 shows that men in every province are slightly more likely than women to think that poverty is due to external factors, but the differences are small, and less than 1 point on the index in both Punjab in Sindh. In KPK, we find somewhat stronger evidence that men have a more external locus of control than women, with a 0.3 standard deviation higher average score than that of women. However, both genders share similar perceptions about causes of poverty, and if anything men are less likely to think poverty is avoidable through one's own actions.

The differences in perceptions of the causes of poverty between educated and uneducated individuals are also subtle, as shown in Figure 2.15. The average scores of uneducated individuals are within 1 point of the average scores of educated individuals in all three provinces. Only in KPK is there much discernible difference; here, the uneducated have a score that is about 0.2 standard deviations (for that province) lower than that of the educated. This is limited evidence of the uneducated in KPK being less likely to think they can avoid poverty than more educated individuals.

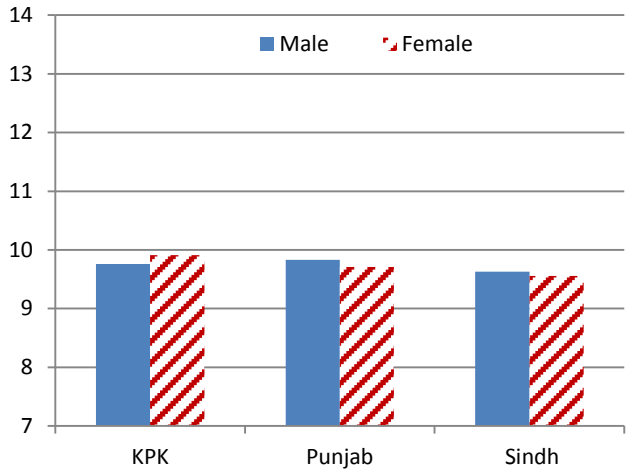
2.3.3. ATTITUDES TO CHANGE

Attitudes to change have sizeable linkages with poverty; adaptability and eagerness to learn new techniques can lead directly to greater resilience and productivity. We measure attitudes to change using an index based on the answers to seven questions.[9] These questions are answered by a 1 or a 2, where 1 indicates reluctance to change and 2 indicates eagerness to change. The questions probe comfort levels with new things, independence in making decisions, and general openness to new ideas. The index sums points across all 7 questions, leading to a score with a range of 7 to 14. Higher scores on the index indicate greater openness to change, and scores above 10.5 mean that individuals generally have more openness to change than reluctance.

The average attitude to change index score is 9.7, the standard deviation is 1.4, and the median score is 10. This implies that people on average respond in a pro-change way on just under three of the seven questions related to change. This indicates a large hesitancy to change. It also appears to be a phenomenon that is quite uniform across genders; while women in each province are very slightly less pro-change than are men, the difference between the genders is under 0.20 points in each province, as shown in Figure 2.16. Overall, men and women seem to have almost identical attitudes to change.

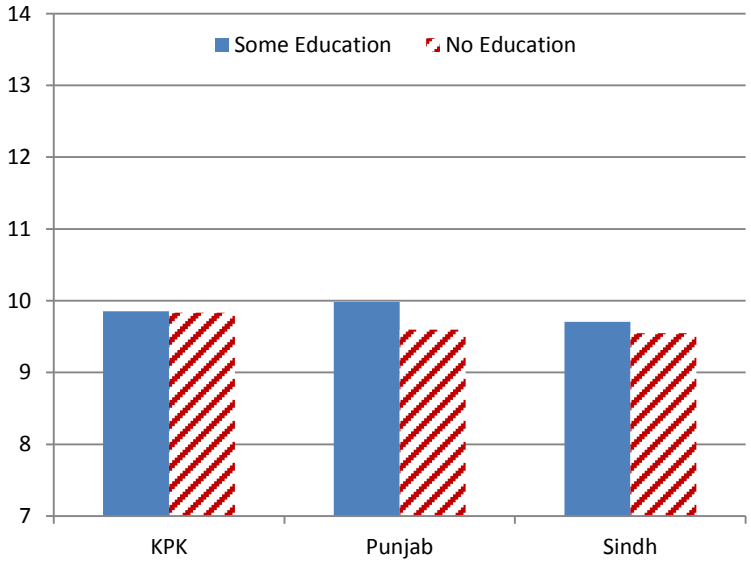
[9] The exact questions used are questions B.6.1– B.6.7 from the Aspirations Questionnaire (available upon request). Questions for which 1 indicates greater openness to change were reverse-coded so that high scores always indicate a greater openness to change.

Figure 2.16: Average on Openness to Change Index (Range: 7–14) by Gender and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

Figure 2.17: Average on Openness to Change Index (Range: 7–14) by Education Level and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

The education differential in attitudes to change is slightly larger than the gender differential, as shown in Figure 2.17. Punjab has the greatest difference in attitudes to change between the uneducated and educated; here, the uneducated have a score that is 0.3 standard deviations (for that province) lower than that of the educated. This is limited evidence of the uneducated being less open to change than the more educated.

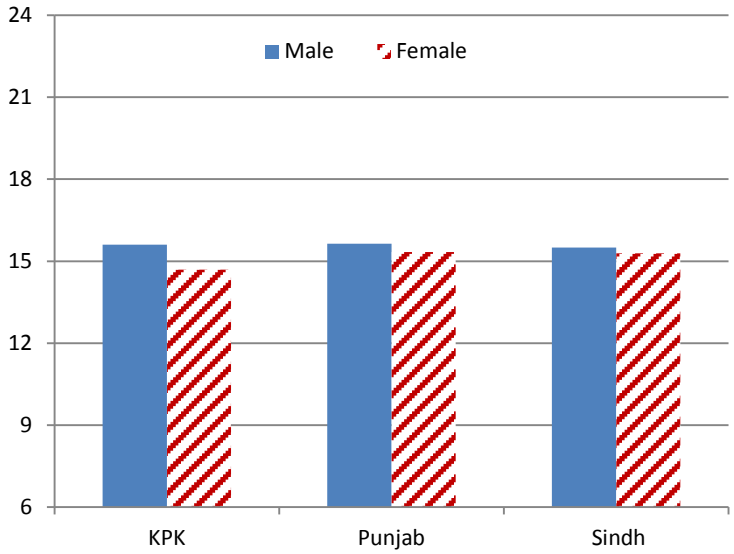
2.3.4. SELF-ESTEEM

The impact of self-esteem on behavior is a subject of great interest to social psychologists. Self-esteem may also have beneficial economic impacts if it leads to more investment in education, harder work, more ambition, higher aspirations, and more efficient collaboration with others. We measure an individual's self-esteem using an index based on the answers to six questions. These questions probe whether the individual is proud, self-satisfied, and feels capable and confident in what he can do.[10] Each question has four possible responses (1, 2, 3, or 4) indicating the degree of agreement with a self-esteem related statement. The index sums points across all six questions, leading to a score with a range of 6 to 24. Higher scores

[10] The exact questions used are questions B.4.1 – B.4.6 from the Aspirations Questionnaire (available upon request). Questions for which 1 indicates high self-esteem were reverse-coded so that high scores on each of the six components always indicate greater self-esteem.

indicate greater self-esteem, and scores above 15 mean that individuals generally have more positive responses to self-esteem-related questions than negative.

Figure 2.18: Average on Self-Esteem Index (Range: 6–24) by Gender and Province

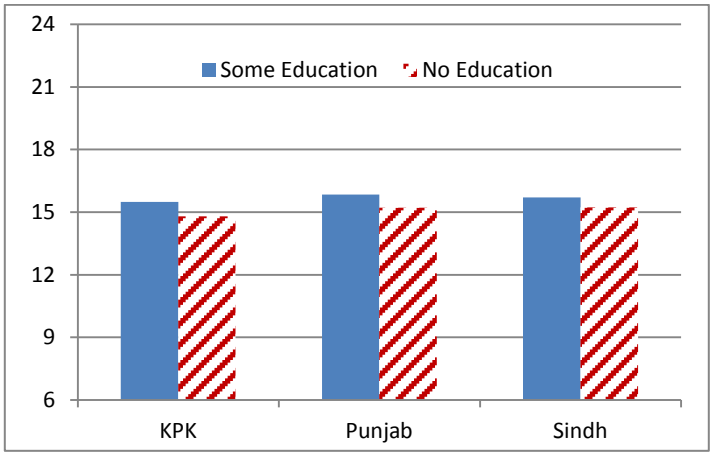


Source: Authors' calculation based on IFPRI/IDS (2012)

The average self-esteem index score is 15.4, the standard deviation is 2.0, and the median score is 15. This implies that about as many people agree as disagree with each esteem-related statement. There is some gender difference in self-esteem, with women having lower self-esteem than men overall and in each province (see Figure 2.18). The difference is very small in both Punjab and Sindh, where women's and men's scores are close to identical (slightly over 0.1 points apart, on average). However, women in KPK have self-esteem scores that are 0.4 standard deviations (for that province) lower than those of men. These gender gaps in self-esteem are troubling to the extent that they indicate a hesitancy of women to aspire to better lives, to say no to abuse, or to feel that they have opportunities to develop and use their talents. Self-esteem training is a possible policy option for women, especially in KPK and other areas where it is relatively low.

There is also an education differential in self-esteem, as shown in Figure 2.19. All three provinces have similar differences of 0.3 standard deviations (for that province) lower scores in self-esteem for the uneducated than for the educated. Education may provide individuals something to feel proud of, or feeling proud and satisfied may motivate individuals to get more education. While the direction of causality is uncertain, this is some evidence that efforts to increase education levels could lead to greater self-esteem, which might also generate economic growth.

Figure 2.19: Average on Self-Esteem Index (Range: 6–24) by Education Level and Province



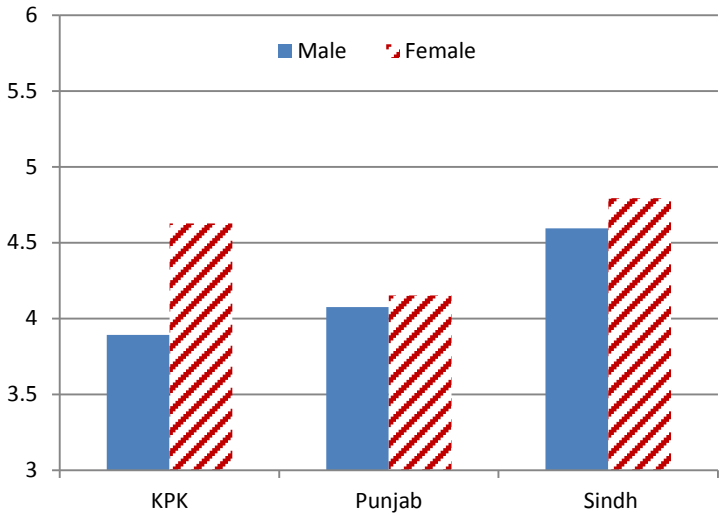
Source: Authors' calculation based on IFPRI/IDS (2012)

2.3.5. ENVY

Envy may consume energy and prevent beneficial cooperation and collaboration with others. We measure an individual's level of envy using an index based on the answers to three questions. These questions assess how an individual trades off having something very nice (in one of three dimensions: money, a house, or a child's education) while others have a comparatively higher level against having something less nice while others have a comparatively lower level. That is, an individual is asked to decide if they would like little but more than others, or a lot but less than others.[11] Each question has two possible responses (1 or 2), where high scores indicate greater envy (i.e. a willingness to have less as long as one is comparatively rich). The index sums points across all three questions, leading to a score with a range of 3 to 6. Higher scores indicate greater envy, with 4.5 as the midpoint.

The average envy index score is 4.3, the standard deviation is 1.3, and the median score is 4. Thus, slightly fewer people have an envious response than a non-envious response. There are substantial gender differences, however, with women having higher levels of envy than men overall and in each province (see Figure 2.20). The difference is by far the largest in KPK, where women have envy scores that are 0.6 standard deviations (for that province) higher than those of men. In Punjab and in Sindh, women have envy scores that are 0.1 and 0.2 standard deviations, respectively (for those provinces) higher than those of men. These gender gaps in envy may suggest threats that women perceive and to which men are immune.

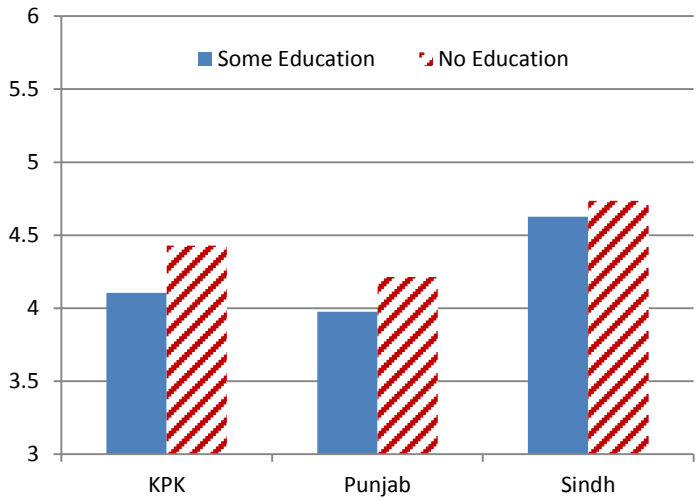
Figure 2.20: Average on Envy Index (Range: 3-6) by Gender and Province



There is also an education differential in envy, as shown in Figure 2.21. The uneducated are far more envious than the educated, especially in KPK. There, the uneducated have a score that is 0.3 standard deviations (for that province) higher than that of the educated. In Punjab, the difference is a slightly more modest 0.2 standard deviations, and in Sindh the uneducated are only 0.1 standard deviations (for that province) more envious than the educated. Education may provide individuals with a sense that they have already achieved more than others around them, and it may directly affect their income levels so that they already are better off than those around them. While the direction of causality cannot be properly attributed, this offers some evidence that promoting education could reduce feelings of envy and thus possibly boost cooperation in a way that is beneficial for economic development.

[11] The exact questions used are questions B.7.1 – B.7.3 from the Aspirations Questionnaire (available upon request). Questions for which 1 indicates an envious response were reverse-coded so that high scores on each of the three components always indicate more envy.

Figure 2.21: Average on Envy Index (Range: 3-6) by Education Level and Province

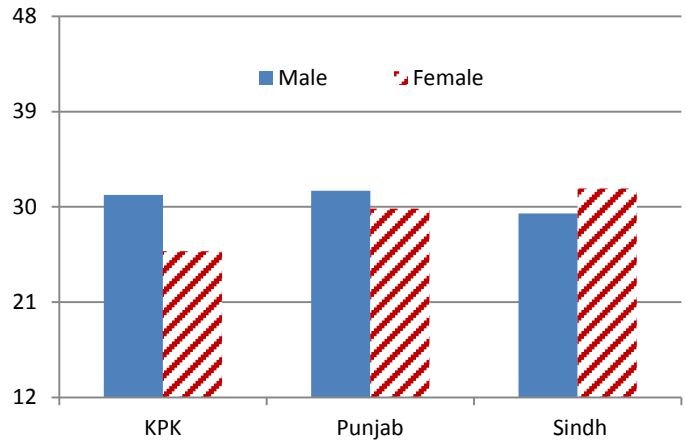


Source: Authors' calculation based on IFPRI/IDS (2012)

2.3.6. TRUST

Trust is a prerequisite for business transactions and cooperation. An individual is unlikely to commit to a contract with someone they do not trust. Therefore, understanding where levels of trust are high and where they are low is important since trust deficits may entail foregone economic opportunities. We measure an individual's level of trust in others using an index based on the answers to 12 questions. These questions ask whether people, the government, neighbors, civil servants, NGOs, banks, judges, the police, and politicians at several levels can be expected to act in the individual's interest and to dutifully perform their job.[12] Each question has four possible responses (1, 2, 3, or 4), where high scores indicate greater trust. The index sums points across all 12 questions, leading to a score with a range of 12 to 48, with a midpoint of 30.

Figure 2.22: Average on Trust Index (Range: 12-48) by Gender and Province

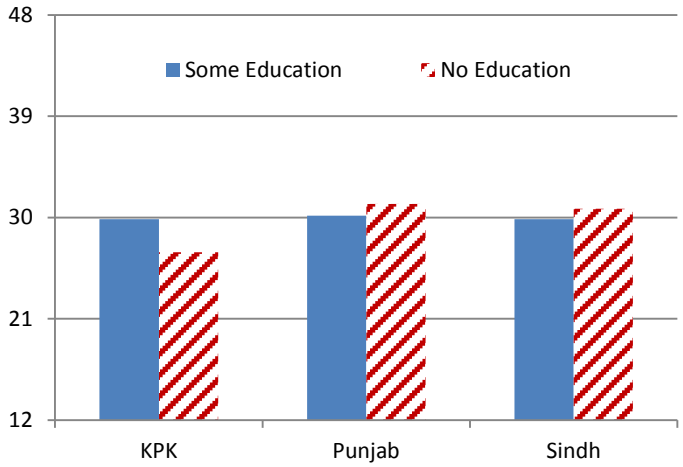


Source: Authors' calculation based on IFPRI/IDS (2012)

The average trust index score is 30.4, the standard deviation is 5.5, and the median score is 30. Thus, respondents are roughly equally likely to agree with statements stating they can trust various individuals as to disagree. There is no consistent gender differential in trust; women in KPK and Punjab are less trusting then are men, but women in Sindh are more trusting than are men (see Figure 2.22). There is also not a consistent education differential in trust; the uneducated are significantly less trusting than the educated in KPK, but the reverse is true to a smaller extent in Sindh and in Punjab. Trust levels thus appear to be uniformly moderate.

[12] The exact questions used are questions B.8.1 – B.8.12 from the Aspirations Questionnaire (available upon request).

Figure 2.23: Average on Trust Index (Range: 12-48) by Education Level and Province

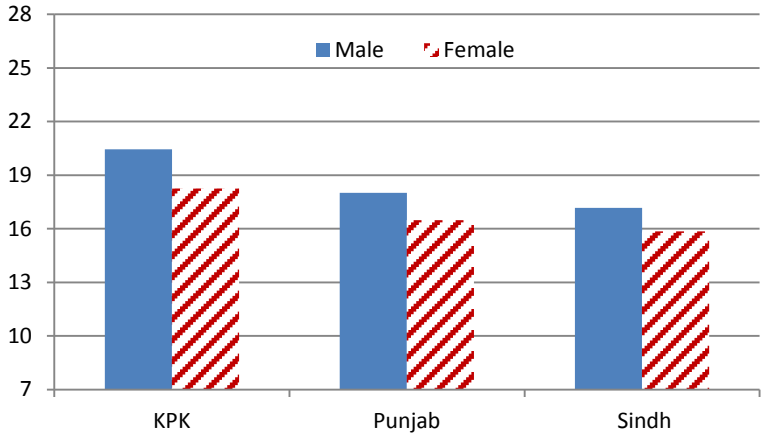


Source: Authors' calculation based on IFPRI/IDS (2012)

2.3.7. RELIGIOSITY

Religiosity has been blamed for extremism and violence. However, it can also be associated with acts of generosity and with pious behavior. Understanding the climate of religiosity in an area can be important for designing policies that appropriately respond to the worldviews and preconceptions of the people. We measure religiosity using an index based on the answers to seven questions. The first three questions ask about the frequency of prayers, prayers at the mosque, and fasting. These questions have five possible responses (1, 2, 3, 4, or 5, corresponding to 'five times a day,' '2-4 times a day,' 'occasionally,' 'rarely,' and 'never'), which we re-coded to a four-point scale by coding either a 4 or a 5 as a 4. The next four questions ask about the extent to which a lack of religiosity is perceived to create problems for the country, whether violence is justified to defend religious values, and whether the respondent perceives it as their duty to pressure people to be more religious. These questions were scored on a scale from 1 to 4, with higher scores indicating more religiosity.[13] The index sums points across all seven questions, leading to a score with a range of 7 to 28, and a midpoint of 17.5. Higher scores indicate greater religiosity.[14]

Figure 2.24: Average on Religiosity Index (Range: 7-28) by Gender and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

The average religiosity index score is 17.3, the standard deviation is 3.0, and the median score is 17. This average corresponds to moderate scores on each question (i.e. approximately as many people agreeing as disagreeing with statements concerning religiosity, and fasting and prayer frequency of somewhere between '2-4 times per day' and 'occasionally').

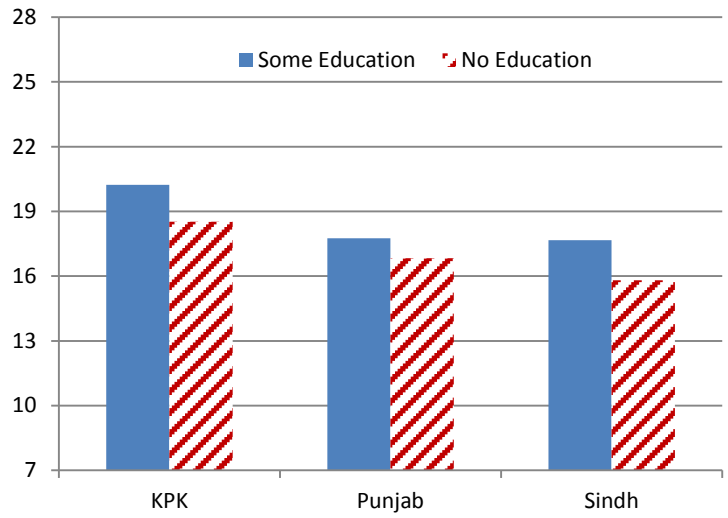
[13] The exact questions used are questions E.7.1.1 – E.7.1.7 from the Aspirations Questionnaire (available upon request). All questions were reverse-coded so that high scores on each of the three components indicate more religiosity.

[14] Note that because women do not generally pray in the mosque, women are likely to be less religious than men in our index by construction.

Religiosity is highest in KPK, second highest in Punjab, and lowest in Sindh for both men and women. There are substantial gender differences in religiosity, with women having lower levels of religiosity than men overall and in each province (see Figure 2.24). However these may be due to the construction of the index, rather than actual differences in religious feeling.

Religiosity is higher for those with some education than it is for those with no education. This is true overall and in each province, and matches the findings of Afzal (2012). In KPK and Sindh, the educated have religiosity scores that are 0.6 standard deviations (for that province) higher than those of the uneducated. In Punjab, the difference is 0.3 standard deviations. The fact that education holds significant predictive power about how religious someone is provides useful information for policymakers that wish to make policies religiously and culturally appropriate.

Figure 2.25: Average on Religiosity Index (Range: 7-28) by Education Level and Province



Source: Authors' calculation based on IFPRI/IDS (2012)

2.4. Computational processes: mathematical literacy, discount rate, and risk aversion

2.4.1. MATHEMATICAL LITERACY

Mathematical literacy is also likely to be linked to aspirations. Greater mathematical abilities allow an individual to better understand which investments are worthwhile and which are not, and precisely how they will pay off over time. We assessed mathematics ability using two questions: an addition problem (what is 4+3?) and a multiplication problem (what is 3 times 6?). Table 2.1 shows how performance on this mathematics tests varies across provinces.

Table 2.1: Number of Mathematics Questions Answered Correctly by Province

Province	0 of 2 answered correctly	1 of 2 answered correctly	2 of 2 answered correctly
KPK	22%	25%	53%
Punjab	16%	36%	47%
Sindh	10%	45%	45%

Source: Authors' calculation based on IFPRI/IDS (2012)

What is first apparent is that only in KPK did at least half of respondents (53%) answer both questions correctly. In Punjab, only 47% answered both correctly, and in Sindh only 45% answered both correctly. On the other extreme (answering no questions correctly), KPK also leads. 22% of those in KPK could not answer either of the two mathematics problem correctly, while these numbers were 16% for Punjab and 10% for Sindh. This is a very concerning finding for policymakers, and may entail that beneficiaries of various programs should receive basic mathematical training before they can understand how best to use any resources or money they receive.

2.4.2. DISCOUNT RATE

The rate at which individuals discount the future is likely to play a large role in investment decisions. Individuals who think only about today will not make investments with large immediate costs that only pay off in the long-run. These can include decisions made with respect to the education of children, purchasing capital that increases agricultural productivity, or investing in one's health, for example.

We measured individuals' discount rates by asking them if they would prefer Rs. 500 today or Rs. 625 after one month. If individuals indicated that they would prefer Rs. 500 today, we asked if they would accept Rs. 750 after one month in lieu of Rs. 500 today. If they still indicated that they would like Rs. 500 today, we asked what amount they would have to receive in one month's time in order to convince them to wait the full month instead of simply receiving Rs. 500 today. Using responses to these questions, we mapped out each individual's tendency to trade off the future for the present as follows, computing the individual's "monthly effective discount rate":

$$\text{monthly effective discount rate} = \frac{X-500}{X}$$

where X = 625 if the individual will accepted 625 in one month over 500 today, X = 750 if the individual will not accepted 625 in one month but will accept 750 in one month, and X = the amount the individual indicated they will accept in one month in exchange for forgoing 500 today (a value we know only for those who would not accept 750 in one month).

The monthly effective discount rate captures how much of the value of the future payment (whether 625, or 750, or some higher amount) is considered lost due to being received in one month instead of today. By design (and thus no matter what the value of X), it is between 0 and 1, and is increasing in the individual's impatience. As an example, an individual who requires Rs. 750 in one month in order to give up Rs. 500 today has a monthly effective discount rate of 0.33. Essentially, they must be paid Rs. 250, –1/3 of the value of the total transfer—just to be willing to wait for one month to be paid.

The average rural Pakistani has an extremely high monthly effective discount rate, as shown in Table 2.2. Discount rates are the highest in Punjab, with an average monthly effective discount rate of 0.52, implying the need to receive Rs.1,042 in one month to give up receiving Rs. 500 today. While smaller, the discount rate in Sindh is still jarringly high, at 0.46 (implying the need to receive Rs. 926 in one month to give up Rs. 500 today). This indicates a problematic tendency to stay away from high value investments without immediate payoffs. Individuals may be so cash-constrained and lacking in access to credit that they cannot part with cash today. Alternatively, a climate of mistrust may mean that individuals do not believe that they will actually receive the money in one month, and the discount rate reflects this uncertainty.

Table 2.2: Monthly Effective Discount Rate by Household Type and Province

Province	All HH types	Land-owning HH	Tenant HH	Agricultural wage labor HH	Rural non-farm HH
KPK	0.49	0.52	0.57	0.69	0.41
Punjab	0.52	0.52	0.50	0.53	0.52
Sindh	0.46	0.49	0.46	0.45	0.46

Source: Authors' calculation based on IFPRI/IDS (2012)

Discount rates vary somewhat across types of households, classified as being land-owning, tenants, agricultural wage labor, or rural non-farm.[15] However, the differences in discount rates across household types are only dramatic in KPK, where those in agricultural wage labor and tenant households have discount rates that are 68% and 39% higher (respectively) than those in rural non-farm households. In Punjab and in Sindh, there is never a difference of more than 0.04 between the discount rates of different household types.

[15] Both landowning and tenant households are households engaged in cultivating land. For landowners, at least some of the land is owned, while for tenants no land is owned but the household cultivates some land that is either rented in or sharecropped in. Both agricultural wage labor households and rural non-farm households do not cultivate land. Agricultural wage labor households earn at least some income from agriculture or livestock, while non-farm households do not earn any income from agriculture or livestock.

2.4.3. RISK AVERSION

Risk aversion is a measurable economic concept that powerfully affects economic behavior. Broadly speaking, risk aversion is a reluctance to accept a higher expected payoff from a lottery if it is accompanied by a higher risk of receiving a low payoff. Risk aversion determines whether people access credit, buy insurance, enter into contracts, and make certain high-risk productive decisions (Bernoulli 1738, Pratt 1964, and Arrow 1965). Binswanger (1980) finds that most farmers are highly risk averse, and that their risk aversion level is even higher when the stakes (payoffs) are increased.

We were able to measure risk aversion using a question in which individuals were offered five lotteries and asked to choose the one they preferred. The outcome of each lottery is determined by a coin flip, with a certain payoff corresponding to 'heads' (one side of the coin) and a certain payoff corresponding to 'tails' (the other side of the coin). These lotteries are described in Table 2.4 as choices A, B, C, D, and E. Choice A corresponds with a sure payoff of Rs. 125 regardless of whether the coin flip results in heads or tails. The other choices correspond to increasingly large expected (i.e. average) payoffs with a decreasing payoff in the event of a negative outcome of the coin flip.

Individuals provided us information about how they trade off greater expected payments against greater risk through their choice of one of the lottery options. This information allowed us to classify individuals according to their level of risk aversion. To do so, we assumed a functional form on individuals' utility functions—specifically, a constant partial risk aversion (CPR) utility function, as in Binswanger (1980). This utility function is of the form $U = (1 - S) \times M^{1-S}$, where U is utility, S is the partial risk aversion coefficient, and M is the certainty equivalent . We solved for the levels of S that make an individual indifferent between each set of two adjacent lotteries (i.e. A and B, B and C, C and D, and D and E) to compute the range of values of S that is consistent with any given choice of lottery. When S is less than 0, an individual is by definition risk loving. When S is 0, an individual is risk neutral. When S is strictly positive, an individual is risk averse. The magnitude of S indicates precisely how risk averse or risk-loving an individual is.

Risk aversion levels of the individuals in our sample are reported in Table 2.3. We find that just over half of individuals in our sample are extremely risk averse (51%). They would rather receive Rs. 125 for certain than get Rs. 200 with probability 0.5 and Rs. 100 with probability 0.5 (a lottery with an expected payoff of Rs. 150), or any of three other lotteries with higher risk but higher expected payoff. Further, only about 19% of people chose a lottery that is consistent with risk neutral or risk loving attitudes. This suggests that at least 81% of rural Pakistanis are risk averse, and many of them extremely so.

Table 2.3: Payoffs and Corresponding Risk Classifications

Choice	Heads: low payoff	Tails: high payoff	Risk aversion class	S: Approximate partial risk aversion coeff.	Share of sample in this risk aversion class
A	125	125	Extremely risk averse	∞ to 7.47	50.5%
B	100	200	Highly risk averse	7.47 to 1.00	17.2%
C	75	225	Very risk averse	1.00 to 1.00	7.6%
D	50	350	Moderately risk averse	1 to 0.33	7.3%
E	0	500	Slightly risk averse to risk loving	0.33 to -∞	18.5%

Source: Authors' calculation based on IFPRI/IDS (2012)

We also investigate how risk aversion levels vary across provinces and genders. Are certain individuals more likely to indicate high levels of risk aversion? Table 2.4 sheds some light on this question. We find that women are always less likely than men to be in the extremely risk averse class. This is especially so in KPK, where women are less than half as likely as men to be in the extremely risk averse classification. We also see that extreme risk aversion is most common in Punjab among both men and women.. Sindh has the highest share of people choosing lottery choice E, which is consistent with risk neutral or risk loving attitudes; this is true for both women and men.

Risk aversion is hard to modify via policy. However, individuals may be less risk averse if they have formal or informal social safety nets to protect them in the face of economic hardships and setbacks. Further, as women are less risk averse than men, there is some room for policy to reduce extreme risk aversion by empowering women to play a larger role in household decision-making.

Table 2.4: Share of Population in Each Risk Aversion Class, by Province and Gender

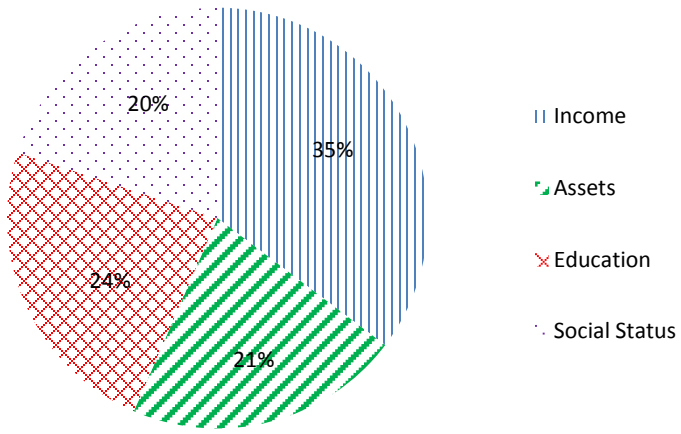
Province and risk aversion class	Share of men in this risk aversion class	Share of women in this risk aversion class
Panel A: KPK		
Extremely risk averse	55.6%	27.3%
Highly risk averse	12.3%	30.4%
Very risk averse	7.0%	19.5%
Moderately risk averse	4.2%	9.6%
Slightly risk averse to risk loving	21.0%	13.3%
Panel B: Punjab		
Extremely risk averse	60.3%	47.4%
Highly risk averse	18.4%	15.5%
Very risk averse	5.8%	8.7%
Moderately risk averse	3.0%	9.8%
Slightly risk averse to risk loving	12.6%	18.8%
Panel C: Sindh		
Extremely risk averse	49.4%	40.5%
Highly risk averse	17.6%	16.0%
Very risk averse	4.9%	7.6%
Moderately risk averse	6.1%	4.0%
Slightly risk averse to risk loving	22.0%	32.0%

Source: Authors' calculation based on IFPRI/IDS (2012)

2.5. Relative importance attributed to the four dimensions of aspirations

What most defines each individual's aspirations level? We elicited this information by asking each respondent to distribute 20 beans across four categories—income, assets, education, and social status—where the share of beans placed on each category indicates its relative importance. Figure 2.26 shows the average importance placed on each category. On average, we find that people place the most importance—about 35% of their beans—on income. The other three categories received somewhat less emphasis: on average, 24% of beans were placed on education, 21% on assets, and 20% on social status. Thus, it does not appear to be the case that people equally value all four dimensions. Income stands out as a focus of aspirations. However, it is not the case that any one category is unimportant. Indeed, each of the four categories gets, on average, at least one-fifth of the beans.

Figure 2.26: Relative Importance of Four Dimensions of Aspirations



Source: Authors' calculation based on IFPRI/IDS (2012)

We also asked respondents about the specific level of each dimension to which they aspire. The value of income and assets, the number of years of education, and the level of social status people aspire to obtain varies across the sample

districts, as shown in Table 2.5.[16] The median level of aspired income varies from Rs. 40,000 in Hyderabad to Rs. 200,000 in Jaccobabad, and Nowshera—a full five times more income. Similarly, the median level of assets aspired to ranges from Rs. 15,000 in Hyderabad to Rs. 300,000 in Nowshera—a full 20 times more asset value.

There is also some cross-district variation in the years of education aspired to, though these differences are less dramatic than in the income and assets dimensions.[17] In 15 of the 19 districts, the median years of education people aspire to complete is 10. However, the median person in Thatta and Hyderabad aspires to complete only half as much education (five years).

Similarly, there is some variation in aspired social status across districts, though the differences are not dramatic. In Sargodha, the median person aspires to obtain a social status of six on a scale from 1-10 (with 10 being the highest level of social status one can have, and one being the lowest). In contrast, the median person in Multan and Sanghar aspires to obtain a social status of 10. Of course, these district-specific medians mask variation within each district.

Table 2.5: Median Income, Assets, Years of Education, and Social Status Aspired to, by District

District	Income (Rs./year)	Assets (Rs.)	Years of education	Social status (1-10)
Attock	180,000	120,000	10	7
Bahawalnagar	100,000	100,000	10	8
Bhakkar	100,000	100,000	10	8
D.G.Khan	140,000	100,000	10	9
Dadu	50,000	100,000	10	8
Faisalabad	144,000	90,000	10	9
Hyderabad	40,000	15,000	5	7
Jaccobabad	200,000	200,000	10	8
Jhang	100,000	150,000	10	8
Kasur	90,000	50,000	10	7
Khanewal	120,000	150,000	10	8
Mansehra	170,000	100,000	10	7
Multan	100,000	90,000	10	10
Nowshera	200,000	300,000	10	8
Rahim Yar Khan	100,000	100,000	8	8
Sanghar	120,000	100,000	10	10
Sargodha	120,000	150,000	10	6
Thatta	60,000	20,000	5	8
Vehari	60,000	85,000	8	8

Source: Authors' calculation based on IFPRI/IDS (2012)

3. CORRELATES OF ASPIRATIONS

This section analyzes the questions: How high are average aspirations levels in rural Pakistan, and how do they vary across different types of individuals and households? And what external and internal factors, including cognitive processes, help shape aspirations? We aim to enhance understanding of who is most susceptible to aspirations failures and the types of cognitive processes that lead to such failures. Such information can aid in the design of policies that prevent aspirations failures in a targeted way.

[16] The 19 districts in our sampling frame are districts as defined by the 1998 Census' administrative boundaries. Some district boundaries, such as those of Hyderabad, have changed since the 1998 Census. In such cases, we refer to the prior, 1998 boundaries.

[17] In part, the differences across districts in the education area are smaller simply because there is naturally less variation in the population in terms of years of education obtained. The same is true for social status, where the ladder on which people are asked to locate their aspired social status has only 10 rungs.

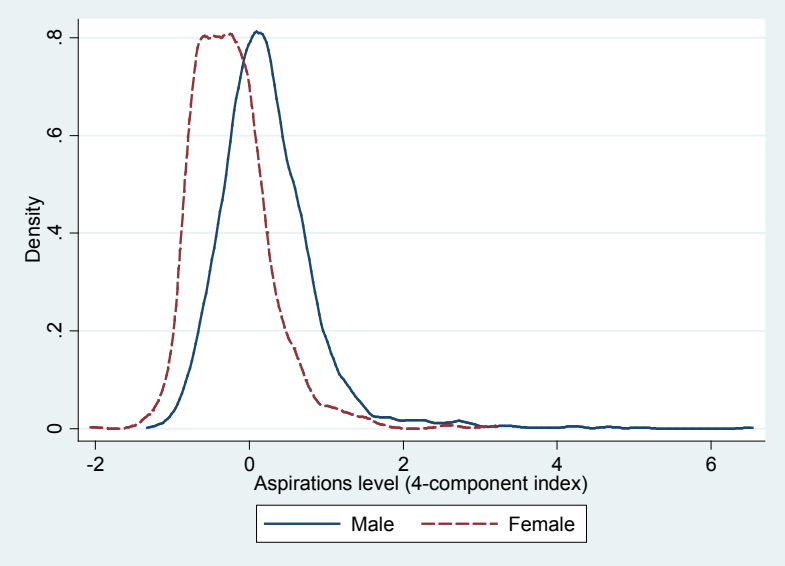
Among other findings, we show that women have lower aspirations than men; the uneducated have lower aspirations than those with some education; the middle-aged (25-45) have lower aspirations than the young (age 18-25); and agricultural wage laborers have lower aspirations than rural non-farm workers. We also find that various internal factors are strongly correlated with aspirations levels, including an internal locus of control, self-esteem, religiosity, trust, envy, and a sense of poverty being due to external factors. This suggests some particular groups that are most at risk for aspirations failures, and that might be specifically targeted by policies aimed at raising aspirations.

3.1. Basic individual and household characteristics

This section uses the index of aspirations described in Section 1. An individual's aspirations level captures the difference between what he aspires to achieve and what other individuals in the same district aspire to achieve, measured in standard deviations from the district mean. The higher the aspirations level, the more an individual wishes to achieve in terms of income, assets, education, and social status, relative to the average person in his district. In this and subsequent sections, we carry out regression analysis and therefore present and use unweighted data.[18] The median aspirations level is -0.01, the mean is 0.06, and the standard deviation is 0.64. Kernel density plots show more information about the shape of the distribution of aspirations.

The average aspirations level of men is significantly higher than that of women, as shown by Figure 3.1. The average woman has an aspirations level that is 0.7 standard deviations lower than that of men. This is a significant gender gap in aspirations, and suggests an enormous failure of women to aspire in dimensions that are personally important to them (whether income, assets, education, or social status), relative to their male counterparts. This failure could be due to basic gender differences, but it could also indicate lower economic opportunities for women, which limits their potential achievements. Women have more uniformly low aspirations, while men exhibit greater variation in their aspirations levels. Further, more men have extremely high aspirations than do women.

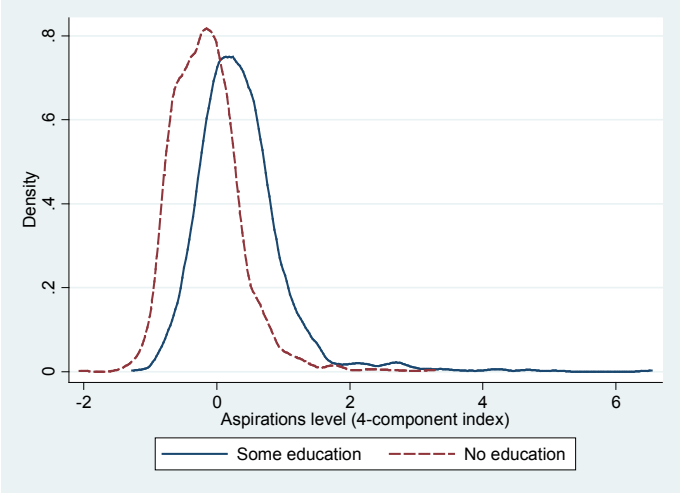
Figure 3.1: Kernel Density Plot of Aspirations Level by Gender



Source: Authors' calculation based on IFPRI/IDS (2012)

[18] Accordingly, summary tables in these sections also include un-weighted descriptive statistics.

Figure 3.2: Kernel Density Plot of Aspirations Level by Education Level

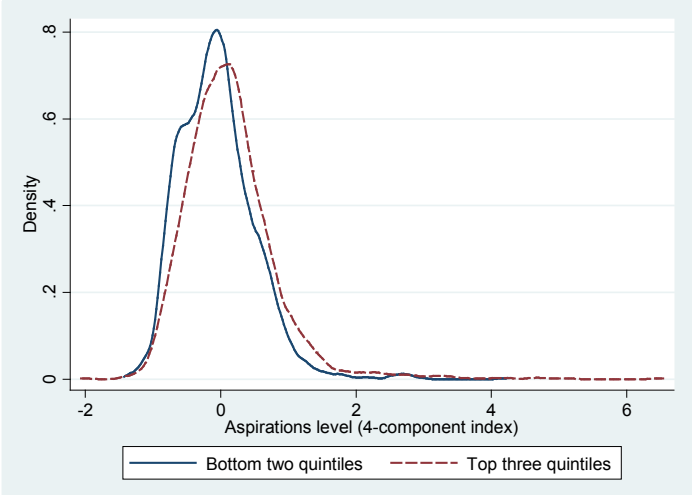


Source: Authors' calculation based on IFPRI/IDS (2012)

We also find that more educated people have higher aspirations, as shown by Figure 3.2. The average person with no education has an aspirations level that is 0.8 standard deviations lower than that of people with some education. Thus, we find evidence of a significant education gap in aspirations. This could be due to cognitive biases among the uneducated that reduce aspirations, or it could indicate fewer economic opportunities for the uneducated, which limits potential achievements in these four dimensions. There is also more variance in the aspirations of the educated, and a larger right tail. The uneducated have more uniformly low aspirations, while the educated exhibit greater variation. Further, more educated people have extremely high aspirations than do uneducated people.

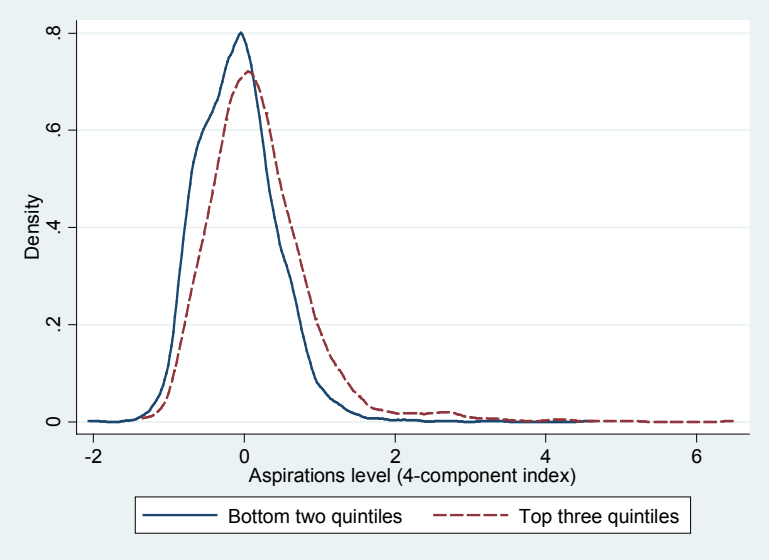
Next, we turn to per capita consumption and total household wealth. Individuals from households in the bottom two quintiles of per capita expenditure or total household wealth tend to have significantly lower aspirations than do those in higher quintiles, as shown in Figures 3.3 and 3.4. An individual from a household in the bottom two per capita expenditure quintiles has an aspirations level that is 0.3 standard deviations lower than that of people in the top three quintiles. Similarly, an individual from a household in the bottom two wealth quintiles has an aspirations level that is 0.4 standard deviations lower than that of people in the top three quintiles. Within a given district, non-poor households seem to aspire significantly more than do poor households. This may indicate an inter-generational transmission of poverty; households that are poor relative to others in their district may know that it will be difficult to emerge from poverty because they lack productive resources or credit.

Figure 3.3: Kernel Density Plot of Aspirations Level by Per Capita Expenditure Quintile



Source: Authors' calculation based on IFPRI/IDS (2012)

Figure 3.4: Kernel Density Plot of Aspirations Level by Quintile of Total Household Wealth



Source: Authors' calculation based on IFPRI/IDS (2012)

The kernel density plots presented thus far indicate important correlations between aspirations and individual (and household) characteristics, including gender, education, expenditure, and wealth. However, all of these characteristics are highly correlated, making it unclear which of them are most strongly associated with higher aspirations. To examine the relative contributions of numerous potentially important characteristics, we turn to multivariate regression analysis. Specifically, we estimate an ordinary least squares (OLS) model with division fixed effects. This helps us uncover (though not causally so) the partial effects of several characteristics that may affect aspirations.

Table 3.1 sequentially controls for numerous individual and household characteristics that may affect aspirations. These include gender, age group, marital status, education group, mother's and father's years of education, household size, per capita household income, household wealth, ethnicity, district of residence, latitude, longitude, latitude × longitude, and elevation. The coefficient on any one of these variables can help us understand its effect on aspirations when we compare individuals that have similar values on all of the other variables.

It is immediately apparent that the individuals with the highest aspirations levels tend to be males between the ages of 45 and 55 with post-secondary education, large families, high per capita household expenditures, and high household wealth. Neither marital status, nor mother's education level, nor father's education level seem to affect an individual's aspirations level. Interestingly, the R^2 value only reaches 0.34, even after controlling for all of these factors. That is, only 34% of the variation in aspirations levels found in the sample can be explained by some linear combination of these variables. This suggests that aspirations are inherently difficult to predict; 66% of the variation in aspirations levels remains unexplained by this set of controls.

Table 3.1: Individual and Household Characteristics Correlated with Aspirations Level

Dep. variable: Aspirations level (score on 4-component index; mean=0.06, S.D.=0.64)	(1)	(2)	(3)	(4)
Male	0.506	0.512	0.359	0.374
	(0.097)***	(0.097)***	(0.101)***	(0.102)***
Age 18-25	0.220	0.233	0.051	0.086
	(0.047)***	(0.045)***	(0.047)	(0.048)*
Age 25-35	0.150	0.174	0.037	0.066
	(0.036)***	(0.038)***	(0.034)	(0.034)*
Age 35-45	0.112	0.125	0.044	0.083
	(0.030)***	(0.032)***	(0.030)	(0.027)***
Age 45-55	0.103	0.113	0.081	0.095
	(0.039)**	(0.040)**	(0.042)*	(0.040)**
Married			0.004	0.015
			(0.030)	(0.029)
Primary education (grades 1-5)			0.262	0.245
			(0.031)***	(0.028)***
Middle education (grades 6-8)			0.402	0.345
			(0.046)***	(0.046)***
High/ intermediate educ. (grades 9-12)			0.609	0.510
			(0.051)***	(0.047)***
Post-secondary education			0.955	0.810
			(0.079)***	(0.085)***
Years of education of mother			-0.001	-0.009
			(0.008)	(0.005)
Years of education of father			0.009	0.002
			(0.004)*	(0.005)
Per capita expenditure (10,000s Rs./mo.)				0.603
				(0.097)***
Total household wealth (10,000s Rs.)				0.002
				(0.001)***
3 household members		0.018	0.006	0.065
		(0.050)	(0.046)	(0.049)
4 household members		0.054	0.040	0.125
		(0.048)	(0.044)	(0.046)**
5 household members		0.088	0.050	0.154
		(0.048)*	(0.052)	(0.055)**
6 household members		0.131	0.100	0.231
		(0.045)***	(0.048)*	(0.053)***
7 household members		0.099	0.046	0.181
		(0.062)	(0.055)	(0.053)***
8 household members		0.107	0.073	0.205
		(0.053)*	(0.049)	(0.052)***
9 household members		0.135	0.133	0.270
		(0.047)***	(0.044)***	(0.053)***
10 household members		0.187	0.158	0.277
		(0.057)***	(0.055)**	(0.048)***
11 household members		0.203	0.126	0.255
		(0.105)*	(0.108)	(0.118)**
12 or more household members		0.311	0.251	0.383
		(0.092)***	(0.077)***	(0.068)***
Observations	3,511	3,505	3,462	3,461
R-squared	0.15	0.17	0.29	0.34
Ethnicity fixed effects?	No	Yes	Yes	Yes

Source: Authors' calculation based on IFPRI/IDS (2012)

Notes: Standard errors corrected for heteroskedasticity and clustered at the district level are shown below the coefficients in parentheses. * = significant at 10%; ** = significant at 5%; *** = significant at 1%. The aspirations index is the weighted (by subjective importance to the household member) average of scores on four dimensions of aspirations: income, assets, education, and social status. Each of the four scores is a normalized measure (equaling the aspired level, minus the district mean, divided by the district S.D). All specifications include district fixed effects, and controls for latitude, longitude, latitude x longitude, and elevation.

Being male is associated with aspirations that are about 0.6 standard deviations higher than those of women (column 4). The fall in the coefficient on the indictor for being male between columns (2) and (3) suggests that part of the apparent effect of being male comes from the fact that men are generally more educated. When controlling for education (column 3),

the effect of being male is therefore smaller, but still quite large and meaningful. That is, even controlling for educational opportunities, men aspire to more than women in rural Pakistan.

Similarly, aspirations appear to decrease monotonically in age (column 2) before controlling for education, but there is not a straightforward relationship between the two variables once we control for education (columns 3 and 4). Age is negatively related to education (likely due to better education systems and higher incomes in Pakistan today than in previous generations), so it spuriously captures the effects of education in column (2). As column (4) indicates, age has a non-monotonic effect on aspirations; aspirations are highest for those aged 45-55 and lowest for those aged 55+. People aged 18-45 (the vast majority of the working-age population) have a more moderate level of aspirations than do those aged 45-55. Those aged 45-55 have aspirations that are 0.15 standard deviations higher than those age 55+. Those aged 18-25, 25-35 and 35-45 have aspirations levels that are 0.13, 0.10, and 0.13 standard deviations higher than those of people aged 55+. While younger members of the workforce have lower aspirations than do older members of the workforce, aspirations levels are lowest for the elderly.

Education has a massive effect on aspirations levels, even in specifications that control for per capita expenditure and wealth. Aspirations are increasing monotonically in the level of education. Those with no education have the lowest aspirations levels. Individuals with primary (grades 1-5), middle (grades 6-8), high/ intermediate (grades 9-12), and post-secondary education have aspirations levels that are 0.4, 0.5, 0.8, and 1.3 standard deviations higher than those of individuals with no education, respectively. This suggests a massive potential for education systems to boost aspirations levels.

A natural question is whether these findings are similar for all households in rural Pakistan, or whether different types of households have unique features that lead to different patterns of aspirations formation. To explore this question, Table 2 takes the specification from column (4) of Table 1, and estimates it for individuals from four different household classifications: landowners (36% of the sample), tenants (13%), agricultural wage laborers (25%), and rural non-farm (26%).[19] These classifications divide households according to the productive assets and activities from which their members make a living. Aspirations levels are highest among landowners (0.22, on average), second highest among rural non-farm households (0.07), third highest for tenants (0.02), and lowest for agricultural wage laborers (-0.17).

It is immediately apparent that the various individual- and household-level variables do not have the same effects for all household types. First, gender affects aspirations most among tenant households, where being male is associated with an aspirations level that is over a full standard deviation higher than that of females. In contrast, being male does not have a statistically significant impact on aspirations among agricultural wage labor households, and it leads to a more modest, 0.5 standard deviation increase in aspirations among rural non-farm households. Women from land-cultivating households tend to have significantly lower aspirations than do men from the same types of households, whereas the gender gap is much smaller among households that do not cultivate land. That the gender gap in aspirations is highest among land-cultivators may indicate that land cultivation creates fewer economic opportunities for women then do more diversified activities such as wage labor and rural non-farm employment. It also suggests a powerful need to create more opportunities for women who live in land-cultivating households.

Second, household member age is not statistically significantly associated with aspirations among individuals from land-cultivating households (both landowners and tenants). Age is weakly correlated with aspirations for agricultural wage laborers (at the 10% level of significance), for whom youth aged 18-25 have the highest aspirations. However, age is associated with large and statistically significantly higher aspirations among rural non-farm households. In these households, aspirations levels are also highest among youth aged 18-25. Being aged 18-25, 25-35, 35-45, and 45-55 is associated with aspirations that are 0.33, 0.18, 0.26, and 0.23 standard deviations higher than the aspirations of those aged 55+. This suggests some scope for policies to address aspirations failures among 25-35 year olds that are not cultivating land; this group is second only to those aged 55+ in failing to aspire.

[19] The four household types are defined as follows: Landowners are people from households that own land. Tenants are people from household that do not own land but are engaged in cultivation (through renting or leasing in land). Agricultural wage laborers are people from households that do not own or cultivate rented or leased in land, but which have income from agricultural or livestock sources. Rural non-farm is a residual category comprised of people from households that do not own or cultivate land, or obtain any income from agriculture or livestock.

Table 3.2: Individual and Household Characteristics Correlated with Aspirations Level, by Household Type

Dep. variable: Aspirations level (score on 4-component index)					
	All	Land-owner	Tenant	Agri. wage laborer	Rural non-farm
	mean=0.06, S.D.=0.64	mean=0.22, S.D.=0.73	mean=0.02, S.D.=0.62	mean= -0.17, S.D.=0.48	mean=0.07, S.D.=0.58
	(1)	(2)	(3)	(4)	(5)
Male	0.374	0.461	0.660	0.201	0.288
	(0.102)***	(0.118)***	(0.121)***	(0.122)	(0.097)***
Age 18-25	0.086	0.065	-0.055	0.118	0.189
	(0.048)*	(0.081)	(0.090)	(0.060)*	(0.065)***
Age 25-35	0.066	0.056	0.068	0.049	0.104
	(0.034)*	(0.071)	(0.094)	(0.052)	(0.059)*
Age 35-45	0.083	0.041	-0.023	0.111	0.148
	(0.027)***	(0.057)	(0.086)	(0.051)**	(0.063)**
Age 45-55	0.095	0.091	0.020	0.049	0.136
	(0.040)**	(0.064)	(0.115)	(0.067)	(0.049)**
Married	0.015	0.036	0.038	0.020	-0.013
	(0.029)	(0.065)	(0.103)	(0.053)	(0.054)
Primary education (grades 1-5)	0.245	0.239	0.219	0.219	0.178
	(0.028)***	(0.059)***	(0.064)***	(0.054)***	(0.036)***
Middle education (grades 6-8)	0.345	0.262	0.052	0.340	0.399
	(0.046)***	(0.076)***	(0.090)	(0.059)***	(0.059)***
High/ intermediate educ. (grades 9-12)	0.510	0.480	0.417	0.566	0.458
	(0.047)***	(0.079)***	(0.084)***	(0.114)***	(0.039)***
Post-secondary education	0.810	0.915	1.342	-	0.555
	(0.085)***	(0.176)***	(0.417)***		(0.089)***
Years of education of mother	-0.009	0.003	-0.104	0.019	-0.016
	(0.005)	(0.015)	(0.057)*	(0.024)	(0.015)
Years of education of father	0.002	-0.003	0.010	0.004	0.006
	(0.005)	(0.008)	(0.016)	(0.012)	(0.007)
Per capita expenditure (10,000s Rs./mo.)	0.603	0.459	0.429	0.414	0.771
	(0.097)***	(0.137)***	(0.204)**	(0.158)**	(0.198)***
Total household wealth (10,000s Rs.)	0.002	0.002	0.001	0.000	0.002
	(0.001)***	(0.001)**	(0.001)	(0.001)	(0.001)**
Observations	3,461	1,241	460	863	897
R-squared	0.34	0.35	0.55	0.30	0.33

Source: Authors' calculation based on IFPRI/IDS (2012)

Notes: Standard errors corrected for heteroskedasticity and clustered at the district level are shown below the coefficients in parentheses. * = significant at 10%; ** = significant at 5%; *** = significant at 1%. The aspirations index is the weighted (by subjective importance to the household member) average of scores on four dimensions of aspirations: income, assets, education, and social status. Each of the four scores is a normalized measure (equaling the aspired level, minus the district mean, divided by the district S.D). All specifications include district fixed effects, ethnicity fixed effects, and controls for latitude, longitude, latitude x longitude, and elevation.

Third, aspirations are increasing in education for every household type. Primary education as opposed to no education is associated with a 0.25 point increase in the aspirations level; middle education instead of no education is associated with 0.35 more points; high or intermediate education is associated with 0.51 more points; and post-secondary education is associated with 0.81 more points. These are 0.4, 0.5, 0.8, and 1.3 standard deviation increases in aspirations compared to those with no education. These findings suggest that education is an important vehicle for boosting aspirations levels even in diverse settings with many different types of households.

Finally, aspirations are increasing in both per capita expenditure and wealth. This is true overall and for each household type. On average, a standard deviation increase in per capita expenditure (an additional 1500 Rs. per person per month) is associated with a (0.60 × 0.15) = 0.09 unit increase in the aspirations level. This is a (0.09/ 0.64) = 0.14 standard deviation increase in aspirations. On average, a standard deviation increase in wealth is associated with a (0.002 × 57.45) = 0.12 unit increase in the aspirations level. This is a (0.12/ 0.64) = 0.19 standard deviation increase in aspirations.

3.2. Internal features and cognitive processes

In addition to the physical individual- and household-level characteristics considered in the previous section, a number of internal features and cognitive processes are likely to affect an individual's aspirations level. These include several features described in Section 2: one's locus of control, self-esteem, religiosity, trust, rivalry/ envy/ competition, the extent to which one sees poverty as due to external factors, attitudes to change, and one's monthly effective discount rate.

Policies which do not take these drivers of individual behavior into account are unlikely to effectively motivate individual actions and investments that reduce poverty. The reason to incorporate this knowledge into policy is twofold: it could be used both to (a) design policies that target the particular bias or behavior that is resulting in aspirations failures, and (b) target policies at the correct set of people, who are most likely to be influenced and helped by that policy. Understanding which internal features and cognitive processes are associated with higher aspirations levels is therefore extremely important from a policy perspective.

In Section 2, we described how the information used to analyze each cognitive process came from answers to a set of questions. We summed the points associated with individuals' answers to create a basic index, with strictly positive minimum and maximum values. For the purposes of regression analysis in this section, however, we standardized responses to each question to create a score with mean zero and standard deviation 1. We then took the average of these standardized scores on the individual questions to construct a composite index.

Table 3.3 summarizes the mean and standard deviation of each of the nine composite indices we constructed. Each has a mean close to zero, reflecting the fact that the underlying, standardized questions summed to create the composite index all had a mean of exactly 0. The standard deviations of the composite indices are always between 0.4 and 1.0.

Table 3.3: Summary Statistics, Composite Indices of Internal and Cognitive Processes

	Cognitive variable	Mean	S.D.
(1)	Internal locus of control	0	0.43
(2)	Self-esteem	0	0.49
(3)	Religiosity	0	0.54
(4)	Trust	0.03	0.60
(5)	Rivalry/ envy/ competition	0	0.85
(6)	Poverty seen as due to external factors	0	0.41
(7)	Openness to change	0.02	0.44
(8)	Monthly effective discount rate	0	1.00

Source: Authors' calculation based on IFPRI/IDS (2012)

A number of internal features and cognitive processes are strongly positively associated with aspirations levels, as shown in Table 3.4. This table presents the results from eight separate regressions of aspirations on one of the eight composite indices described in Table 3.3. Each regression controls for a battery of individual- and household-level characteristics.[20] Effectively, we aim to compare how aspirations levels vary across two individuals that are otherwise similar (from the same district, ethnicity, gender, marital status, age group, education level, and household size) but who differ on the given internal feature or cognitive process. This allows us to isolate the effects of the internal features and cognitive processes that are not simply due to their correlations with other individual and household characteristics.

What is first apparent is that while many of these cognitive process variables are strongly and statistically significantly correlated with aspirations levels, others are not. In particular, we do not find strong correlations of openness to change or the monthly effectively discount rate with the aspirations level. With the other six cognitive variables, however, we find strong correlations.

First, having a more internal locus of control is associated with significantly higher aspirations. A standard deviation increase in locus of control (i.e. in the degree to which one's locus of control is internal) is associated with a (0.11 × 0.43) = 0.05 point increase in the aspirations index. This is a (0.05/ 0.64) = 0.07 standard deviation increase in aspirations. This is a substantial effect given that the regression controls for so many individual- and household-level controls, and given that aspirations levels are inherently so hard to predict. For example, this is the same increase in aspirations associated with a half standard deviation increase in per capita expenditure (see Table 3.1, column 4) (i.e. an additional 750 Rs. per household member, per month). To aspire, individuals first require clear pathways to achievement which make them confident that they

[20] These controls include district fixed effects, ethnicity fixed effects, controls for latitude, longitude, latitude x longitude, and elevation, and controls for gender, age group, marital status, education group, parental years of education, and household size group.

can obtain their goal through hard work. A large reason individuals fail to aspire is not because they lack the necessary resources, but because they do not feel confident that they will be able to do so. Policymakers might use this information to create training and mentorship programs or to invest in education programs that provide students with the tools to reach their goals.

Table 3.4: Correlations of Aspirations Levels with Internal and Cognitive Processes

Dep. Variable: Aspirations level (score on 4-component index)				
Regression	**Cognitive variable considered**	**Coefficient and S.E.**	**N**	**R^2**
(1)	Internal locus of control	0.107	3442	0.29
		(0.025)***		
(2)	Self-esteem	0.148	3455	0.30
		(0.020)***		
(3)	Religiosity	0.047	3454	0.29
		(0.020)**		
(4)	Trust	0.057	2052	0.35
		(0.021)***		
(5)	Rivalry/ envy/ competition	-0.058	3413	0.29
		(0.012)***		
(6)	Poverty seen as due to external factors	-0.113	3457	0.29
		(0.025)***		
(7)	Openness to change	0.031	2461	0.33
		(0.025)		
(8)	Monthly effective discount rate	0.008	3051	0.29
		(0.011)		

Source: Authors' calculation based on IFPRI/IDS (2012)
Notes: The coefficient on each cognitive variable comes from a separate regression of aspirations on the cognitive variable and a set of control variables. These include district, ethnicity, and household size fixed effects, controls for latitude, longitude, latitude x longitude, and elevation, and education group dummies, age group dummies, gender dummies, and marital status dummies. Standard errors corrected for heteroskedasticity and clustered at the household level are shown below the coefficients in parentheses. * = significant at 10%; ** = significant at 5%; *** = significant at 1%. The aspirations index is the weighted (by subjective importance to the household member) average of scores on four dimensions of aspirations: income, assets, education, and social status. Each of the four scores is a normalized measure (equaling the aspired level, minus the district mean, divided by the district S.D).

Second, high self-esteem is an important predictor of high aspirations. A standard deviation increase in self-esteem is associated with a (0.15 × 0.49) = 0.07 point increase in the aspirations index. This is a (0.07/ 0.64) = 0.11 standard deviation increase in aspirations, nearly the same increase in aspirations as that associated with a standard deviation increase in per capita expenditure (i.e. an additional Rs. 1500 per household member, per month) in Table 3.1. Programs aimed at raising self-esteem may therefore be high-value investments in boosting aspirations levels.

Third, religiosity is associated with higher aspirations. A standard deviation increase in religiosity is associated with a (0.05 × 0.54) = 0.03 point increase in the aspirations index. This is a (0.03/ 0.64) = 0.04 standard deviation increase in aspirations. To give some perspective, this is nearly the same increase in aspirations as that associated with a 1/3 of a standard deviation increase in per capita expenditure (i.e. an additional Rs. 500 per household member, per month), in Table 3.1. This finding raises questions for further research about the pathways through which religiosity is correlated with aspirations. It could be that religiosity increases safety nets and social support, is associated with more productive interactions between neighbors and friends, or otherwise expands an individual's aspirations window.

Fourth, greater trust is associated with higher aspirations, while greater envy is associated with lower aspirations. A standard deviation increase in trust is associated with a (0.06 × 0.60) = 0.03 point increase in the aspirations index, or a (0.03/ 0.64) = 0.05 standard deviation increase in aspirations (the same effect as a Rs. 625 per household member per month increase in expenditure, in Table 3.1). On the other hand, a standard deviation increase in envy is associated with a 0.05 point decrease in the aspirations index, or a 0.08 standard deviation decrease in aspirations (the same effect as a Rs. 1,000 per household member per month increase in expenditure, in Table 3.1). Once again, these are both sizeable effects given the large set of controls in the regressions.

Finally—and in line with our findings on locus of control—individuals who think poverty is due to external factors have significantly lower aspirations levels. A standard deviation reduction in the degree to which poverty is seen as due to external factors is associated with a (0.11 × 0.41) = 0.05 point increase in the aspirations index, or a (0.05/ 0.64) = 0.07 standard deviation increase in aspirations (the same effect as a Rs. 875 per household member per month increase in expenditure, in Table 3.1). Individuals who think people have control over their own poverty status therefore set their sights higher. This

suggests that a *perceived* lack of opportunity—not necessary a lack of opportunity—is actively reducing aspirations. It provides evidence to support policies that teach people how they can control and change their poverty status.

4. THE EFFECTS OF COMMUNITY INSTITUTIONS AND INFRASTRUCTURE ON ASPIRATIONS

Thus far, we have seen a number of physical characteristics of individuals and households that are associated with higher aspirations. We have also shown a number of internal features and cognitive processes associated with higher aspirations. In this section, we present evidence on how community institutions and infrastructure may affect aspirations.

An important role of policy is to create and cultivate the institutional conditions that permit and encourage individuals to aspire. These may include, for example: a functioning justice system that instills confidence and promotes productive investments; high-quality infrastructure that increases opportunities for trade, cooperation, investment, and exchanges of all kinds; and social protection mechanisms (whether formal or informal) that help ensure resilience to negative economic shocks. However, how do aspirations levels vary according to community characteristics?

Table 4.1: Summary Statistics, Community Characteristics

	Community variable	Mean	S.D.	N
(1)	Are there organized meetings of village residents to discuss village issues and events?	0.63	0.48	13,381
(2)	Justice composite index (average of standardized answers to eight questions)	0.01	0.56	3,674
(3)	Is there a railway station within walking distance from the center of this village?	0.16	0.37	13,381
(4)	Distance to the nearest post office in 2012 (Km, =0 if located in village)	6.74	7.49	13,381
(5)	A main road connects the village to a nearby city	0.83	0.37	13,381
(6)	The most common road surface type of external roads is mud	0.20	0.40	13,381
(7)	The most common road surface type of internal roads is mud	0.52	0.50	13,381
(8)	A fixed-line telephone service was available in this village in 2012	0.27	0.44	13,381
(9)	Households in this village could get access to cylinder gas in 2012	0.59	0.49	13,381
(10)	Distance to the nearest commercial center (Km)	16.14	14.55	13,381
(11)	Public transport was available from the village to that commercial center in 2012	0.72	0.45	13,381
(12)	Number of NGOs active in your tehsil (out of 7 listed; report by male)	0.18	0.46	13,381
(13)	Number of NGOs from which you have received training (out of 7 listed; by male)	0.03	0.18	13,381
(14)	Does your household receive money from the BISP?	0.16	0.37	13,381
(15)	Safety nets composite index (average of standardized answers to eight questions)	0.02	0.56	3,959
(16)	Do you have relatives who live in another district?	0.70	0.46	13,329
(17)	Do you have relatives who live in another province?	0.22	0.41	13,321

Source: Authors' calculation based on IFPRI/IDS (2012)

Table 4.1 summarizes many important community characteristics that we might expect to affect a resident individual's aspirations level. The average individual lives in a community with mud internal roads, non-mud external roads, and a main road connecting the village to a nearby city. The nearest post office is 7 km. away, the nearest commercial center is 16 km. away, and public transportation is available to that commercial center. The community has access to cylinder gas, but no fixed-line telephone service. There are meetings of village residents to discuss village issues and events, and at most one active NGO is operating in the community. Of course, there is a lot of variation around this picture of an "average" village, and this variation may explain some differences in the levels of aspirations.

A number of community characteristics are strongly positively associated with aspirations levels, as shown in Table 4.2. This table presents the results from 17 separate regressions of aspirations on one of the 17 community-related variables from Table 4.1. Each regression controls for the full set of individual- and household-level characteristics.[21] Effectively, we aim to compare how aspirations levels differ across two individuals that are otherwise similar (from the same district, ethnicity, gender, marital status, age group, education level, and household size, and with the same per capita household expenditure and wealth levels) but who differ with respect to a community-related characteristic. This allows us to isolate the effects of the community characteristic that are not simply due to their correlations with individual and household characteristics.

[21] These controls include district fixed effects, ethnicity fixed effects, controls for latitude, longitude, latitude x longitude, and elevation, and controls for gender, age group, marital status, education group, parental years of education, household size group, per capita expenditure, and total household wealth.

What is first apparent is that while many of the community characteristics are strongly and statistically significantly correlated with aspirations levels, others are not. In particular, we do not find strong correlations of the following characteristics with an individual's aspirations level: a main road connecting the village to a nearby city, fixed-line telephone service (perhaps this does not matter since 100% of sample villages have cellular telephone service), access to cylinder gas, distance to the closest commercial center, availability of public transportation to the nearest commercial center, the number of active NGOs, whether the household receives money from the Benazir Income Support Program (BISP), and a composite index of access to safety nets (the average of normalized scores on the eight safety net questions described in Section 2). With the other community characteristics, however, we find strong correlations with aspirations.

Table 4.2: Correlations of Aspirations Levels with Community Characteristics

Dep. Variable: Aspirations level (score on 4-component index)				
Regression	**Community variable considered**	**Coefficient and S.E.**	**N**	**R^2**
(1)	Are there organized meetings of village residents to discuss village issues and events?	0.103	3461	0.35
		(0.027)***		
(2)	Justice composite index (average of standardized answers to eight questions)	0.044	2578	0.37
		(0.024)*		
(3)	Is there a railway station within walking distance from the center of this village?	0.124	3461	0.35
		(0.038)***		
(4)	Distance to the nearest post office in 2012 (Km, =0 if located in village)	-0.004	3461	0.35
		(0.002)***		
(5)	A main road connects the village to a nearby city	0.032	3461	0.34
		(0.028)		
(6)	The most common road surface type of external roads is mud	-0.098	3461	0.35
		(0.027)***		
(7)	The most common road surface type of internal roads is mud	-0.046	3461	0.35
		(0.026)*		
(8)	A fixed-line telephone service was available in this village in 2012	0.005	3461	0.34
		(0.036)		
(9)	Households in this village could get access to cylinder gas in 2012	0.028	3461	0.34
		(0.023)		
(10)	Distance to the nearest commercial center (Km)	-0.001	3461	0.34
		(0.001)		
(11)	Public transport was available from the village to that commercial center in 2012	0.015	3461	0.34
		(0.024)		
(12)	Number of NGOs active in your tehsil (out of 7 listed; report by male)	0.018	3461	0.34
		(0.027)		
(13)	Number of NGOs from which you have received training (out of 7 listed; by male)	0.078	3461	0.35
		(0.046)*		
(14)	Does your household receive money from the BISP?	0.036	3461	0.34
		(0.029)		
(15)	Safety nets composite index (average of standardized answers to eight questions)	0.012	2914	0.35
		(0.018)		
(16)	Do you have relatives who live in another district?	0.081	5753	0.40
		(0.031)***		
(17)	Do you have relatives who live in another province?	0.108	5749	0.40
		(0.047)**		

Source: Authors' calculation based on IFPRI/IDS (2012)

Notes: The coefficient on each community variable comes from a separate regression of aspirations on the community variable and a full set of control variables. These include district, ethnicity, and household size fixed effects, and controls for latitude, longitude, latitude x longitude, elevation, education group dummies, age group dummies, gender dummies, marital status dummies, household type dummies (landowner, tenant, agricultural wage laborer, or rural non-farm), per capita expenditure, and wealth. Standard errors corrected for heteroskedasticity and clustered at the household level are shown below the coefficients in parentheses. * = significant at 10%; ** = significant at 5%; *** = significant at 1%. The aspirations index is the weighted (by subjective importance to the household member) average of

scores on four dimensions of aspirations: income, assets, education, and social status. Each of the four scores is a normalized measure (equaling the aspired level, minus the district mean, divided by the district S.D).

First, from regression (1), holding organized meetings of village residents to discuss village issues and events is associated with a 0.10 point increase in the aspirations index. This is a (0.10/ 0.64) = 0.16 standard deviation increase in aspirations. This is a substantial effect. For example, the coefficient on monthly per capita household expenditure in regression (1) (not presented due to space limitations) is 0.5, indicating that a standard deviation (Rs. 1500) increase in monthly per capita expenditure is associated with a (0.5 × 0.15) / 0.64 = 0.12 standard deviation increase in aspirations. It signifies that having organized village meetings has the same association with aspirations levels as does providing an extra Rs. 2000 per household member per month. For policymakers, this suggests that simply improving village governance institutions has the power to dramatically improve aspirations. As Table 4.1 indicated, only 63% of sample individuals live in communities with regular village meetings. Efforts to encourage civic participation in the communities of the other 37% of sample individuals could massively increase aspirations levels and is likely a cost-effective policy approach.

Second, from regression (2), individuals' sense of access to justice also affects their aspirations levels. A standard deviation increase in a composite index of access to justice (the average of normalized scores on the eight justice questions described in Section 2) is associated with a (0.04 × 0.56) = 0.02 point increase in the aspirations index. This is a (0.02/ 0.64) = 0.04 standard deviation increase in aspirations. This is also a large effect of governance institutions, though it is smaller than the effect of having organized village meetings. Compared with the coefficient (0.5) on per capita monthly expenditure, it suggests that a standard deviation increase in access to justice has the same association with aspirations levels as does providing an additional Rs. 500 expenditure per household member per month. Instilling confidence in the justice system is thus an important institutional investment that policymakers can use to improve aspirations levels.

Third, regressions (3) and (4) indicate that having a railway station that is walking distance from the village center and having a post office near the village center are both associated with higher aspirations levels. Specifically, having a railways station within walking distance is associated with a (0.12/ 0.64) = 0.19 standard deviation increase in aspirations; bringing a post office 10 km. closer to the village center (e.g., from 16 km. away—which is the average distance—to 6 km. away) is associated with a (0.004 × 10) / 0.64 = 0.06 standard deviation increase in aspirations. These findings suggest a powerful role for village infrastructure that improves communications and linkages in increasing aspirations levels.

Fourth, regressions (6) and (7) indicate that having mud as the primary road surface type (whether on internal or external village roads) is associated with lower aspirations levels. Specifically, having mud internal roads is associated with a (0.05/ 0.64) = 0.07 standard deviation decrease in aspirations; having mud external roads is associated with an even larger, (0.10/ 0.64) = 0.15 standard deviation decrease in aspirations. These findings suggest that the ease of mobility within a village and especially the ease of mobility between the village and outlying areas are especially important for residents' aspirations levels. Road improvement projects may therefore be one way to increase aspirations levels.

Finally, certain sources of support—social networks, safety nets, or training programs—are associated with significantly higher aspirations levels. First, while having more NGOs active in one's tehsil is not statistically significantly associated with higher aspirations, having received training from NGOs does have a small effect on aspirations. Receiving training from an additional NGO in the last year is associated with a (0.08/ 0.64) = 0.12 standard deviation decrease in aspirations—the same size as the effect of an additional standard deviation of per capita expenditure. However, not only formal support from NGOs is associated with higher aspirations; linkages with people in other communities are also associated with higher aspirations. Specifically, having a relative in another district is associated with a (0.08/ 0.64) = 0.13 standard deviation decrease in aspirations, and having a relative in another province is associated with a (0.11/ 0.64) = 0.17 standard deviation decrease in aspirations. If the goal of policy is to boost aspirations, this suggests a role not only for government programs that provide training and opportunities, but also for efforts to strengthen mobility and social networks.

These findings have important policy implications. Overall, they suggest that creating high-quality communities can powerfully raise aspirations levels—possibly by providing individuals with the tools they require to actively improve their current standard of living. A failure to aspire may reflect a feeling that conditions in one community do not encourage and support an individual's attempts to obtain a better life. In the next section, we turn to why aspirations levels matter: because they are correlated with many positive economic behaviors. This motivates efforts to improve community institutions and infrastructure.

5. THE IMPORTANCE OF ASPIRATIONS FOR INDIVIDUALS' ECONOMIC DECISIONS AND OUTCOMES

Until now, we have explained why high aspirations are an intrinsically important policy goal. However, we have not quantified the relationship between aspirations and individuals' economic decisions and outcomes. In this section, we explore this relationship in several ways. First, we explore the association between aspirations and input choice. Second, we examine how aspirations are correlated with crop yields (measured in 10's of 40 kg. bags harvested per acre planted) for cotton and wheat. Third, we analyze the correlation between aspirations and financial and economic behavior; in particular, the propensity to have savings, take out loans, migrate from the village, and operate a non-agricultural enterprise. Higher aspirations levels are associated with more productive outcomes in many of these areas. This provides an important rationale for investing in increasing aspirations levels.

Table 5.1: Summary Statistics, Individual Economic Decisions and Outcomes

Variable	Mean	S.D.	N
Panel A: Input choice			
Household expenditure on seeds per acre cultivated	2507	3606	1,657
Household expenditure on pesticide and weedicide per acre cultivated	2308	3088	1,657
Household expenditure on fertilizer per acre cultivated	8760	8671	1,657
Panel B: Crop yields			
Cotton harvested per acre of cotton planted (10s of 40 Kg. bags)	1.77	1.08	510
Wheat harvested per acre of wheat planted (10s of 40 Kg. bags)	2.88	1.13	1,259
Cotton lost (pre- or post-harvest) as a share of cotton production	0.90	2.83	482
Wheat lost (pre- or post-harvest) as a share of wheat production	0.10	0.50	1,259
Panel C: Financial and economic decisions			
Total savings as a share of monthly expenditure	0.15	1.27	3,528
Total cash loans outstanding as share of yearly total expenditure	0.31	0.57	1,097
Individual migrated outside the village in the last twelve months	0.09	0.29	3,528
Individual's household operates a non-agricultural enterprise	0.16	0.37	3,528

Source: Authors' calculation based on IFPRI/IDS (2012)

Table 5.1 summarizes many important economic decisions and outcomes that might be affected by an individual's aspirations level. First, we describe input choices, including expenditures on seeds, pesticide and weedicide, and fertilizer per acre of land cultivated. On average, individuals spend Rs. 2,507 on seeds, Rs. 2,308 on pesticide and weedicide, and Rs. 8,760 on fertilizer per acre of cultivated land each year. Second, we describe crop yields and losses for two centrally important crops: cotton and wheat. On average, households harvested 18 bags (40 kg. each) of wheat per acre planted, and 29 bags (40 kg. each) of cotton per acre planted. Further, taking the ratio of cotton lost (pre- or post-harvest) to cotton kept (harvested and not lost post-harvest), the average is 0.9 and the standard deviation is large (2.83).[22] The ratio is much smaller in the case of wheat, at 0.10. Finally, we describe several of economic and financial decisions: savings as a share of expenditures (15% on average), cash loans as a share of expenditures (31%), migration outside the village in the last year (9% migrated at some point, on average), and ownership of a non-agricultural enterprise (16% of households). The different sample sizes across variables are due to the fact that not all rural households cultivate crops, and not all of those that cultivate crops necessarily cultivate cotton and wheat.

5.1. Agricultural input expenditures and aspirations levels

Higher aspirations levels are associated with significantly higher expenditure on fertilizer per acre of cultivated land, as shown in Table 5.2. A standard deviation increase in the aspirations level is associated with a modest, (0.64 × 575) = 369 Rs. increase in annual expenditure on fertilizer per acre of land cultivated (see column 6). This is roughly a 4% increase over the mean expenditure on fertilizer (8,760 Rs.). We do not find robust evidence that higher aspirations levels are associated

[22] This high average ratio is largely driven by a relatively small number of households with extremely large losses, for which almost nothing was retained. For example, the ratio of cotton lost to cotton kept is 1.5 at the 90th percentile, 4 at the 95th percentile, and 16.7 at the 99th percentile.

with higher expenditure on seeds or on pesticides and weedicides per acre of land cultivated. While column (3) suggests that a standard deviation increase in aspirations is associated with (0.64 × 157) = 101 Rs. increase in annual expenditure on pesticides and weedicides per acre cultivated (roughly a 4% increase over the mean expenditure of 2,308 Rs.), column (4) reveals that the effect of aspirations is insignificant at conventional levels when we control for the battery of individual- and household-level controls. Aspirations levels are associated with no difference in expenditure on seeds.

The effects of aspirations on agricultural inputs are relatively small in magnitude, but more impressive when considering the wide array of individual-level controls included in the regressions. Effectively, when we compare two individuals that are otherwise similar (from the same district, ethnicity, gender, marital status, age group, education level, and household size) but who differ with respect to their aspirations levels, those aspirations levels are found to be associated with significantly more fertilizer being purchased per acre of land. Aspiring to higher achievements may motivate land cultivators to invest more today in order to ensure a good harvest in the future. These results suggest that policies that encourage individuals to aspire may have the power to change behaviors with respect to agricultural inputs, in the direction of investing more today in the hopes of obtaining higher output in the future.

Table 5.2: Correlations between Agricultural Input Expenditures and Aspirations Levels

	(1)	(2)	(3)	(4)	(5)	(6)
	Household expenditure on seeds per acre cultivated		Household expenditure on pesticide and weedicide per acre cultivated		Household expenditure on fertilizer per acre cultivated	
Aspirations level (index score)	-52.242	62.372	156.644	127.187	621.439	575.356
	(98.776)	(117.485)	(90.736)*	(107.238)	(272.166)**	(331.707)*
Male		95.366		-156.868		-314.226
		(184.863)		(120.559)		(377.079)
Age 18-25		215.612		-36.769		738.416
		(646.627)		(281.937)		(803.817)
Age 25-35		-388.502		-86.086		-538.600
		(242.458)		(217.371)		(576.168)
Age 35-45		146.090		-156.222		396.306
		(318.157)		(260.160)		(666.347)
Age 45-55		1.455		-46.742		124.539
		(287.178)		(233.109)		(646.772)
Married		217.101		97.497		204.849
		(335.303)		(240.154)		(683.224)
Primary education (grades 1-5)		-74.377		33.836		694.852
		(235.751)		(180.859)		(486.945)
Middle education (grades 6-8)		59.548		234.942		-556.594
		(306.710)		(253.777)		(639.255)
High/ intermediate educ. (grades 9-12)		-560.506		343.703		738.316
		(266.689)**		(223.419)		(710.496)
Post-secondary education		-139.856		849.931		2,385.042
		(352.608)		(533.294)		(1,318.791)*
Years of education of mother		-24.689		-33.984		-59.903
		(45.141)		(52.165)		(145.786)
Years of education of father		27.917		17.445		24.477
		(24.859)		(24.177)		(62.169)
Observations	1,646	1,621	1,646	1,621	1,646	1,621
R-squared	0.11	0.13	0.33	0.37	0.27	0.33

Source: Authors' calculation based on IFPRI/IDS (2012)

5.2. Crop yields and pre- and post-harvest losses and aspirations levels

Higher aspirations levels are also associated with significantly higher crop yields and with less pre- and post-harvest waste as a share of output kept (i.e. harvested and not lost post-harvest), as shown in Table 5.3. However, the findings are not

uniform across crops (cotton vs. wheat) or across different types of cultivators (landowners vs. tenants who share- or rent-in land). Higher aspirations are associated with significantly higher cotton yields (measured in kg. of output per acre planted) (Panel A), but are not associated with higher wheat yields (Panel B). Further, higher aspirations are associated with significantly less wheat lost (pre- or post-harvest) as a share of wheat kept (i.e. not lost post-harvest) (Panel D), but are not associated with less cotton loss (Panel C). Importantly, the results appear to be mostly driven by benefits accruing to tenants, as opposed to landowners. In particular, the benefits of aspirations for cotton yields are twice as large in magnitude among tenants as among landowners. Also, the benefits of aspirations in reducing wheat losses are ten times as great among tenants as among landowners.

Table 5.3: Correlations between Cotton and Wheat Crop Yields and Pre- and Post-Harvest Losses and Aspirations Levels

	(1)	(2)	(3)	(4)	(5)	(6)
	All		Landowners		Tenants	
Panel A: Cotton harvested per acre planted (10's of 40 kg. bags)						
Aspirations level (score on index)	0.117	0.124	0.116	0.121	0.089	0.236
	(0.058)**	(0.069)*	(0.059)*	(0.071)*	(0.112)	(0.106)**
Observations	505	496	405	400	100	96
R-squared	0.38	0.42	0.28	0.34	0.72	0.86
Includes individual and HH controls?	No	Yes	No	Yes	No	Yes
Panel B: Wheat harvested per acre planted (10's of 40 kg. bags)						
Aspirations level (score on index)	0.049	0.035	0.029	0.003	0.072	0.066
	(0.036)	(0.043)	(0.036)	(0.042)	(0.100)	(0.137)
Observations	1249	1227	1000	985	249	242
R-squared	0.34	0.35	0.34	0.36	0.39	0.50
Includes individual and HH controls?	No	Yes	No	Yes	No	Yes
Panel C: Cotton lost (pre- or post-harvest) as a share of cotton production						
Aspirations level (score on index)	0.028	0.096	0.155	0.142	-0.734	0.389
	(0.180)	(0.215)	(0.102)	(0.143)	(1.129)	(1.242)
Observations	478	469	395	390	83	79
R-squared	0.33	0.44	0.32	0.44	0.37	0.80
Includes individual and HH controls?	No	Yes	No	Yes	No	Yes
Panel D: Wheat lost (pre- or post-harvest) as a share of wheat production						
Aspirations level (score on index)	-0.037	-0.047	-0.011	-0.017	-0.176	-0.183
	(0.020)*	(0.024)*	(0.009)	(0.014)	(0.144)	(0.121)
Observations	1249	1227	1001	986	248	241
R-squared	0.10	0.16	0.12	0.20	0.10	0.46
Includes individual and HH controls?	No	Yes	No	Yes	No	Yes

Source: Authors' calculation based on IFPRI/IDS (2012)

First, from Panel A, we find that a standard deviation increase in aspirations levels is associated with an additional (0.124 × 0.64 × 400 Kg.) = 32 Kg. of cotton harvested per acre of cotton planted. Given average cotton yields of (1.77 × 400 Kg.) = 708 Kg., this is approximately a 5% average increase in cotton yields. However, the findings vary substantially across types of cultivators. For tenants, a standard deviation increase in aspirations is associated with an additional (0.236 × 0.64 × 400 Kg.) = 61 Kg. of cotton harvested per acre planted, which represents a much larger, 9% increase in cotton yields. For landowners, the effects are substantially smaller; a standard deviation increase in aspirations is associated with an additional (0.121 × 0.64 × 400 Kg.) = 30 Kg. of cotton harvested per acre planted, which is a 4% increase in cotton yields.

That aspirations are more highly correlated with cotton yields for tenants than for landowners suggests that low aspirations pose a greater risk to poor and more vulnerable individuals with less access to assets (especially land) than they do for richer individuals. It suggests that policies that raise the aspirations of tenants may have a larger impact on cotton yields than policies that raise the aspirations of landowners.

Second, from Panel D, we find that a standard deviation increase in aspirations levels is associated with a (0.047 × 0.64) = 0.03 point decrease in wheat lost (pre- or post-harvest) as a share of wheat production. As the average ratio of wheat lost to wheat kept is 0.10, this represents a 30% reduction in pre- and post-harvest wheat losses as a share of wheat kept. Again, the findings vary substantially across types of cultivators. For tenants, a standard deviation increase in aspirations is associated with a (0.183 × 0.64) = 0.12 point decrease in wheat lost (pre- or post-harvest) as a share of wheat production, or a 120% reduction in pre- and post-harvest losses as a share of wheat kept. For landowners, the effects are substantially smaller; a standard deviation increase in aspirations is associated with a (0.017 × 0.64) = 0.01 point decrease

in wheat lost (pre- or post-harvest) as a share of wheat production, or a 10% reduction in pre- and post-harvest losses as a share of wheat kept.

Again, that aspirations are more highly correlated with pre- and post-harvest wheat loss for tenants than for landowners suggests that low aspirations pose a greater risk to poor and more vulnerable individuals than they do for richer individuals. Policies that raise the aspirations of tenants would seem to confer larger reductions in pre- and post-harvest wheat losses (normalized as a share of output kept) than would policies that raise the aspirations of landowners.

5.3. Financial and economic outcomes and aspirations levels

Higher aspirations levels are also associated with higher savings and use of credit (normalized as a share of expenditures) and a greater likelihood of operating a non-agricultural enterprise, as shown in Table 5.4. However, aspirations levels are not statistically significantly correlated with individual migration outside of the village during the last 12 months. The magnitudes of the effects on savings and credit are quite large; a standard deviation increase in aspirations levels is associated with an increase of (0.104 × 0.64) = 0.07 in savings as a share of monthly expenditure. As the average savings rate (as a share of expenditure) is 15%, this is a 44% increase in savings—an incredibly large effect. Similarly, a standard deviation increase in aspirations levels is associated with an increase of (0.128 × 0.64) = 0.08 in cash loans currently outstanding as a share of yearly total expenditure. As people on average owe 30% of their yearly expenditure, this is a 26% increase in loans—also a very sizeable effect. Finally, a standard deviation increase in aspirations levels is associated with an increase of (0.026 × 0.64) = 0.02 in the probability of operating a non-agricultural enterprise. As an average of 16% of households operate a non-agricultural enterprise, this is an 11% increase in operation of non-agricultural enterprises. This is an especially relevant finding given the importance for policymakers of expanding opportunities in rural non-farm employment, given the burgeoning youth population.

Table 5.4: Correlation of Financial and Economic Outcomes with Aspirations Levels

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total savings as a share of monthly expenditure		Total cash loans outstanding as share of yearly total expenditure		Individual migrated outside the village, last 12 months		Individual's household operates a non-agricultural enterprise	
Aspirations level (score on index)	0.144	0.104	0.102	0.128	-0.001	-0.001	0.023	0.026
	(0.044)***	(0.052)**	(0.04)**	(0.06)**	(0.01)	(0.007)	(0.01)**	(0.012)**
Male		-0.056		-0.018		-0.008		-0.057
		(0.029)*		(0.023)		(0.006)		(0.01)***
Age 18-25		-0.052		-0.023		-0.009		-0.009
		(0.085)		(0.074)		(0.014)		(0.027)
Age 25-35		0.067		-0.106		-0.017		-0.008
		(0.072)		(0.059)*		(0.013)		(0.023)
Age 35-45		-0.028		-0.105		-0.018		0.000
		(0.070)		(0.064)		(0.013)		(0.023)
Age 45-55		-0.009		-0.112		-0.011		0.001
		(0.070)		(0.060)*		(0.014)		(0.024)
Married		0.128		0.061		-0.015		-0.001
		(0.060)**		(0.044)		(0.012)		(0.022)
Primary education (grades 1-5)		-0.029		-0.086		0.011		0.054
		(0.039)		(0.061)		(0.010)		(0.020)***
Middle education (grades 6-8)		0.171		-0.003		-0.001		0.027
		(0.118)		(0.091)		(0.014)		(0.024)
High/ intermediate educ. (grades 9-12)		0.198		-0.048		0.007		0.043
		(0.080)**		(0.089)		(0.014)		(0.025)*
Post-secondary education		0.295		-0.121		0.023		-0.002
		(0.180)		(0.114)		(0.032)		(0.047)
Years of education of mother		0.027		-0.013		-0.007		-0.005
		(0.024)		(0.010)		(0.002)***		(0.006)
Years of education of father		0.001		0.013		-0.001		0.002
		(0.012)		(0.007)*		(0.002)		(0.003)
Observations	3,515	3,462	1,088	1,071	3,515	3,462	3,515	3,462
R-squared	0.02	0.04	0.08	0.13	0.54	0.57	0.05	0.08
Includes individual and HH controls?	No	Yes	No	Yes	No	Yes	No	Yes

6. CONCLUSIONS AND POLICY IMPLICATIONS

Understanding what leads rural Pakistanis to aspire or fail to aspire is especially important given that Pakistan has an extremely young population that will need to find employment in the coming years (Nayab 2006). For rural populations highly dependent on agriculture, the consequences of high fertility include increasingly smaller average farm sizes, as family land assets become further divided. As Pakistan's working-age population grows, it is vitally important to understand what drives individuals to aspire to improve their outcomes and invest in their future.

The aspirations of Pakistanis are also at an especially critical juncture given the country's deteriorating security situation, two major floods in the last 2.5 years, and an increasing likelihood of such extreme weather events due to climate change. The recent flooding has only heightened perennial concerns in Pakistan about a lack of basic necessities such as education, health, security, mobility, and access to information.[23] Without these basic necessities, aspirations levels may be exceptionally low. It is critically important to understand what policies raise aspirations, and which can ensure that aspirations levels remain high. With this knowledge, resources can be targeted to leverage individuals' desires for a better life to improve actual outcomes for rural Pakistanis.

This report has utilized a very particular definition of aspirations, which is the level of income, assets, social status, and education an individual aspires to, relative to their average levels in his district. As with any concrete definition of aspirations, it is always possible that we are excluding some important dimension of what it means to aspire to a better life. For example, there may be other factors beyond income, assets, education, and social status—such as security or mobility—that are relevant in defining one's aspirations. Additionally, one could argue that aspirations should be measured in an absolute sense (i.e. not relative to one's district), or that aspirations should be measured relative to some other population (e.g., one's

[23] See, for example, Government of Pakistan Planning Commission (2011) for a discussion of problems and potential solutions related to community and youth engagement.

village, or what one currently has). Nevertheless, we believe that our measure reflects some of the more important dimensions of aspirations, and those most amenable to specific policy interventions. Further, by allowing individuals to indicate the relative value they place on different dimensions, we have avoided imposing that aspirations mean the same thing to different people.

This report has shown that very large numbers of rural Pakistanis feel they lack access to basic services and institutions that might influence aspirations. These include security, justice, and social safety nets, among others. Further, women and the poor feel they have even less access to these services than do men and the more well-off. Most respondents also live in communities lacking important infrastructure that has been shown in other contexts to boost economic growth. Individuals also generally feel that they have little control over what happens in their lives.

The report has additionally identified characteristics that predict aspirations levels: women have lower aspirations than men; the uneducated have lower aspirations than those with some education; the middle-aged (25-45) have lower aspirations than the young (age 18-25); and agricultural wage laborers have lower aspirations than rural non-farm workers. Further, various internal factors are strongly correlated with aspirations levels, including an internal locus of control, high self-esteem, religiosity, trust, envy, and a sense of poverty being due to external factors. This suggests some particular groups that are most at risk for aspirations failures, and that might be specifically targeted by policies aimed at raising aspirations.

This report has also identified a number of potential policy levers associated with higher aspirations in rural Pakistan: holding organized meetings of village residents, improving the justice system, upgrading road surfaces (from mud to other types), expanding communication and transport links with other localities, and providing training of some type through NGOs. This is suggestive evidence that good policy can create and cultivate the institutional conditions that permit and encourage individuals to aspire. The report additionally investigates some of the possible economic decisions that may be affected by aspirations, and finds that higher aspirations are associated with higher crop yields, less pre- and post-harvest loss, more savings, more cash loans (likely indicating greater access to and use of credit), and a greater propensity to operate a non-agricultural enterprise. This provides initial evidence that aspirations have real economic effects on the poor, and merit further analysis.

While our research uncovers important associations between individual and community characteristics and aspirations, we are not able to pinpoint the direction of causality. Our results are suggestive, but further research is needed to understand the causal mechanisms at work. For example, are individuals more likely to aspire because they live in high-quality communities with good institutions and infrastructure? Or do individuals with high aspirations encourage the economic development of their communities, and initiate projects like upgrading roads, organizing village meetings, and attracting NGOs?[24] An additional possibility is that both high-quality communities and high aspirations levels are driven by some third factor, such as favorable weather patterns, good crop land, or strategic investment by higher levels of government. Our econometric estimates cannot identify which of these stories accounts for the results, motivating future research that addresses these endogeneity concerns.

The literature on aspirations formation and the effects of aspirations is still very new. There are a number of promising directions for future work, as well as some interesting studies currently underway in Ethiopia. First, there is a large amount of room for fruitful work using motivational field experiments that exogenously vary aspirations levels. Alemayehu Seyoum Taffesse, Tanguy Bernard, and Stefan Dercon are currently working in collaboration with a Village Savings and Loans Association program of CARE Ethiopia to experimentally and randomly raise the aspirations of some individuals (and not others) through the use of motivational documentaries. This analysis will help them uncover some of the causal effects of having higher aspirations. Already, CARE has redesigned part of its VSLA program in Ethiopia based on the findings of these experiments. Observing whether aspirations can be effectively raised through such policy interventions in other settings, such as Pakistan, is a promising avenue for future research. This research can address the endogeneity problems that plague the analysis of aspirations and can help pinpoint effective and readily implementable strategies for raising aspirations.

Second, in light of climate change and the perennial concern about the rural poor's vulnerability to natural disasters, fruitful future work could examine their direct impacts on aspirations formation. If negative climate events—such as Pakistan's recent floods—substantially lower future aspirations, then policymakers ignoring aspirations would tend to underestimate their long-term negative effects on future behavior. This would add renewed impetus to the need for effective policy responses to such events, which specifically safe-guard against aspirations failures.

[24] Another possibility is sorting, whereby individuals with high aspirations move to high-quality communities with good institutions and infrastructure.

Third, a particularly interesting area of research would involve governance experiments that shed light on the potential causal effects of different institutional arrangements on aspirations levels. In an experimental setting, one could overcome the endogeneity problems discussed above, allowing for the interpretation of causal effects. Knowledge of how policymakers can raise aspirations through concrete actions could be used to reduce poverty by empowering the poor to aspire. These are many possible experiments. For example, could innovations in irrigation sector management which devolve more organizational control to community members (e.g., “cutting loose” water users organizations, and farmers organizations) raise aspirations, by creating a more efficient system? Or could providing better information to citizens about their leaders (making them more informed voters) raise aspirations levels, and for which citizens? Leveraging natural experiments or running governance experiments in the field can shed light on policies that raise aspirations levels and reduce poverty.

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