J-PAL Youth Initiative

REVIEW PAPER

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ABDUL LATIF JAMEEL
Poverty Action Lab

TRANSLATING RESEARCH INTO ACTION

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Executive Summary

I. Life Skills and Decisions

Adolescence is a time when critical decisions must be made—for example about schooling, careers, fertility—that can dramatically impact the future trajectory of lives. It is also a period in which habits with potential longer-term consequences are formed, including smoking, drug use, eating habits that may increase the risk of diabetes and obesity, or sexual activity patterns.

1. Skills

A large body of evidence has shown that non-cognitive skills, such as perseverance, motivation, time preference, risk aversion, self-esteem, and self-control, are strongly predictive of life outcomes from wages to the probability of engaging in high-risk behavior. Non-cognitive skills appear to remain malleable much later in life than cognitive skills (which frequently have sensitive or critical periods in early childhood), suggesting that interventions targeting non-cognitive skills may help improve life outcomes for the youth. Nevertheless, most research on skill development programs to date have been on interventions targeted to very young children. In the few cases where later-age remediation interventions have been evaluated, much less success has been found, and the effects of successful programs appear to attenuate quickly over time. More research is needed to determine how late is too late for these remediation efforts, and whether they might be cost-effective even if their impacts are small and fade quickly. Research in this area in the context of developing countries is particularly scarce.

Another strand of research has considered whether gender differences in non-cognitive skills and psychological attributes can help account for women's disadvantages in the labor market relative to men. There is evidence that women have less of a preference for risk and competition than men, which may affect job market outcomes. However, other research suggests that cultural and environmental influences are at least partly responsible for these differences, as well as the gender gaps in cognitive domains such as mathematical skill. Evidence from developed and developing countries suggests that exposure to female role models can help close these gender gaps.

Key Open Questions:

- *What are the components of an effective non-cognitive skill development program targeted to the youth?*
- *Can interventions be designed to reduce gender gaps in cognitive skills (e.g. mathematics) and non-cognitive attributes (e.g. risk aversion, attitudes toward competition) that limit career options for women?*

2. Education and Career Choices

A key junction for intervention is the point at which young people have the choice to remain in school or drop out. The availability of credit has been shown to play an important role in these decisions in both developing and developed countries. A large body of evidence demonstrates that financial incentives, most notably conditional cash transfer (CCT) programs, are effective in getting people to attend school. Once again, however, the bulk of the evidence is about the effects of these programs on younger children. CCT programs targeted to adolescents

can be designed to incentivize not only day-to-day attendance, but also reenrollment in school the following year, graduation from secondary school, and enrollment in tertiary education. Relatively little is known about the effectiveness of transfers in incentivizing other behaviors, such as school performance or participation in job counseling programs.

Research has found support for the hypothesis that many young people drop out of school because they do not understand the economic returns to education. Providing young people with this information has been shown to increase schooling, though its effects may be limited for poor and credit-constrained households. Little is known about whether classroom effort is also affected by information and whether the effects of informational interventions vary systematically by gender. Providing information on school quality has been shown to help people choose better schools, leading to better educational outcomes. In the context of developed countries, informational interventions could help address the problem of worker over-qualification for job opportunities. One challenge for this type of intervention is the possibility that returns to education and to different career tracks will change quickly after young people have locked in educational choices, especially in transitioning economies.

The timing of critical choices, the influence of peers, and gender differences are also relevant to young people's educational and career outcomes. Requiring adolescents to make important and irreversible choices about their educational track early in adolescence appears to reduce occupational mobility and to disproportionately reduce career aspirations for boys, who tend to mature more slowly than girls. There is evidence that peer influences affect some educational outcomes, but we do not know enough about what, and who, is most susceptible. In developed countries, women have now surpassed men in four-year college graduation rates. This may be related to non-cognitive deficits that hinder boys' educational achievements, but further research is needed to disentangle biological and environmental influences.

Key Open Questions:

- *Can access to credit improve enrollment in tertiary education in developing countries?*
- *What is the optimal design of cash transfer programs for adolescents (timing and size of payments, behaviors targeted)?*
- *What design features affect the impact of informational interventions in different contexts?*
- *Could cash transfer programs be beneficially and cost-effectively combined with other interventions, including providing information on returns to education and interventions designed to increase motivation or boost non-cognitive skills?*
- *What are the roles of nature and nurture in explaining boys' disadvantage in higher education in developed countries?*

3. Health Outcomes and Risky Behavior

Early investments in health and nutrition improve cognitive function and increase returns to schooling later in life. There is strong evidence from developing countries that interventions such as iodine supplementation, deworming medication, and school meals lead to greater educational attainment.

Risky behaviors adopted during adolescence—including poor eating habits, smoking, excess drinking, drug use, teen sex, and criminal activities—can limit or disrupt the acquisition of life skills and assets. There are strong correlations between education and healthy behaviors, but

research to date has not settled whether these reflect causal effects. There is some evidence that interventions focused on non-cognitive skills can reduce violent crime, and more research is needed on other high-risk behaviors.

Peer influences are also very important in explaining young people's propensity to engage in risky behavior. Most of the research to date on this topic has been in the U.S. context. Helping young people relocate away from clusters of poverty has been shown to improve health outcomes and reduced arrests for female youth, with mixed positive and adverse effects for males. There is some evidence that financial incentives could help youths avoid risky behaviors on the margin; this is a promising area for research.

Key Open Questions:

- *How can preventive health and nutrition interventions be cost-effectively provided at a large scale?*
- *How does education affect risky behaviors?*
- *Can non-cognitive skill development programs reduce the odds of engaging in risky behavior?*
- *How strong are peer effects on risky behavior in developing-country contexts?*
- *Can financial incentives help youths avoid risky behaviors?*

II. Youth Integration in the Labor Market

Youth unemployment rates tend to be relatively high even in good times. Youth employment has suffered disproportionately in the aftermath of the global financial crisis, as youths tend to be the "first out and last in" during economic downturns. This section reviews what is known about policies to promote youth employment.

4. Information, Youth, and the Labor Market

Young people often lack adequate information about what jobs are available and may not understand what behaviors expected in a workplace. A range of school-to-work programs have attempted to smooth this transition. Internships and apprenticeships appear to be effective for both men and women, but these programs suffer from various problems. Demand from the youth and firms tends to be low, and problems with initial matches between youth and firms leads to high drop-out rates. More evidence is needed to understand the mechanisms behind these programs and the best way to address their shortcomings.

Young people also lack information about where jobs are and how to get them. Social networks play a major role in the job search process, but youths are often at a disadvantage in access to beneficial networks. Neighborhood effects appear to be influential as well: being surrounded by individuals who are currently employed improves labor market outcomes. Ongoing research is examining whether mentoring programs can facilitate the development of social networks for youth.

Firms lack information about the productivity of young people. Youths are disadvantaged in the labor market because they have fewer ways to signal their productivity level to employers. Providing information about youth productivity has been shown to strongly affect labor market functioning. Referrals from current employees or from previous employers have been shown to improve employment outcomes in some contexts, though evidence from developing countries shows that referrals do not always help find employers find more skilled employees. Referrals may also further reduce job prospects for the already disadvantaged, who may not have strong

networks. Ability testing and credential systems are potentially promising, but have not been rigorously tested. Younger workers may also be subjected to discrimination, and current research is attempting to determine whether this can lead to a "self-fulfilling prophecy," in which managers' belief that youths will perform poorly leads to reduced performance.

Key Open Questions:

- *How can internship and apprenticeship programs be improved and dropouts reduced?*
- *What interventions can help youth develop networks or integrate into existing networks?*
- *Can referral systems be designed to align employer and employee incentives? Can they be designed so as not to further disadvantage unemployed youth who do not have strong social networks?*
- *Can ability testing and credential systems help young people find jobs and lead to better matches between workers and jobs?*

5. Location, Neighborhood, and Mobility

The "spatial mismatch hypothesis" attempts to explain underemployment of minority and low-skilled workers in terms of physical distance from job opportunities. Location may also negatively impact labor market integration through residential discrimination. Policy responses to these issues have included housing voucher programs to help people move to areas with better opportunities, improving transportation systems, and encouraging firms to locate near deprived areas, e.g. through tax incentives. Existing research suggests that these policies are not effective in reducing employment gaps, though most studies have been confined to the population of U.S. blacks.

An alternative hypothesis is "social mismatch"—it is not physical distance that matters, but the social networks with which one has contact by virtue of location. There is substantial evidence that the neighborhood composition has a strong influence on education and labor outcomes. This suggests that spatially-based policies may need to be complemented with interventions targeted toward improving labor market networks.

Key Open Questions:

- *Can spatially-based policies—helping people move to where jobs are, improving transportation, and encouraging firms to locate in deprived areas—improve labor market outcomes in developing countries?*
- *Are there complementarities between spatially-based policies and interventions to help strengthen social networks?*

6. Labor Demand for Young People and Contracts

Employment legislation that raises hiring and firing costs has been shown to reduce labor market turnover, and this may disproportionately affect young workers because of the lack of information about their productivity. Minimum wage laws may also reduce youth employment opportunities, since they are more likely to bind for inexperienced workers. Temporary contracts may favor hiring young people, but whether they lead to more permanent work and assist in youth human capital formation is unknown. Such contracts may trap young people into a

succession of uninteresting short-term positions. Interventions aimed at specific demographic groups can help increase labor demand for those groups, but policymakers should be aware of possible substitution effects that could hurt other workers.

Wage subsidies have been shown to increase employment for targeted groups, but little is known about their effectiveness for young workers. Wage subsidies could, in theory, contribute to the formalization of jobs in developing countries, and there is some empirical evidence for this. As with other policies, substitution effects are a concern. The best way to design and implement wage subsidies for youth remains an open question.

Key Open Questions:

- *Are current contract features reducing the demand for young people more strongly than for the other demographic groups?*
- *What are the effects of short-term contracts for youth on their human capital formation and long-term labor market attachment? How can these contracts be optimally designed?*
- *Do wage subsidies or a targeted minimum wage for young workers create new jobs, or simply generate substitution and/or subsidize inframarginal hires?*
- *What is the optimal way to implement wage subsidies for young workers?*

7. Active Labor Market Programs (ALMPs)

Active Labor Market Policies (ALMPs) are based on the idea that some unemployed workers suffer from low employability and may be helped with training or direct experience. Existing empirical work on ALMPs—including employment services, labor market training, and job creation—suggests that these policies are ineffective, both in general and in addressing the employment needs of youth. However, it is difficult to draw general conclusions. There is a strong heterogeneity in the way ALMPs have been implemented, and these details matter. The way evaluations have been conducted up to now makes it difficult to account for this heterogeneity. In cases where randomized evaluations have been conducted, they have often found positive, though usually small and time-limited, effects.

Training is widely seen as a promising intervention given the idea that skill mismatch is a first-order issue. However, results however on job training programs have been quite mixed. In Latin America, randomized evaluations have found qualified success for training programs that combine classroom with internship-style components. Results from the US tend to show that trainings involving on-the-job sessions are more successful. Little is known about how to promote high-quality training. Training raises many of the same issues as education and career choices: effectively matching young people with training programs, fostering demand among young people for training, and dealing with drop-out problems.

Employment services, such as job search counseling, have been shown to have short-run positive effects but little long-term effect in a few randomized evaluations. There are many potential research questions related to employment services, including the role of motivation, the right search channels to focus on, the role of caseworkers, and public vs. private provision. One important potential consequence of counseling programs is displacement effects.

Results on employment subsidies, which compensate firms for the initial hiring and training of targeted workers, have also been mixed, with at least one rigorous evaluation showing positive results for youth in the short run. One common finding is that when the subsidized job ends people do not exhibit a better labor market situation that non-beneficiaries, suggesting that there is little improvement in employability or that it is difficult to communicate it credibly. Complementing these subsidies with incentives for workers such as conditional contract

renewals, with "soft skills" training, or with referrals and job search counseling, is therefore a promising avenue for future research.

Direct employment through public work projects has rarely been found effective and may in some cases even be harmful, though evaluations in this area may be especially susceptible to selection bias. However, these programs are likely to persist due to their political appeal. Therefore, additional rigorous evaluations should investigate whether public work programs can be modified to improve long-term outcomes and avoid creating distortions in private-sector job markets.

A final set of interventions seeks to assist and subsidize youth in developing their own enterprises. Results on business training and microcredit have tended to find modest or no effects. Additional research is needed to determine what interventions—such as providing role models and incentivizing formal-sector firms to do business with the informal sector—can help the development of informal-sector businesses.

Key Open Questions:

- *In general, there is a need for evaluation of ALMPs accounting precisely for the features of interventions.*
- *Can different policies be usefully combined to help address the shortcomings of each?*
- *How can ALMPs with beneficial short-run effects be enhanced to improve long-term labor market outcomes?*

Introduction

About one fifth of the world's population is between 15 and 24 years of age, and the economic, social, and political consequences of this "youth bulge" will be experienced for decades to come. Adolescence is a time when critical decisions must be made—for example about marriage, schooling, careers, fertility—that can dramatically impact the future trajectory of lives. It is also a period of habit formation with potential longer-term consequences for the individual—for example through smoking, drug use, eating habits that may increase the risk of diabetes and obesity, or sexual activity patterns—as well as consequences for society, as cultural and gender norms are established during adolescence. While more young adults complete primary education and survive childhood diseases than ever before, they must be equipped with advanced skills beyond literacy to succeed in the contemporary economy. Investing in the health and future human capital of the youth has the potential to positively affect poverty reduction well into the future through better skilled, healthier, and more active labor market participants; reduced fertility; and lowered disease burdens.

While governments and NGOs are responding to this problem with an expanding set of youth-focused interventions and inclusion of youth-friendly features in standard programs, there is surprisingly little rigorous evidence to guide policymakers, especially those in developing countries where the need is greatest. Nor is there sufficient knowledge on how to design programs that address the different barriers and opportunities facing girls as well as boys. The lack of evidence on relative cost-effectiveness undermines the potential impact of policies and programs on the lives of youth, making it difficult to choose the policy alternative that will impact the greatest number of youth at the least cost.

As a step toward addressing these gaps in the evidence, the Abdul Latif Jameel Poverty Action Lab (J-PAL) commissioned this review paper as a means of determining what is already known about policies focused on youth, identifying critical unanswered questions, and setting an

agenda for research going forward. It will be updated periodically as new evidence, including research funded by J-PAL's Youth Initiative, adds to this body of knowledge.

This paper is divided into two main parts. In Part I, we review evidence and unanswered questions related young people as decision makers in their personal lives and education. Section 1 considers whether policy interventions can boost cognitive and non-cognitive skills into young adulthood, and whether young girls have particular needs and vulnerabilities that programs should address. Section 2 looks at how young people's educational and career choices are affected by financial constraints and incentives, imperfect information, peers, and gender issues. Section 3 considers risky behaviors—including sexual activity, drug and alcohol use, and criminal activity—and how youths' choices can be influenced by educational programming, peer pressure, and financial incentives.

In Part II, we turn to the challenges of youth integration in the labor market. Section 4 considers the challenges of information asymmetries, which are particularly important for youth as new entrants to the labor market. Section 5 discusses the role of location in matching youths to jobs and asks whether physical location or social networks are more important in this regard. Section 6 reviews evidence on how the features of labor contracts and laws, including minimum-wage laws, affect employment for young people. Finally, Section 7 considers the implications for youth of a number of Active Labor Market Policies (ALMPs), including employment services, training, subsidized employment, public work programs, and efforts to develop self-employment and the informal sector.

Part I: Life Skills and Decisions

1. Skills

Young people's skills, both cognitive and non-cognitive, can have a significant effect on how well they are able to navigate the transition from childhood to adulthood. This, in turn, can help drive the variation in socioeconomic success across adults. Cognitive ability—approximated by measures such as IQ score—is a powerful determinant of wages, schooling, participation in crime, and success in many aspects of social and economic life. For instance, Herrnstein and Murray (1994) show that cognitive skills predict various adult social outcomes and measures of socioeconomic success, such as earnings and job attachment. Schooling is one of the channels that mediates these correlations: individuals with higher IQs achieve higher test scores, and they are also likely to complete more schooling (Blackburn and Neumark 1991, Murnane, Willet and Levy 1995, Currie and Thomas 1999, Blau and Kahn 2001). More recent research also suggests that higher cognitive ability is systematically correlated with individual preferences and choices that favor economic success (Burks et al. 2009, Shapiro and Benjamin 2006).

However, cognitive skills are only one facet of human ability. Using U.S. survey data, Heckman and Vytlacil (2001) find that only a modest (but statistically significant) fraction of the variance in wages can be explained by differing cognitive abilities. Similarly, based on an evaluation of the General Educational Development (GED)—a second-chance high school program—Heckman and Rubinstein (2001) shows that cognitive skill level fails to explain the wage gap between GED recipients and normal high school graduates in adulthood. This suggests that other, non-cognitive skills also play a key role in explaining life outcomes. Such non-cognitive abilities— such as perseverance, motivation, time preference, risk aversion, self-esteem and self-control—have also been shown to have direct effects on wages (controlling for schooling); performance on achievement tests; the probability of engaging in various risky

behaviors, such as teenage pregnancy, smoking and crime; and many other aspects of social and economic life (Borghans et al. 2008; Bowles, Gintis, and Osborne 2001a; Heckman, Stixrud, and Urzua 2006). For example, Moffitt et al. (2011) show that measures of self-control at ages 3-11 are strongly predictive of criminal convictions, health, substance dependence, and income measured at age 32.

Researchers have discussed certain cognitive limitations that may be especially relevant for youth. From the perspective of adults, young people may discount the future too much (excessive myopia). They may also be particularly susceptible to intra-personal conflict between "selves" in different periods; the decision made by today's self for tomorrow is not necessarily the one that tomorrow's self would make when tomorrow comes. Hence, young people may put too much energy into an activity with short-run benefits and long-run costs. The psychology literature also suggests that youth may inappropriately project their preferences in the current moment onto their future selves, assuming that they will feel the same way later. There is substantial laboratory evidence that, across identical individuals, random changes in their current situations affect their long-run decision making. This has important implications for youth because they may not appreciate the extent to which their preferences may change as they age. For example, high school seniors considering dropping out from school may not appreciate the fact that when they are older they will care about the quality of their job; given today's preferences, all jobs seem equally unappealing. This underestimation of their future value of having a high school degree can increase their probability of dropping out of school today. All of these cognitive biases could lead to poor decision-making among young people, particularly engaging in risky behavior and choosing suboptimal schooling investments.

Substantial gaps exist in the endowments of cognitive and non-cognitive skills across children from various socioeconomic backgrounds, even before school starts. The family plays a

powerful role in shaping these skills, particularly through parental investments in their children. Policy interventions that aim to help young people navigate the transition to adulthood should therefore be targeted to those individuals that start with a disadvantage because of the circumstances in which they were born.

We lay 3 core questions in this research area:

Theme 1.1 How late is too late for programs aimed at boosting cognitive and non-cognitive skills?

Existing research has shown that there are sensitive periods in the development of children and young adults. Some skills or traits are more readily acquired at certain stages of childhood than other traits (see the evidence summarized in Knudsen et al. 2006). Scientists estimate that the most sensitive period for the formation of cognitive skills is below the age of 10, with a critical period around age 4-5. Early investments in children are thus viewed as particularly valuable in that cognitive skills acquired at a young age can increase the productivity of investments made at later ages (Cunha and al. 2005; Currie and Thomas 1995; Todd and Wolpin 2004; Cunha and Heckman 2008). Similarly, language skills are acquired most easily if introduced at a very early age.

In contrast, non-cognitive skills appear to remain more malleable than cognitive skills at later ages, and remediation efforts for non-cognitive skills have been shown to remain effective throughout youth (Bowles, Gintis, and Osborne 2001b, Borghans et al. 2008, Heckman, Stixrud, and Urzua 2006, J. Currie 2011). While research on the evolution of non-cognitive skills throughout the life cycle is still in its infancy, researchers have not yet isolated any critical period for the acquisition of non-cognitive skills. This evidence is supported by the neuroscience literature, which has established the malleability of the prefrontal cortex, the region of the brain that governs emotion and self-regulation, into the early twenties (Dahl 2004). But even for non-

cognitive skills, there is a belief that early-age investments will be particularly beneficial in that they will positively affect the returns of other (cognitive and non-cognitive) skill development programs at later stages (Cunha and Heckman 2008).

Such scientific findings on the dynamics of skill formation have produced a push for interventions targeted towards very young children. Indeed, most of the skill acquisition programs that have been researched and evaluated to date have been targeted at younger children (Heckman 2000). Overall, researchers have found that such early interventions can have high economic returns. For example, the Abecedarian Program consists of a full-day, year-round, intensive educational child care program for children up to 5 years old. The educational activities included in this program are mostly game-based and emphasize language skills. This program has been shown to have broad positive effects on educational outcomes and cognitive ability, and also to reduce risky behavior until later ages (Campbell et al. 2002). Another well-known program targeted at very young disadvantaged children is the Perry Preschool Program, an early childhood education program conducted at the Perry Elementary School in Ypsilanti, Michigan, during the early 1960s. Under this program, disadvantaged children with below-average IQs randomly received a mixture of center-based and family interventions: preschool lessons on weekdays, supplemented by weekly home visits from teachers through the first school of year. Decades later, the individuals who were enrolled in this program as young children had higher earnings and lower levels of risky behavior (Schweinhart et al. 2005). Heckman et al. (2010) also document sizable increases in future employment and earnings among treated children, and they attribute most of these gains to the program's positive long-run effect on non-cognitive development.

Finally, there have been several evaluations of the Head Start program, which was created in 1965 in the U.S. and is targeted at children from disadvantaged families between the ages of 3 and 5. The nature of Head Start program is similar to the Perry Preschool program; however, the investment is lower and less intensive. Researchers have found that participation in

this program tends to initially increase IQ test scores, but the effects fade out substantially over time (Barnett 1995). Nevertheless, research has documented some significant long-term impact on high school dropout rates, child health, criminal activity, and earnings (Currie and Thomas 1995). Recently, the Head Start program has been extended to serve children from birth to the age of 3, reflecting evidence that these years are critical for child development. This early-life Head Start program consists mainly of home visiting services for children from disadvantaged backgrounds (Love et al. 2005). In a similar vein, Chetty et al. (2011) study the long-run effects of the Tennessee STAR class size experiment and document that increases in kindergarten class quality increased earnings, college attendance, and other outcomes despite the gradual fading out of test score gains. They show that the long-run effects of kindergarten class quality operates primarily through the non-cognitive channel by increasing children's effort and initiative and reducing disruptive behavior.

Fewer skill interventions have been targeted towards youth, and in the few cases where later-age remediation strategies designed to compensate for early disadvantages have been evaluated, much lower success rates have been found (Heckman 2000 and Heckman 2008). One example is the Summer Training and Employment Program (STEP), which provides remedial academic education and summer jobs to disadvantaged youth. While participation in the program is associated with modest gains in reading and math in the short run, the program exhibits no conclusive effects on high school graduation, grades, or employment after two to three years.

Despite the rather pessimistic message of the literature to date, it is clear that more research on the efficacy of skill formation programs among youth is needed, particularly in developing countries where research is relatively scarce. The distinction between programs targeted at cognitive skills versus non-cognitive skills may be very important. Even if the payoffs are very low for investments in the cognitive skills of disadvantaged youths (Cunha and Heckman 2010), there may be higher returns for investments in non-cognitive skills, based on the fact that

non-cognitive skills appear malleable over a much greater range of age (Borghans et al. 2008). More research is needed to help determine the critical period for the development of non-cognitive skills.

Another argument for the development and evaluation of more skill acquisition programs targeted at youth is that, even if the effect of these programs is not long-lasting, short-term benefits may still be socially desirable from a cost-benefit perspective. For example, Ludwig et al. (2011) present the results of a recent large-scale randomized program aimed at improving the "social-cognitive" skills (self-control, conflict resolution, reduced attribution bias) of disadvantaged male adolescents in Chicago public schools. They find that, during the program year, participation increased a summary index of school engagement and performance measures by 0.14 standard deviations and reduced the number of violent-crime arrests by more than 8 arrests per 100 youth, a decline of 43 percent relative to the control mean. While these behavioral impacts appear to attenuate and are no longer statistically significant in the year after the program, the researchers argue that "the social costs of violent behavior are sufficiently high that the sizable reduction in violent behavior by youth that occurs over just one year – but is concentrated near peak offending ages – generates benefits to society that appear to far outweigh program costs. Given the common finding of 'fade-out' in research on social-policy interventions, there may be particular value in targeting interventions that are designed to modify social-cognitive skills and promote pro-social behavior on the age range (adolescence) when socially costly problem behaviors are disproportionately concentrated."

Theme 1.2 What are the Components of an Effective Non-Cognitive Skill Development Program Targeted to the Youth?

Starting from the premise that youth's non-cognitive skills are more likely to be successfully altered by policy intervention, we need a better understanding of the features of successful programs. As indicated above, programs targeted at young children are generally a mix of home-based and center-based interventions, and have usually focused on educational activities. It is likely that successful programs targeted at disadvantaged adolescents will require a different format. Indeed, one common problem encountered by people running skill and non-skill development programs for youth is the lack of adherence to these programs. This problem is particularly salient when dealing with older youth, who may be less responsive to parental and institutional pressures to stick with the programs. The reasons for this are likely multifold. Young people may not understand or believe in the potential benefits of the program. There is also a clear chicken-and-egg problem in that the young people targeted by these programs may lack the motivation and self-control to sit down and learn.

Providing motivation to participate in skill development programs is therefore a crucial first step. Future research should invest in better understanding how to best tailor non-cognitive skill development programs to adolescents. For example, in their interventions on disadvantaged males in Chicago public schools, Ludwig et al. (2011) mix traditional academically-based interventions with less traditional sports-based interventions. Some of the young males in the program only received exposure to purely academic, one-hour school sessions in small groups, where they are taught about a specific skill (emotional regulation, control of stress response, improved social-information processing, inter-personal problem solving, goal setting and attainment, and personal integrity) and given homework to practice and apply that skill. Other males received the same exposure to the academic intervention, but at the same time participated in a sports program designed to reinforce the skills being taught, enhance program participation, and provide a positive and disciplined outlet for aggression. A third group of males were only exposed to the sports programming. The effectiveness of sport-based interventions has also been

documented by Felfe et al. (2011), albeit on younger age groups. These researchers analyze the impact of child sport involvement during kindergarten and primary school on development outcomes. They observe a positive and significant effect not only on children's cognitive and non-cognitive skills (such as self-esteem and the capacity to cooperate), but also on health and general well-being.

More research of this type that compares effectiveness across different types of traditional and non-traditional skill intervention programs, and rigorously investigates what works best for young men and young women, is urgently needed. However, it must also be acknowledged that intervention programs may not be able to rectify all factors that create low levels of skill development. Research has demonstrated the important role of early childhood environments and experiences in cognitive and socio-emotional development, and the effects of these early influences may be difficult to reverse. For example, Chen, Chen, and Liu (2008) find that in Taiwan, unexpected maternal deaths significantly decrease college enrollment rates by 4.4 percentage points, which accounts for 30 percent of the average enrollment rate for children of two-parent families. In comparison, the unexpected death of a father does not significantly affect college enrollment rates. The authors interpret the results to suggest that child-rearing, a mother's traditional role, may be a more important contributor to a child's educational outcomes than short-term financial constraints. In countries where considerable numbers of young men and women die due to disease or war, such as from the HIV/AIDS epidemic in sub-Saharan Africa, the ability of children to develop fundamental skills at an early age may be severely compromised.

Theme 1.3 Interventions Targeted at Young Girls

In most parts of the world, women are disadvantaged in the labor market compared to men. A major research development over the last ten years has been new explanations for gender differences in labor market outcomes. Conditions that would lead to discrepancies in future labor market and educational outcomes start at a very young age, especially in societies that are male-biased. It appears that such differences can be mitigated to some extent by policy interventions. Sinha and Yoong (2009) analyze the impacts of a program in India that rewards families for investing in the education and health of their girls. They find improvements in daughters' human capital and health outcomes. However, program effects did not actually change mother's internal preferences for boys over girls.

Girls face serious educational disadvantages in developing countries. While primary school completion rates increased for all children after the institution of the free primary education system in Kenya, they increased more for boys than for girls, thereby widening the gender gap. The differential effect is in part driven by the fact that older girls have a higher probability of leaving school due to pregnancy or marriage (Lucas and Mbiti, 2011b). Kumar (2011) finds that son-preference in Bangladesh played a significant role in determining the gender differential in child labor. The median boy worked 3.35 hours per week while the median girl worked 4.65 hours per week. Interventions addressing teen pregnancy, teen marriage, and the propensity to use girls in child labor may indirectly improve educational attainment for girls.

Researchers have paid growing attention to gender differences in non-cognitive skills, personality traits, and psychological attributes as potential explanatory factors on women's under-performance in the labor market. Croson and Gneezy (2009) and Eckel and Grossman (2008) review a large literature showing that women are more risk-averse than men, and men are systematically more confident than women. Risk aversion may lead young women to systematically select lower earnings and lower-profile careers, even absent any kind of labor market discrimination. For example, Constant and Zimmermann (2003) show systematic

differences in occupational choice by gender, even after controlling for human capital and other characteristics. One explanation for such occupational segregation may come from the fact that women are more risk-averse than men, and tend to choose safer jobs, both in terms of health and earnings. Indeed, Bonin et al. (2007) empirically demonstrate that individuals who are less willing to take risks tend to sort into occupations with more stable earnings. These occupations, due to compensating wage differentials in environments with risk-averse agents, also tend to pay less on average. DeLeire and Levy (2004) find that risk of death on the job seems to be an important reason why men and women are in different occupations in the U.S. Similarly, in a study on U.K. data, Grazier and Sloane (2006) conclude that occupational segregation is least partially explained by gender differences in risk aversion.

Researchers have also shown that women seem to particularly dislike and avoid competitive situations (Gneezy, Niederle, and Rustichini 2003, Niederle and Vesterlund 2007). This difference may be relevant to the gender gap in labor market achievement to the extent that many high-profile, high-earning occupations take place in extremely competitive settings where winners and losers are singled out, and winners are disproportionately rewarded.

Moreover, psychologists have documented gender differences in the "big five" personality traits. A review by Bouchard and Loehlin (2001) suggests that agreeableness and neuroticism are the two traits that are most consistently associated with gender differences: women are consistently found to be both more agreeable and more neurotic than men. Such personality traits have been related to labor market outcomes (Mueller and Plug 2006) and also likely influence many other social outcomes in adulthood.[1]

[1] In contrast, women are much less likely than men to suffer from behavioral and conduct problems, and this has been proposed as an explanation for their superior educational achievement over the last decades in developed countries that have experienced a growing demand for a well-educated workforce (Jacob 2002). The non-cognitive advantage women have over men with respect to educational attainment in developed countries is addressed in greater detail in Theme 2.6.

An important question in this literature is whether these gender differences, or a subset of them, are purely biologically driven or whether environmental forces are also at play in their emergence and persistence over time. The research so far, while still very limited, suggests that environmental forces may be partly responsible for these differences. For example, Booth and Nolen (2009a) show that gender differences in risk attitudes in a sample of English 15-year-olds depend on whether the girls have attended a single-sex school or a mixed-gender school. Girls from single-sex schools display risk attitudes that are no different from the average boy; in contrast, girls from mixed-gender schools are significantly more risk-averse. Booth and Nolen (2009b) also find that girls from single-sex schools are more willing to engage in competitive behavior compared to girls from the mixed-gender schools. Zhang (2011) further documents that competitiveness between men and women were roughly equal in Chinese populations that faced gender-egalitarian work policies, while men were more competitive than women in patrilineal societies. While only preliminary, this research suggests that creative interventions might be designed to help reduce the gender gap in risk aversion and attitudes towards competition, which may be limiting career options for many women. Critical questions relate to assessing which specific interventions might be most effective (single-sex education being clearly only one possible intervention), determining which specific non-cognitive skills or personality traits are most malleable, and understanding whether there are critical periods for young women's acquisition of these more stereotypically "male" traits.

The preliminary work by Booth and Nolen (2009a, 2009b) and Zhang (2011) suggests the possibility of strong social influences. One of the mechanisms for such social influences might be through social identity formation. Psychologists have shown that people expect women to be docile and generous, while they expect men to be confident and self-assertive (see Eagly, 1987).

Some have argued that a higher degree of risk aversion is viewed as the norm for females, while part of the male identity is to be risk-takers. Eckel and Grossman (2002) show that men expect women to be even more risk-averse than they truly are. These expectations could be part of the socially constructed gender norms, rather than a reflection on innate differences; behaving according to these expectations may reflect a willingness to conform with what is expected from one's social category. Policies designed to send young girls the message that females should not be expected to demonstrate more risk-averse and less competitive behavior than males may narrow the discrepancy in gender-based occupation sorting.

The research to date also suggests that effective programs might be designed to help reduce the gender gap in cognitive skills. In particular, a few studies suggest that environmental factors may play a role in explaining the gender gap in math ability. In Nigeria, Lee and Lockheed (1990) find that single-sex secondary schools benefitted girls but adversely affected boys with respect to achievement and attitudes regarding math. Girls in single-sex schools outperformed girls in mixed-gender schools in math, but that the opposite was true in boys. They explain the results by presenting evidence that girls' schools instill less stereotypical views of math being a male-biased field than mixed-gender schools do, whereas boys' schools foster more stereotypical views than mixed-gender schools do. The gender-based stereotypes imparted during classroom instruction appears to have important effects on the cognitive performance of both boys and girls.

The existence of role model effects also significantly determines gender gaps in math ability. In a sample of eighth graders in the U.S., Dee (2005, 2007) studies how assigning children to a same-sex or opposite-sex teacher for different subjects affects both children's performance in the subject and the teacher's perception of the students' performance. Assignment to a same-gender teacher improves performance for both girls and boys; it also improves the teacher's perceptions of the students' performance. Hoffmann and Oreopoulos (2009) exploit

both within-student and within-instructor variation and find qualitatively similar effects among first-year college students, even though the magnitude of these effects is rather small. More research should be conducted to assess whether young women's lag in math skills can effectively be reduced with creative programming.

The importance of role model effects extends beyond the classroom: simple exposure to women in leadership roles can generate dramatic improvements in the educational attainment of girls. Beaman et al. (2012) find that having a female village leader can raise the aspirations and educational attainment of girls. By exploiting the random assignment of quotas for female village leaders under a 1993 constitutional amendment in India, they find that requiring villages to reserve the leadership role for women for two election cycles completely erases the gender gap in educational attainment in those villages. Girls and their parents reported significantly higher aspirations (as measured by responses to survey questions such as desired level of education and age at marriage) in villages with more exposure to female leaders.

2. Education and Career Choices

After reaching a certain age, young people have the choice to remain in school or to drop out. Dropping out of school too early can have large detrimental effects on these young people's future social and economic achievements. Therefore, research should be targeted to reducing the drop-out problem. Holding cognitive and non-cognitive skills constant, what specific interventions might be most effective at keeping young people in school? We highlight six research themes.

Theme 2.1: Credit Constraints and Education

Family income is a strong predictor of children's future outcomes, with parents' earnings

determining their capacity to invest in their children's human capital. Poverty, especially during early stages of child development, tends to reduce a family's capacity to invest in the human capital of its children (Currie 2011). In many developing countries, negative transitory family income shocks without the availability of credit tend to increase child labor and lead to a loss of human capital (Edmonds 2007). In China, Brown and Park (2002) find that credit constraints bind differentially by gender: girls are more likely to drop out in primary school, whereas boys don't begin to drop out until they reach junior secondary school.

A substantial literature has also shown that credit constraints may play an important role in young people's decision to pursue or not to pursue higher education. The best work on this issue is based in the U.S. and the U.K. For example, Dynarski (2003) relates college attendance to exogenous variation in access to financial aid across students. She finds a positive effect of financial aid on college attendance: "offering $1,000 [in 1998 USD] of grant aid increases educational attainment by about 0.16 years and the probability of attending college by four percentage points." Bettinger (2004) studies the Pell Grant, the largest financial assistance program available to postsecondary students across the United States since 1972, and shows that that eligibility for this program significantly reduces dropout rates. Dearden et al. (2011) evaluate the Education Maintenance Allowance, a financial aid program for students between sixteen and nineteen years of age and those undertaking unpaid work-based learning in Wales, Scotland and Northern Ireland. They show that access to this financial aid increases not only enrollment, but also retention.

Less research exists on the role that credit constraints play in the decision to pursue higher education in developing countries. There is an important need to understand how better access to credit may help increase enrollment in tertiary schooling in the developing world. Solis (2011) estimates that in the absence of credit constraints, college enrollment rates would be the

same across all income groups in Chile. He evaluates a program that increased access to loans and scholarships and finds that college enrollment rates increased by 133 percent for groups that previously did not have access to loans. The program especially benefitted the poor: students from the lowest quintile of income increase enrollment probability by 150 percent. Students were also less likely to drop out in their first and second years of college. Using data from Mexico, Kaufmann (2007) finds evidence that credit constraints are a major setback to college attendance among the poor. Twenty to thirty percent of her sample faced credit constraints, but living in a "liquid" municipality mitigated the costs of living far away from a university. Overall, the existence of credit constraints is demonstrated by the fact that there exist individuals who did not go to college even though the returns to college were fairly high for them (Kaufmann 2007, Attanasio and Kaufmann 2009). Findings such as these suggest that fellowships and scholarships for the credit-constrained could result in substantial welfare gains, as lack of credit access hinders low-income students from optimally investing in their human capital.

Demand for vocational and technical training may also increase if credit constraints are relaxed. Hicks et al. (ongoing) are conducting an evaluation of a randomized voucher program for vocational and technical training institutions in Kenya. The program gives a restricted voucher, which can be used to enroll in a public institution, and an unrestricted voucher, which can be used to enroll in either a private or a public institution. The voucher program increased enrollment and retention rates in vocational schools. Individuals with unrestricted vouchers completed 12 percentage points more coursework than individuals with restricted vouchers, most likely due to the better individual-institution matches that result from the wider range of institution choice and to the high quality of private institutions. Together, the results indicate that voucher programs can be effective in increasing educational attainment in youth and that unrestricted vouchers lead to better matches between individuals and institutions.

While cash transfers and scholarships are the most widely studied method of relaxing credit constraints, households have been able to finance their children's education through alternative methods. Edmonds (2006) finds that in South Africa, when a man becomes eligible for social pension income, the boys in his household increase school attendance and decrease their work hours. They are 3 percentage points more likely to complete primary school for every year of exposure to a male pensioner.

Perceptions and attitudes toward credit may help explain demand-side barriers to higher education. Simple, low-cost framing exercises may increase the willingness of youth to finance their education when the appropriate financial tools are available. Caetano, Patrinos, and Palacios (2011) conducted lab experiments in Chile, Colombia, and Mexico and determined that most of debt aversion can be attributed to "labeling effects". They found no significant evidence that students were more likely to avoid the loan contract in favor of an alternative financing contract, except when the loan contract was explicitly labeled as a loan. Their results suggest that proper use of framing effects may increase households' utilization of financing methods to alleviate credit constraints.

Sponsorship is another way in which households can relax their credit constraints with respect to financing their children's education. In a typical arrangement, a sponsor (often from a developed country) finances a monthly transfer to a low-income child in a developing country. Wydick, Glewwe, and Rutledge (2011) studied the impact of sponsorship in Bolivia, Guatemala, India, Kenya, Uganda, and the Philippines, and show that sponsorship generates tremendous permanent improvements in educational and life outcomes. Sponsorship increased formal education by 2.4 years on average, increased the probability of white collar employment by 17.3 percentage points, decreased the proportion married by age 20 by 11.5 percentage points, and decreased the proportion of females that were pregnant at least once by age 20 by 11.8 percentage points. The probability of completing a university education increased by 5.1 percentage points

for sponsored children, which is substantial since only 4.2 percent of the control population completed university. A low-cost program that improved not only educational but also behavioral outcomes, sponsorship was immensely successful even in comparison to the well-known and widely-documented CCT programs that are discussed in the following section. The authors also found that sponsorship was two to three times more cost effective than PROGRESA/Oportunidades in Mexico at increasing years of schooling. Part of its success is due to the fact that, as opposed to enforcing extrinsic incentives for families to keep children in school for longer, sponsorship focuses on developing a child's intrinsic motivation to study and nurturing her aspirations regarding education and employment. Wydick et al. postulate that the large impacts of sponsorship may be due to strong complementarities between higher self-esteem coupled with the relaxation of credit constraints that would otherwise have made school enrollment extremely costly.

Theme 2.2: Financial Incentives and Education

While credit constraints likely play an important role in the drop-out decisions of some students, it is possible that much of the attrition of students actually reflects a lack of motivation or a poor understanding of the value of higher education. There has been considerable academic and policy interest in using financial incentives to get people to go to school and learn. Conditional cash transfer ("CCT") programs have been found to be very effective in fostering school attendance. Most of these programs target young children, and their effectiveness on adolescents has been less frequently studied; we review below some of the CCT work on adolescents.

The best known CCT program remains PROGRESA (now called Oportunidades), which was started in poor rural communities in Mexico in order to increase the enrollment of children in educational institutions. Mothers in the poorest households were given grants conditional on

keeping their children in school. This program was highly successful (Schultz 2004), and since then, many other countries have developed their own CCT programs. Due to the randomized allocation of the initial program, PROGRESA has spawned a number of rigorous evaluations.

Baird, McIntosh, and Ozler (2010) study a similar randomized CCT program in Malawi and find that even very small cash transfers can boost education for adolescent girls in Africa. The program compared effectiveness under two versions of the program: a CCT and an unconditional cash transfer (UCT). The program also paid school fees in full directly to the secondary school. There was a modest decline in the dropout rate in the UCT group in comparison to the control group, but it was only 43 percent as large as the impact in the CCT group at the end of the two-year program. The CCT group also outperformed the UCT group in tests of English reading comprehension. Teenage pregnancy and marriage rates were substantially lower in the UCT than the CCT arm, entirely because of the impact of UCTs on these outcomes among girls who dropped out of school. The results strongly suggest that the provision of incentives through the conditionality is an important aspect of the CCT programs, and that a pure cash transfer program, while possibly alleviating important credit constraints that may force some adolescents to drop out of school, may not be as effective an educational policy tool. The results also suggest that the strong positive impacts of CCTs established in Latin America may apply to Africa.

Baez and Camacho (2011) find that a CCT program in Colombia increased high school completion rates, especially among girls and children from rural areas. On average, receiving a CCT increased the likelihood of graduating from high school by 4 to 8 percentage points. Baez and Camacho estimate that the program produced 100,000-200,000 more high school graduates than would exist otherwise. However, the lack of significant effects on academic achievement

highlights the need for further research investigating how to optimally structure CCT programs so that learning can also improve.

In another evaluation in Colombia, Barrera-Osorio et al. (2011) find that alternative designs for CCT programs can promote re-enrollment and graduation from secondary school, as well as matriculation to tertiary education. The evaluation compared three CCTs: (1) a standard CCT based on attendance; (2) a version where part of each monthly transfer was reallocated to a bonus distributed at the time of reenrollment for the following school year; and (3) a version with lower monthly transfers and a larger award conditioned on graduation and enrollment in tertiary education.[2] The evaluation found that the targeted incentives increased attendance, pass rates, enrollment, graduation rates and matriculation at tertiary schools, but the reduction in monthly transfers did not significantly reduce attendance. This suggests that future research on the optimal design of CCT programs, especially when targeted towards older age groups, may help improve the returns to these programs. This study might also suggest that policymakers have had too much of a tendency to simply borrow from prior successful programs without testing whether simple changes in the design of those programs may help boost their effectiveness.[3]

In addition to providing a financial incentive to attend school, CCTs may help relax liquidity constraints that limit school participation. De Janvry et al. (2006) find that the PROGRESA largely or completely mitigated the effect of adverse shocks that would have taken some children out of school. PROGRESA provided a safety net for children's education outcomes, which is especially important given the strong state dependence of school enrollment:

[2]The graduation bonus was awarded to those students who did not enroll in tertiary education after a 12-month delay.

[3]Barrera-Osorio et al (2010) also show that CCT programs may have important implications for the allocation of resources within families and that more research should be devoted to studying the effects of CCTs on family members who are not subject to the conditions, such as non–participating siblings. Indeed, they find that children that had been registered for the CCT but were not selected for the program ended up attending school less and working more in the labor market if one of their siblings was in the program. These differences may reflect a reallocation of resources away from children not in the program (and away from girls in particular) due to the treatment. This may be particularly important for programs with age cut-offs, especially when they are first introduced.

children who were taken out of school due to a temporary shock are less likely to re-enroll for the following year. Implementing policies that can simultaneously incentivize greater school participation and alleviate credit constraints is especially important because if a household attempts to smooth consumption against a temporary shock by taking children out of school, it risks permanent losses in the human capital acquisition of its children.

Angelucci et al. (2010) find that in PROGRESA communities, more "connected" households (i.e. those with extended family in the village) were able to more effectively pool resources so as to relax credit constraints and smooth consumption over time than isolated households (without extended family in the village). The effects persisted four to five years after treatment: the share of household members who were able to complete at least 9^{th} grade was almost 30 percent higher in connected households than in isolated households.

If consumption smoothing improved educational outcomes in between-household networks, it may also improve educational outcomes within the household. However, research that tests for the existence of sibling spillovers has generated mixed results. Ferreira, Filmer, and Schady (2009) investigate the effect of a scholarship on labor market and schooling outcomes for the recipient as well as his or her non-recipient siblings. They find that recipients were 20 percentage points more likely to be enrolled and 10 percentage points less likely to be employed in paid work, but that the program did not significantly impact schooling or employment for ineligible siblings. On the other hand, Takamatsu (2011) analyzes the effects of a randomized CCT in Nicaragua and finds positive spillovers for some siblings. Targeted children increased enrollment by 20-25 percentage points, and older siblings who did not complete grade 4 increased enrollment by 27-29 percentage points. The study indicates that parents may smooth income across their children and use some of the transfer to send older, low-educated siblings back to school. However, Barrera-Osorio et al. (2010) find that children who had been registered for the Colombian CCT but were not selected attended school less and worked more if at least one of

their siblings was in the program. Their results suggest that the program created an unintended side-effect by inducing households to reallocate resources away from children who had not been selected for the program, especially girls.

While CCT programs in Latin America have consistently improved school enrollment and attendance rates, the effects regarding employment outcomes are mixed and inconclusive. Alzua, Cruces, and Ripani (2009) studied the effect of Mexico's PROGRESA, Nicaragua's *Red de Proteccion Social* (RPS), and Honduras' *Programa de Asignacion Familiar* (PRAF) on adult employment outcomes. Overall, Alzua et al. found negative but statistically insignificant impacts of the CCTs on labor force status and mixed results for total work hours. PROGRESA did, however, substantially and significantly increase labor income in the short term and the medium term for both treated and untreated households. Such results suggest that PROGRESA changed the labor market equilibrium for these villages, which would in turn change household income and human capital investment decisions. Given these considerations, the true effect of CCT programs on human capital investment and employment outcomes may not have been estimated correctly by previous studies. Further research on the effect of CCTs on employment outcomes and the local economy may shed light as to the long-term effects of financial incentives on labor market outcomes in youth.

One potential modification to the traditional CCT is to condition the transfers on school performance rather than just school attendance. Angrist, Bettinger, and Kremer (2006) find that randomly allocated vouchers for private school increased the long-term educational attainment of students in Colombia. Although the vouchers were distributed conditional on having passing grades, voucher recipients were significantly more likely to score in the top 25 percent on college entrance exams compared to eligible voucher non-recipients. The voucher program caused a 5-7 percentage point increase in high school graduation rates relative to a 25-30 percentage point base. The results are consistent with earlier work on the same project by Angrist et al. (2002),

who found increases in standardized test scores that were equivalent to score gains associated with a full year of schooling. Overall, the vouchers gave recipients the resources for greater school choice and the incentives to devote more effort to learning (Angrist et al. 2006, Angrist et al. 2002).

In a randomized evaluation in Israel, Angrist and Lavy (2009) provide further evidence for the effectiveness of conditioning on achievement. In Israel, students must receive a matriculation certificate (similar to high school graduation) to enroll in post-secondary schooling. The experiment used cash incentives to increase certification rates among low achievers, giving direct payments to students for completing and for doing well in certain subjects on the high school exit exam. The program was found to increase certification among girls, but to have no effect on boys. It affected girls who had a high ex-ante chance of certification, i.e. the group of girls for whom the certificate was within reach and for whom more study was therefore likely to pay off. The increase in girls' matriculation rates translated into a higher likelihood of college attendance. Even though much of the increase in certification came through improved test-taking strategies (rather than increased underlying learning), these girls were more likely to enroll in higher education five years later.

An interesting extension of CCT programs would be to assess whether they can be successfully (and cost-effectively) combined with other interventions. For example, if a lack of self-control or high discount rates are core reasons for young people dropping out of school, conditional cash transfers could be beneficially combined with some upfront coaching about self-control and motivation. For example, the Quantum Opportunity Program (QOP) in the U.S., whose objective is to help young people complete high school and engage in post-secondary education, combines tutoring (cognitive skill development), mentoring (non-cognitive skill development), and financial incentives. Rodríguez-Planas (2010) shows that the program has a positive short-run impact on the probability of completing high school, as well as raising the

likelihood of ever attending college and post-secondary education. Unfortunately, the program design is such that the added value of the mentoring and tutoring part of the program, if any, cannot be assessed. Future interventions would need to take on this question directly.

In summary, CCTs have been shown to be highly effective at increasing school attendance. However, most of these programs were targeted at young children, and more research is still needed to assess how well CCTs work with adolescents. More work is also needed to help guide the design of these programs. The timing of payments, size of payments, the specific conditionality rules involved, and whether the cash transfers are combined with other interventions (such as cognitive or non-cognitive skill development) are important design components. The research so far only gives us an incomplete view about how to optimize the design of CCTs that are targeted towards adolescents.

Little is known about the effectiveness of cash incentives for behaviors other than school attendance. One exception is a financial incentives program, currently being tested in France, called "Ressource Contractuelle d'Autonomie." This program was developed in response to low participation in a counseling program called "Certificat d'Insertion dans la Vie Social," which pairs young people with caseworkers who develop plans to improve their socio-economic insertion. In practice, many eligible participants drop out of this program, and a large evaluation is currently being implemented to see whether conditional cash incentives can help secure stronger participation.

Households internalize increases in the rate of return to education even if the incentives are not immediately doled out in cash. In Bangladesh, a stipend program for girls and a simultaneous but unrelated increase in the number of available high-skilled jobs for women affected schooling outcomes in separate ways. The stipend program decreased the cost of education but did not affect girls' educational attainment. On the other hand the additional jobs available, which required literacy and numeracy skills, increased the marginal rate of return of

education attainment for women. Heath and Mobarak (2011) found that the increase in available jobs increased the attendance probabilities by 21.27 percent. In the particular Bangladeshi market under study, low educational attainment was due to households' low perceptions of the rate of return on education rather than due to the cost of schooling.

Since financial incentives can only condition on observable changes, they may lead agents to prioritize select areas on which to concentrate efforts. Holstrom and Milgrom (1991) argue that providing financial incentives based on the performance of measurable outcomes causes individuals to focus more on improving measurable characteristics at the expense of immeasurable characteristics. The empirical literature on youth schooling achievement appears to be consistent with such a notion, since financial incentives have induced youth and schools to exert more effort on only the outcomes that are directly related to procuring the cash transfer. Sharma (2010) finds that although a cash incentive based on performance increased aggregate test scores in Nepalese 8^{th} grade students, the incentives did not appear to increase intrinsic motivation to learn and caused students to focus their effort on the school subjects for which they were most likely to garner the reward. Consequently, the incentives decreased test scores in the subjects for which the probability of winning the reward was low. The incentive mostly increased the test scores of students belonging to higher socioeconomic strata, since they were able to receive help from their parents or a tutor after school. Barrera-Osorio and Raju (2010) studied the impact of subsidies on student performance in low-cost private schools in Pakistan. The subsidies were provided as long as they achieved a minimum pass rate on standardized tests. Test score improvements were confined to the schools that were on the margin of meeting the pass rate, and diminished quickly after two rounds of testing. Because teachers and students were only incentivized to perform above certain minimum standards, improvements only occurred to certain schools and did not persist after the end of the program.

Blimpo (2010) varied the incentive structure for secondary school students in Benin and found that any cash incentive increased student performance above that of the control group. Individual incentives only motivated students who scored just below the target without affecting the performance of those substantially below or above the target. Team incentives, where the team was rewarded if they exceeded a target, encouraged free-riding by low-performing students. However, randomly placing students into teams and rewarding the teams that outperformed the rest motivated all students no matter their initial performance and generated the greatest gains in student performance. It may be beneficial for financial incentive policies to consider team tournament incentive structures for the purpose of maximizing cost-effectiveness.

Psychologists and economists have argued that financial incentives may backfire if the extrinsic motivation provided by the incentives hinders or crowds out intrinsic motivation. This effect has been illustrated in multiple contexts. A study in Israel by Gneezy and Rustichini (2000) shows how financial incentives can have perverse effects. The researchers studied a group of day-care centers that introduced a penalty to deter late pickup of children, charging a fine to parents who did not pick up their children on time. Surprisingly, the rate of late pickups increased significantly, and even after the fine was removed late pickups remained elevated. The authors suggest that parents interpreted the fine as a price for an implicit late pickup service, and in a sense this made it acceptable to be late.

Whether such crowding out may also be operating in the context of educational CCTs is an open question for research. It is possible that such effects might be particularly important among youth, a group in which social norms strongly shape behaviors, and the signaling effect of accepting financial rewards for good behavior may be particularly misperceived by friends. Hence, it would be interesting to assess whether there is heterogeneity in crowding-out effects across gender groups, age groups, socio-economic groups, or based on baseline levels of

cognitive and non-cognitive skills (such as motivation). Again, this may help in designing more subtle but also more cost-effective CCTs.

Theme 2.3: What role do informational imperfections play in explaining low educational achievements?

One potentially promising explanation for high dropout rates is the hypothesis that young people simply do not understand the potential returns of the programs they are currently enrolled in, or the returns to schooling more generally. Economists emphasize the link between market returns to education and investments in schooling. Though many studies estimate these returns with earnings data, it is *perceived* returns that affect schooling decisions, and these perceptions may be inaccurate. Hence, it seems relevant to measure the importance of perceived returns in the decision to drop out of school. An emerging literature reviewed below suggests that such informational frictions might be a first-order factor in explain low educational achievements.

For example, Attanasio and Kaufmann (2009) investigate the link between subjective expectations and schooling choices. Using data from a household survey on Mexican junior and senior high school graduates, they show that individuals' subjective expectations about future earnings and employment influence their decision to attend school and college. Betts (1996) investigates undergraduates' perception of salaries by type of education; the results confirm that students base their choices on investment in education on their beliefs about future earnings and highlight the high degree of variation in wage beliefs among students.

A few recent studies demonstrate that interventions aimed at providing young people with better information on the returns to schooling can have significant effects on their schooling choices. For example, using survey data for eighth-grade boys in the Dominican Republic, Jensen (2010) finds that the perceived returns to secondary school are extremely low, despite high

measured returns. Jensen evaluates an intervention where boys at randomly selected schools were given information on the higher measured returns. He finds that the students that received this information completed on average 0.20–0.35 more years of school over the next four years than those who did not. However, Jensen also shows that credit constraints remain an important barrier among the better informed: "We find that the program had a large effect among the least poor students, increasing schooling by 0.33 years, but no effect for the poorest students, despite the fact that both groups increased perceived returns by the same amount."

Similarly Dinkelman and Martinez (2011) randomly presented information about financial aid for post-secondary education to randomly selected students out of a sample of 6,000 Chilean 8th graders. The additional information reduced absenteeism by 14 percent but did not affect long-term behaviors that would influence enrollment into tertiary education, such as test scores or 9th grade enrollment. The increase was primarily driven by students that performed well at baseline. Higher-performing students reported greater likelihood of attending college as a result of the treatment, while lower-performing students reported greater likelihood of enrolling in vocational training programs. The findings suggest that providing information about financial aid increased educational prospects, albeit in different ways depending on student performance.

In a related paper, Oster and Millett (2011) examine how the introduction of new jobs at call centers affects school enrollment in India. They study changes in enrollment in schools located in districts that experienced an increase in the number of call centers. They find large, localized effects: one new center increased school enrollment by 5.7 percent. Complementary survey evidence suggests that these effects might be due to a lack of information diffusion about new job opportunities. Hence, it is quite possible that a lack of information about the value of education is restricting many children's educational achievement.

It would be valuable to replicate interventions such as those in Jensen (2010) and Dinkelman and Martinez (2011) in other countries and age groups. It would also be valuable to

know whether students' efforts in the classroom, rather than simply school attendance, are affected by information on returns to education. Finally, it would be important to know whether perceived returns to schooling, as well as the effects of information-based interventions, vary systematically by gender, e.g. are girls particularly misinformed about the returns of schooling? Finally, a very interesting intervention would be to combine cash transfers (whether conditional or unconditional) with information about the returns to schooling. While information on its own may provide the motivation to complete more schooling, the cash transfers may provide the means to respond to that information; such combined programs (cash plus information) could be particularly effective when targeted towards the very poor.

Other kinds of information failures may exist as well. For example, when choosing a school, students and their parents may not be aware of which school is best. Hastings and Weinstein (2008) examine a natural experiment and a field experiment that provided direct information on school test scores to lower-income families in a public school choice plan. Receiving information significantly increases the fraction of parents choosing higher-performing schools. Parents with high-scoring alternatives nearby were more likely to choose nonguaranteed schools with higher test scores. Using random variation from each experiment, they find that attending a higher-scoring school increases student test scores.

Studies such as these could be extended to other aspects of school choice, such as providing information to help students decide between staying in a general education track or switching to a vocational track. Also, conditional on choosing a vocational track, information could be provided to help students compare the returns to different vocational tracks. Such an experiment is currently being designed in Chile by Autor et al. (2012). In that experiment, students and parents will be provided with information on average earnings and average employment rates for students that attended the general and vocational schools in their relevant market. The first objective of the research is to study whether providing such information affects

school choice. The second objective is to assess whether the provision of such information gets schools (and in particular vocational schools) to update their track offerings and curricula in a direction that is consistent with better labor market outcomes for their graduates (such as by shutting down old vocational tracks that offer skills that are no longer valued in their labor markets and bolstering tracks that teach current and valuable skills).

Interventions such as the one outlined above might be very relevant in addressing the issue of young workers' over-qualification, which is being discussed more and more in policy circles in developed countries. Poor educational and career choices have been proposed as an explanation for why so many young people appear to start their work lives, and often end up spending much of their work lives, in jobs that do not match their qualifications (Frenette 2004). Dolton and Vignoles (2000) suggest that 38 percent of all graduates in UK were overqualified for their first job, and 30 percent remain overqualified six years after graduation. According to Li, Gervais and Duval (2006), nearly one out of every five university-educated people in the Canadian workforce occupies a job that requires at most a high school education, a proportion that has grown by nearly one-third between 1993 and 2001. Young people might choose their education path and career without any specific knowledge of the labor market demand for these types of occupations; eventually, they might be forced to accept low-skilled jobs that are quite different from their aspirations. One may hypothesize that with more information about the returns to specific educational and occupational tracks, the mismatch between young people's qualifications and their ultimate job outcomes will decrease.

More generally, further research should be targeted toward programs that provide career guidance to young people. Such career guidance may consist, as discussed above, in general information about the returns of various professional paths. More sophisticated programs could attempt to customize the career guidance to the specific skills with which the young people being counseled are endowed.

One difficulty with information provision as a policy is that while investment in human capital takes time, the returns to education or to various career tracks may change over the same period. For example, with his famous cobweb model, Freeman (1976) argued that many young Americans may have ended up acquiring too much education in the postwar expansion period because they could not fully anticipate the equilibrium long-term returns to education, and ended up overeducated and without access to job opportunities that fully matched their qualifications. Such educational "overshooting" may also be taking place in emerging economies that experience a fast transition towards a more skills-based economy. It thus seems that incorporating such dynamic considerations when providing information on the returns to various educational and occupational paths would be particularly important in the context of transitioning economies.

One illustration of the risks associated with changing returns to education comes from sub-Saharan Africa where, following policies that limited hiring in the public sector, the labor market demand for skilled work shifted from jobs located primarily in the public sector to jobs located in primarily in the private sector. Because technical and vocational education had taught youths skills that were valuable in the public sector but not in the private sector, the rate of return on post-secondary schooling subsequently decreased (Atchoarena and Delluc 2001). This suggests that in environments where the public sector has typically dominated higher-skilled employment, programs that aim to increase educational attainment among youth should consider reforming vocational and technical training to better meet the demands of the private sector.

Theme 2.4: What is the best time for adolescents to make important choices about their education and careers?

If young people have problems with emotional control and do not understand that some questions in life have no simple answers, they may be at risk of allowing transient emotional states to

resolve uncertainties (Fischoff 1992). Multiple studies suggest that volatility of mood, or moodiness, may be especially characteristic of adolescents (Larson, Cskiszentmihalyi, and Graef 1980). Similarly, some evidence suggests that adolescents have a particularly hard time controlling their impulses (Steinberg and Cauffman 1996). These findings from the psychological literature suggest that adolescence might be a particularly inappropriate time for making important decisions such as how much schooling to complete or which career to pursue.

While it may be impossible to get around the fact that such important schooling and career decisions need to be made during adolescence (rather than childhood or adulthood), it is possible that some sub-periods within adolescence might be better suited to making these decisions than others. This raises important, researchable questions about when and how it is best to ask young people to make often-irreversible decisions about which academic track to attend next, or whether to pursue post-secondary schooling.

For example, Lewis (1981) finds that older adolescents are more likely than younger adolescents to recognize the risks and future consequences of their decisions. Physiological and psychological changes surrounding puberty might be related to these features of early adolescence. In a study of the Finnish education system, Pekkarinen (2008) shows that postponing when students have to choose between vocational and academic tracks (from age 10-11 to age 15-16) led to a relative increase in the share of girls choosing the (more challenging) academic track, as well as a relative increase in the share of girls continuing into tertiary education. This differential response, Pekkarinen argues, is related to the fact that while boys and girls are at about the same stage of cognitive and psychological development by age 10-11, most girls are beyond puberty by age 14, while boys are still going through important physical and psychological changes that have adverse effects on their behavior and aspirations.

A study by Pugatch (2010) on the school-to-work transition of South African youth suggests that the option to re-enroll in school after a period of employment has important incentive effects on youths' decisions. Using a panel dataset that includes the schooling and labor market histories of over 3,300 youths in the Cape Town area, he finds that over time youths dynamically update their expectations about the relative returns to working versus acquiring additional schooling. In an environment where there is no option to re-enroll in high school, Pugatch finds a 6 percentage-point increase in the proportion of youths completing at least 12 years of schooling. This suggests that youths who might have dropped out under unrestricted re-enrollment may have reconsidered the long-term consequences of leaving school.

Another important set of considerations relate to parental influences and intergenerational mobility. Parental influences are expected to decline during the life cycle; it seems intuitive that as adolescents get older, they obtain more information, increase their confidence, and become more responsible for their decisions. This suggests that early choices are more likely to be influenced by family than decisions taken at later stages in life. There is quite a lot of variation across countries in the age at which important educational choices need to be made, and researchers have found that this variation is related to the level of intergenerational mobility in different countries. In certain school systems, such as in the U.S. and the U.K., individuals make important decisions at the end of secondary school, when they are about eighteen or nineteen years old. In contrast, several European school systems—such as those of Belgium, Germany, Italy, Ireland, the Netherlands, and Spain—require students to choose their school track earlier, between the ages of 10 and 15 (depending on the country). In Mexico, youths' expectations (but not their mothers') significantly predict likelihood of college enrollment (Attanasio and Kaufmann 2009). Some have argued that educational and occupational mobility is more limited in countries such as Germany or Italy because parents play a more important role in the schooling

choices of their children in those countries as a result of this feature of the educational system (Dustmann 2004, Checchi and Flabbi 2007).

Theme 2.5: What role do peers play in education and career choices?

It seems likely that in addition to their parents, adolescents rely on friends, peers, and other members of their social networks in order to collect information about various educational and career tracks, and ultimately to choose a choose a career (Tacsir 2010). Such social networks are also quite important in the process of finding a job. For example, Marmaros and Sacerdote (2002) demonstrate the importance of networking in finding a job using a survey of students at Dartmouth College in the U.S.

What aspects of a young person's educational and occupational choices are susceptible to peer influences remains an open question. Sacerdote (2001) measures peer effects among college roommates, taking advantage of the fact that freshman year roommates and dorm-mates are randomly assigned at Dartmouth College. He finds that peers have an impact on grade point average and on decisions to join social groups such as fraternities. However, he finds that peer effects are markedly absent in other major life decisions, such as the choice of college major. Hence, peers may affect some educational outcomes but not others. In China, Lai (2008) finds a positive relationship between the mean of peer quality and student performance, but a negative relationship between peer heterogeneity and student performance.

Bobonis and Finan (2009) find that Mexico's PROGRESA increased secondary school enrollment rates of ineligible children by 5 percentage points if eligible children in the same village received school vouchers (improvements were slightly higher for poor households). By demonstrating the consistent presence of neighborhood effects, the authors show that policies which encourage enrollment can have large social multiplier effects on the community. However,

even though peer and neighborhood effects are substantial, their influence is limited compared to the contributions financial resources make to human capital formation. Bettinger, Kremer, and Saavedra (2010) determined that Colombia's PACES program, in which school vouchers are distributed on the basis of satisfactory academic performance, improved educational outcomes by more pathways than simply exposing recipients to higher quality peers.

Assessing peer effects uni-dimensionally may lead to oversimplified results, because social interaction between peers is multifaceted. Lugo (2011) finds that the test scores of low-income students can significantly improve if the students were exposed to classmates with heterogeneous economic backgrounds. For both rich and poor children, interactions with peers from richer backgrounds improve academic performance. There is an equity-efficiency trade-off involved, however, since heterogeneity in socioeconomic backgrounds can decrease the test scores of wealthier children as well as the average test scores for the entire class.

An important agenda for future research is to better understand the factors and people that are most susceptible to peer influences when it comes to educational choices. With a better understanding of these influences, better policies might be developed to, for example, limit exposure to negative influences among those most likely to be influenced. Such negative influences, if strong, may lead young people to not fully realize their productive capacities. Bentolila, Michelacci, and Suarez (2010) observe a wage discount for jobs found through social contacts and concludes that social networks can distort workers' behavior and induce job mismatches. The opportunity of finding a job more easily through friends and peers might convince people to undertake a career in a field far from their primary abilities.

Theme 2.6: Gender Differences in Education and Career Choices

Probably the most striking labor market change worldwide over the last 30 to 40 years has been the enormous gains experienced by women in several objective outcome dimensions, and in particular in educational achievement. These revolutionary changes have been witnessed in the U.S. and in most other economically advanced countries. Goldin, Katz, and Kuziemko (2006) document how, starting in the 1970s, U.S. girls started narrowing the gender gap in science and math courses in high school. While men born in the late 1940s had about a 10 percentage-point lead in terms of college graduation rates compared to women born in the late 1940s, that gap had been eliminated by 1980; women are now the majority among graduates of four-year colleges.

The reversal of the educational gap in many developed countries has led to a wave of recent research aimed at trying to better understand why boys are not keeping up educationally with girls. This is a very exciting area for future research. In particular, there has been significant recent interest in the role gender differences in non-cognitive skills might play in explaining the educational gap. One hypothesis is that young men are more likely to suffer from behavioral and conduct problems, and that such problems are especially disruptive for educational achievement. Using data from both the National Educational Longitudinal Survey (NELS) and the National Longitudinal Survey of Youth (NLSY 97), Bertrand and Pan (2011) show a negative relationship between the likelihood of school suspension in high school and several future educational outcomes, including the likelihood of completing high school and attending college, even after controlling for math and reading test scores. Hence conduct problems, to the extent that they are adequately proxied for by school suspension, are important drivers of future educational outcomes. Bertrand and Pan also show that there are large gender gaps in the likelihood of having such conduct problems. By fifth grade, girls score about half a standard deviation below boys on teacher-reported measures of externalizing problems (i.e. aggressive, disruptive, or hyperactive behaviors directed at the external environment) and 0.45 of a standard deviation above boys in teacher-reported self-control. For comparison, the widely discussed gender gap in math is about

0.15 of a standard deviation in fifth grade and the (reverse) gender gap in reading is about 0.2 of a standard deviation in fifth grade.

Other researchers have also proposed that non-cognitive deficits, such as attention difficulties, may hinder boys' educational achievement (Beaman et al. 2007; Entwisle, Alexander, and Olson 2007; Gilliam 2005; Ready et al. 2005). Boys are more likely to be diagnosed with attention deficit hyperactivity disorder (ADHD) (see, for example, Szatmari et al. 1989). In a meta-analysis of the psychology literature on gender differences in temperament, Else-Quest et al. (2006) document lower levels of inhibitory control and perceptual sensitivity among boys, consistent with a greater incidence of externalizing behavior. In another meta-analysis of 33 delay-of-gratification studies, Silverman (2003) reports a small but reliable advantage for girls. Jacob (2002) shows that the greater incidence of school disciplinary and behavioral problems among boys explains a substantial share of the female advantage in college enrollment.

More research should be targeted to understanding the roles that nature and nurture play in explaining boys' disadvantage in these areas. While biological influences have been demonstrated, further research should attempt to better understand environmental influences.[4] In a non-experimental setting, Bertrand and Pan (2011) document large differences in gender gaps across key features of the home environment, while they find little impact of the early school environment on non-cognitive gaps. For example, boys do especially poorly in broken families. While differences in endowments explain a small part of boys' non-cognitive deficit in single-

[4] Many of the differences that exist between male and female brains have been shown to occur in areas related to mood, emotions, and emotion regulation. The development of the frontal cortex (which is associated, among other things, with inhibitory control and hence a decreased risk of externalizing problems) and temporal lobe has been shown to be considerably faster among girls than boys. Moreover, prior research has established that variation in in-utero exposure to sex hormones, particularly testosterone, is associated with such structural and functional brain differences, even within gender groups. Higher levels of prenatal exposure to testosterone have been linked to slower maturation of parts of the temporal cortex, but also lower empathy levels, higher disinhibition and lower quality of social relationships (see for example Baron-Cohen, 2002, 2003; Geary, 1998, 2002; Keenan and Shaw, 1997; McClure, 2000; Knickmeyer et al, 2005; Maccoby, 1998).

mother families, the most important factor is a marked difference in the non-cognitive returns to parental inputs: broken families are associated with worse parental inputs and boys' non-cognitive development, unlike girls', appears extremely responsive to such inputs. Further research that helps to identify causal relationships among some of these environmental influences would be greatly beneficial.

Differences in gender norms can influence gender gaps in returns to schooling as well as in choice of school. The ability to exercise school choice can significantly determine subsequent educational success. Jackson (2012) finds that among secondary school students in Trinidad and Tobago, girls who strongly prefer single-sex schools tend to perform better in single-sex schools than in mixed-gender schools. In Ghana, girls are less likely to choose technical programs and are more likely to choose single-sex and public schools than boys. Overall, however, choices based on school quality have much more to do with academic ability than gender (Ajayi 2009). Newhouse and Suryadarma (2011) find that in Indonesia, the wage premium for vocational schooling relative to general schooling has increased for women, but drastically decreased for men. In fact, men suffer a wage penalty for going to vocational school instead of general school. Newhouse and Suryadarma attribute the gender gap to the relative expansion of the service sector over that of the industrial sector in Indonesia. Because of the lower demand for industrial sector jobs relative to service sector jobs, the labor market demand for vocationally trained males, who tend to choose technical majors, will be lower compared to the demand for vocationally trained females, who tend to choose majors related to business management or tourism.

Policies aiming to rectify gender-based differences in labor force outcomes must address persistent gender-based differences in access to education, training, and financial resources. Bandiera et al. (ongoing) note that even though women typically hold the responsibility of caring for the family, they possess low financial literacy and are usually unable to procure bank loans. They examine whether providing women opportunities for further education and financial literacy

training would help them achieve greater financial independence, more educational attainment, fewer risky behaviors, and better employment outcomes. The forthcoming results will provide evidence as to whether access to further education and training can mitigate the disadvantages women face in the labor market.

3. Health Outcomes and Risky Behavior

A variety of health outcomes and behavior profiles determine and are determined by the course of human capital acquisition in youth. In developing countries, fostering greater access to healthcare is a primary concern since satisfactory health is crucial for human capital growth and positive labor market prospects. Chronic malnutrition, poor health, and lack of access to health services during childhood lead to sustained health problems which impact educational attainment in adolescence and employment measures in adulthood.

Risky behaviors formed in adolescent years can have long-lasting effects and alter the trajectory of a life. Such risky behaviors are often detrimental to health, including poor eating habits, smoking, excessive drinking, drug use, unprotected sex, and criminal activities. Engaging in such behavior can limit or disrupt the acquisition and application of other skills and assets. Education and earnings in turn are vital inputs in the maintenance of health, not only for oneself but for one's family and children.

Theme 3.1: The Importance of Early Childhood Health on Labor and Educational Outcomes

Early health investments improve cognitive function and increase the rate of return on schooling investments. Alderman, Hoddinott, and Kinsey (2006) find that in rural Zimbabwe, civil war and famine generated permanent detrimental health effects that impacted the future schooling outcomes of preschool-aged children. They estimate that if hypothetical health improvements had increased the median child's height-for-age to match that of a median child in a developed country, schooling completion would have increased by 0.85 years. Using panel data on Filipino children, Glewwe, Jacoby, and King (2001) find that better nourished children outperformed their counterparts in school. Well-nourished children had an advantage partly because they were better equipped to enter school earlier and have more time to learn, but mostly because nutrition increased learning productivity per year of schooling. Glewwe, Jacoby, and King estimate that each dollar invested in early nutrition programs in a developing country could produce at least three dollars' worth of gains in academic achievement. Given the sizable rate of return on investment for such ventures, more research regarding the types of nutrition and health programs that generate the greatest welfare gains is urgently needed.

Other studies from both the developing and developed world corroborate the importance of early health in future educational and economic outcomes. In India, 9-15 year old boys from communities where iodine-deficiency rates were severe were more likely to exhibit neural impairment and lower motivation to learn (Delisle, Chandra-Mouli, and de Benoist 2000). Field, Robles, and Torero (2009) find that reducing iodine deficiency disorders through intensive *in utero* iodine supplementation programs dramatically increased schooling outcomes in Tanzania, especially for girls. Children who received treatment had 0.35-0.56 additional years of school relative to untreated children. Introducing effective medication to treat pneumonia in the U.S. during the 1930s led to marked improvements in schooling, earnings, and employment probabilities, as well as reductions in disability rates (Bhalotra and Venkataramani 2012).

Given the vital role that health plays in cognition, schooling, and employment outcomes, especially during a child's formative years, more research needs to be done regarding how to efficiently and sustainably distribute necessary preventive health measures to households with few resources to procure health products themselves.

Theme 3.2: What can be done to facilitate the distribution and uptake of health products and services?

It is unsettling that the medical knowledge needed to effectively prevent and treat deadly illnesses such as malaria, diarrhea and malnutrition has been available for years, yet 10 million children worldwide die every year from these same illnesses. The problem lies not in a lack of medical advances but in a dearth of efficient, scalable, and sustainable methods to distribute health products and health services to developing countries. Nyqvist and Svensson are conducting an ongoing RCT that assesses the impact of mobile healthcare providers, which provide basic health education and discounted health products such as condoms, bed nets, and water treatments. Forthcoming results will determine whether the increased access to health care products affected health, education, and employment levels in the treatment villages.

Due to the difficulties households face in procuring the necessary preventative health measures, researchers and policymakers have pushed for greater involvement by governments and non-governmental organizations to provide the vital health services that many households simply cannot afford in developing countries. Governments and aid organizations can play a pivotal role in improving the distribution of healthcare products and encouraging optimal health investments.

The primary school mass deworming programs held in Kenya have been widely cited examples of the substantial welfare gains that can accrue from subsidized healthcare programs. According to Baird et al. (2011), the sustained benefits of deworming carry over to adulthood. Adults that received deworming treatment as children worked 12 percent more hours and ate more meals on average. For youth that had already exited school, earnings were 20 percent greater and employment rates in the manufacturing sector were three times as high. The employment outcome improvements were garnered through educational outcomes that improved not only for the targeted primary school pupils, but also for their younger siblings, who also received deworming treatment, as well as for children from neighboring primary schools that were not selected to receive treatment. Ozier (2011) find that for children less than one year of age at the time of treatment, improvements in cognitive performance were equivalent to 0.5-0.8 years of schooling. Miguel and Kremer (2004) determine that the deworming treatment improved health and school participation in both treatment schools and neighboring non-treated schools, but unlike Ozier (2011) they do not find evidence of academic improvement. Due to the size of the impacts on health, education, and employment, Miguel and Kremer (2004) estimate that fully subsidizing[5] the program and paying families to receive treatment would be a more cost-effective policy than CCT programs that condition directly on school participation or academic performance. Taken together, the results from the three studies demonstrate the effectiveness of well-structured governmental policies in substantially and permanently improving the schooling and employment outcomes of youth.

A separate NGO program coupled the distribution of deworming drugs with iron supplementation in order to combat the high levels of anemia (69 percent) and worm infestations (30 percent) among preschool children living in the slums of Delhi, India. Bobonis, Miguel, and

[5] Miguel and Kremer (2001) found that the introduction of a small fee for deworming treatment reduced treatment rates by 80 percent. Thus socially beneficial programs with low private benefits may not spread unless treatment is fully subsidized.

Sharma (2006) found that the intervention increased weight among treated children and increased preschool participation rates by 5.8 percentage points, which equated to a one-fifth reduction in school absenteeism. Contrary to the Kenya primary school deworming studies, which find large increases in school participation due solely to lower incidences of worm infestation, Bobonis, Miguel, and Sharma determine that the majority of the reductions in absenteeism can be explained by decreases in anemic rates among preschool children.

Another successful public health program is the provision of free or discounted school meals for low-income students, which has been studied in both developed and developing countries. Publicly subsidized meal programs may bring about dramatic improvements in schooling and learning outcomes, as Winicki and Jemison (2008) determine that food insecurity is associated with lower academic scores and lower learning capacities even among children that are at the margin in terms of food deprivation. Using a RCT conducted in Kenya, Kremer and Vermeersch (2004) find that providing school meals to preschoolers created significant improvements in educational outcomes. Children were 30 percent more likely to attend school, and learning improved as a result of increased attendance. In Uganda, Alderman, Gilligan, and Lehrer (2008) found that provision of free meals at school and provision of food rations to take home increased attendance rates in primary school students, especially boys. Both programs reduced the rate of grade repetition, but the school meals program was significantly better at motivating poor children to complete primary school. Gelli, Meir, and Espejo (2007) evaluate a similar study across 32 African countries which provided meals during school, as well as take-home rations at some sites. When take-home rations were provided, the increase in girls' enrollment (by 30 percent) persisted after the first year and the probability of dropping out for girls in higher grades decreased. In sites where take-home rations were not provided, increases in girls' enrollment did not persist beyond one year. Similarly in India, the transition from free provision of grains to prepare at home to free school lunches substantially increased school

attendance—in this case, the increase in school attendance was primarily driven by girls (Afridi 2010).

The effect of school lunch provision on educational attainment in the U.S. presents a more mixed picture. Hinrichs (2010) finds that participation in the National School Lunch Program during the 1950s generated sizable lasting effects on educational attainment through encouraging school attendance or improving health outcomes. Schanzenbach (2009) has shown, however, that in more recent decades subsidized school meals have contributed to the growing obesity rate, since school meals tend to contain more calories than brown bag lunches. Obesity in turn may diminish children's future economic prospects since it has been linked to absenteeism and lower academic achievement within American schools (see Taras and Potts-Datema 2009 for a review of the literature). Given the enormous differences in nutrition and consumption between children in developing countries and children in developed countries, it is unsurprising that subsidized school meals can generate welfare gains in one case but have mixed effects on educational outcomes in another.

In addition to alleviating food insecurity, effective food programs must also provide nutritious meals since nutrition independently contributes to improved cognition and schooling. In an experimental evaluation, Maluccio et al. (2009) find sizable improvements to schooling and cognition in a rural Guatemalan sample that in early childhood received either highly nutritious, protein-rich food supplements or less nutritious food supplements that contained no protein. A quarter century after the end of the program, Maluccio et al. found that for both men and women, standardized reading comprehension and non-verbal cognitive scores were a quarter of a standard deviation higher in the group that received the nutritious protein-rich food supplement. Women in this group also completed 1.2 grades more than those who received the less nutritious alternative. The results indicate the importance of early childhood nutrition intake and dietary quality on permanent schooling success and cognition in adulthood.

Simply providing needed health services is insufficient to guarantee equal access, due to structural inequities that often favor the human capital development and employment of males over females. In South Africa, a national health policy that increased access to free health services improved the nutrition of newborn boys and boys below primary school age but not girls. In this case, household resource allocation appears to favor boys. Since early nutrition and health status significantly influences behaviors and outcomes throughout the entire life cycle, the gender gaps in childhood health may lead to persistent gender gaps in education and labor market outcomes (Tanaka 2010). Another study, also in South Africa, shows that government provision of free AIDS treatment drugs only increased the labor force participation and employment of black men but not black women (McLaren 2011).

Theme 3.3: Can education and skill development programs reduce the odds of engaging in risky behavior?

Just as health positively impacts schooling, schooling is a strong predictor of health, in both developed and developing countries. These associations are large: in the U.S. in 2000, for example, each additional year of schooling was associated with approximately one more year of life expectancy. More educated individuals are also less likely to smoke or drink excessively, and in general have better health-related behaviors (see Cutler and Lleras-Muney 2006 for a review). De Walque (2007) finds that responses to an information campaign regarding the risks of HIV/AIDS were greatest among educated youth. In the 1990s, the HIV/AIDS decline was twice as high for educated individuals.

However, there is considerable debate about whether these associations reflect causal effects. A number of recent studies have addressed these concerns using instrumental variables, such as changes in compulsory schooling laws, but they have yielded mixed evidence on the

health-education relationship. However, these studies generally suffer from two primary concerns. First, they rely on difficult-to-test identifying assumptions. Second, most do not explore the mechanisms that explain *why* schooling affects health behaviors: does higher schooling directly reduce the odds of engaging in risky behavior? Or does it alter non-cognitive skills (such as time preference) in a way that makes risky behavior less attractive?

Randomized impact evaluations could be used to better explore whether there is indeed a causal link between education and risky behavior and, if such a link exists, help understand why it exists. A good example is a recent study by Jensen and Lleras-Muney (2010). The study exploits Jensen's (2010) randomized intervention, which increased schooling and reduced work among male students in the Dominican Republic by providing information on the returns to schooling, as described above. They find that treated youths were much less likely to smoke at age 18 and had delayed onset of heavy drinking. The effects appear to be due to changes in peer networks and disposable income; there was no direct impact of schooling on non-cognitive skills such as time preference or attitudes towards risk, or perceptions that drinking or smoking are harmful to health. Additional studies such as these could be performed to better understand whether and how education affects teen sex and teen pregnancy, as well as the risk of engaging in other types of risky behaviors.

While much of economists' attention so far has been focused on trying to boost the education and cognitive skills of disadvantaged young people in order to prevent them from engaging in risky behaviors, it is possible that programs more specifically targeted at boosting non-cognitive skills might be more effective. As indicated above, non-cognitive skills might be more malleable in the teen years. Specific interventions should be designed that attempt to teach youths to engage in more self-control and be more patient, with the goal of reducing the odds of engaging in risky behavior, such as smoking, drinking, or unprotected sex.

A specific example of this type of intervention is a recent large-scale randomized program in the Chicago Public Schools aimed at improving the "social-cognitive" skills (including self-control, conflict resolution, and attribution bias) of disadvantaged male adolescents. Ludwig et al. (2011) find that participation in the program reduced the number of violent crime arrests by more than 8 arrests per 100 youth over the intervention period – a decline of 43 percent relative to the control mean. More interventions of this type should be considered, with both a broader set of approaches used to teach non-cognitive skills and a broader set of risky behaviors being targeted (smoking, drinking, teen sex, drug use).

Theme 3.4: Can youth's sensitivity to peer influences be leveraged to reduce the odds of engaging in risky behaviors and improve life outcomes?

An important difference between youths and adults appears to be the role of social reactions. For example, Austin et al. (1993) find that youths weigh the social consequences of risky activities more heavily than adults. Studies of susceptibility to peer influences tend to find an inverted-U relationship, with susceptibility increasing between childhood and early adolescence, peaking sometime around age 14, and declining during the high school years (Steinberg and Cauffman 1996).

Many studies have shown that peer influences are very important in explaining young people's likelihood of engaging in risky behavior. Kremer and Levy (2008) estimate peer effects in the context of a large state university that assigns roommates by lottery, which makes it possible to isolate the effect of peers. Their results suggest that males who were assigned roommates who drank alcohol prior to college obtained, on average, a lower grade point average than those assigned to nondrinking roommates. In contrast, they found no effect of roommates' academic or socioeconomic background on grade point averages. Their findings seem more

consistent with theories in which peer effects operate by influencing preferences than with those in which peers change narrowly interpreted endowments—e.g. by providing help with homework or by disrupting study.

Card and Giuliano (2011) study the role of social interactions in the risky behavior of best-friend pairs in the National Longitudinal Study of Adolescent Health (also known as Add Health) in the U.S. Focusing on friends who had not yet initiated a particular behavior (sex, smoking, marijuana use, truancy) by the first wave of the survey, they find significant interaction effects in friends' decisions to initiate risky behaviors. For example, the likelihood that one friend initiates intercourse within a year of the baseline interview increases by 4 percentage points (on a base of 14 percent) if the other also initiates intercourse, holding family and individual factors constant. They find similar effects for smoking, marijuana use, and truancy, and the largest effects are among females and among pairs that are more likely to remain best friends after a year.

These findings suggest that the peers to whom young people are exposed may have long-lasting effects on their life outcomes. However, most of the best studies of peer influence are U.S.-centric, or at least developed country-centric. It would be important to know how the size of these peer effects compares in other countries where the relative importance of peer influences versus parental influences may be quite different than in the U.S. It would also be valuable to better understand how the strength of peer influences differs between younger and older adolescents.

These findings also suggest that programs and policies that help young disadvantaged people relocate away from clusters of poverty and towards richer neighborhoods might be particularly good for them. An example is the experimental study of the Moving to Opportunity Program (MTO) by Kling, Liebman and Katz (2007). Families—primarily female-headed minority households with children—living in high-poverty public housing projects in five U.S.

cities were offered housing vouchers by lottery. Four to seven years after random assignment, families offered vouchers lived in safer neighborhoods that had lower poverty rates than those of the group not offered vouchers. However, the study finds no significant overall effects of the MTO program on adult economic self-sufficiency or physical health. The lack of an overall effect masks differences by gender: beneficial effects for female youth on education, risky behavior, and physical health were offset by adverse effects for male youth.

Kling, Leibman and Katz (2005) analyze the effects of the MTO program on criminal behavior by gender. They use the exogenous variation in residential locations generated by the MTO program to estimate neighborhood effects on youth crime and delinquency. The offer to relocate to lower-poverty areas reduces arrests among female youth for violent and property crimes, relative to the control group. For males, the offer to relocate reduces arrests for violent crime, at least in the short run, but increases problem behaviors and property crime arrests. The gender difference in treatment effects seems to reflect differences in how male and female youths from disadvantaged backgrounds adapt and respond to similar new neighborhood environments.

The sharp differences that are observed across genders in the MTO studies suggest that the dynamics of neighborhood and peer influences might be quite different for young men compared to young women. Much more research should delve into understanding why young men and young women may react so differently to programs such as MTO. More generally, the broad policy of moving disadvantaged people out of poor environments and concentrated negative peer influences should be attempted in countries other than the U.S.

Theme 3.5: Can financial incentives be used to help the youth avoid risky behavior?

There have been some attempts to use financial incentives to help youths avoid risky behaviors. Even if non-cognitive biases such as excessive myopia are at the core of why young people smoke or drink, it is possible that at the margin, their propensity to engage in such behavior will be affected by financial rewards. Nyqvist et al. are staging an ongoing intervention that examines whether youth curtail reckless sexual behavior in response to short-term financial incentives. A priori, economic incentives may particularly matter for youths, as they have been shown to be very sensitive to prices in other domains. Yet we also know from other research that there will be some limits to how effective economic incentives can be. For example, the substantial decline in real cigarette prices during the 1990s can explain at most one-quarter of the dramatic rise in youth smoking over this period.

Using a RCT intervention conducted in Tanzania, De Walque et al. (2012) find that high-value cash rewards (US$20) given to youth for testing negative on STI tests decreased STI infections by 19 percent, compared to increases in STI infection rates of 19 percent and 13 percent in the low-value cash rewards treatment ($10) and the control group. The effects took a year to materialize, perhaps because it takes time for youth to leave complicated sexual relationships.

In randomized evaluation in Malawi, Baird et al. (2012) investigate whether cash incentives can reduce the risk of sexually transmitted infections among adolescent women by reducing economic dependence on men. A common path of HIV transmission in the study area is sexual relationships between adolescent women and older "sugar daddies." Never-married women between ages 13-22 were assigned to receive small transfers ($1-5) that were either conditional on school attendance or unconditional. Even though the interventions did not directly target sexual behavior, both types of transfer reduced HIV and herpes infection rates over the next 18 months, and there was no significant difference between the conditional and unconditional transfers.

Why do youth continue to engage in risky sexual behavior given the enormous consequences of HIV infection? Duflo, Dupas, and Sharma are staging an ongoing intervention which randomizes provision of free condoms and/or voluntary counseling and testing centers to determine whether risky sexual behavior arises in part from information barriers or lack of resources. In another RCT, Thornton (2008) finds that even small financial incentives can double the proportion of people who go to a voluntary counseling and testing center to learn their HIV status. HIV-positive sexually active individuals who learned of their HIV status were three times more likely to buy condoms than comparable individuals who did not learn of their status.

We need more evidence on how economic incentives can be used to limit risky behavior. We need to think harder about how to best design these incentive programs (rewards versus penalties, etc). We also need assess whether such financial incentives can lead to more than just a short-term, "during treatment" decline in the risk of engaging in risky behavior, but instead help develop longer-run habits of healthy behavior.

Charness and Gneezy (2009) offer a very good example of a study on the effects of financial incentives on habit formation. They examine the effects of paying people to attend a gym a number of times during one month. In a first field study, they find marked attendance increases for the incentivized group relative to control groups. This is entirely driven by people who did not previously attend the gym on a regular basis. In a second field study, they find improvements in health indicators such as weight, waist size, and pulse rate, suggesting that the intervention led to a net increase in total physical activity rather than to a substitution away from non-incentivized activities. This work suggests that there is scope for financial intervention in habit formation, particularly in the area of health. Whether financial intervention can help develop good habits in other domains is an open question for research. In addition, it remains unclear how the effectiveness of such financial incentives program will vary based on the age and gender of the young people enrolled.

Part II: Youth Integration in the Labor Market

In recent years, and particularly since the global economic crisis, there has been worldwide focus on the integration of youth into the labor market. It seems pertinent to review some of the recent trends on the issue. Did the sizeable increase in youth unemployment in the years immediately following the crisis increase in 2010 and 2011? What are the differences in the youth unemployment situation between developed and developing economies? What are the consequences of youth fragility in the labor market? And how have governments responded so far?

Between 2008 and 2009, the global youth unemployment rate increased from 11.8 to 12.7 percent, which represents the largest annual expansion over the past 20 years. In fact, the economic crisis appeared to hit primarily young people's employment prospects, as they tend to be "the first out and last in" during economic recessions. Recent figures confirm that the crisis continues unabated: at the end of 2010, there were an estimated 75.1 million young unemployed, 4.6 million more than in 2007. Between 2009 and 2011, the youth unemployment rate remained high and stable, at around 12.7 percent.

Young people in developed economies seem to have been the most affected by the global economic crisis. In 2010, the developed economies in the European Union peaked at the highest regional youth unemployment rate since 1991, around 17 percent. On the other hand, the relatively low official youth unemployment rates in poor developing countries (9.9 percent and 12.5 percent in 2010 for South Asian and sub-Saharan countries, respectively) obscure some of the difficulties facing young people in these regions, such as the difficult nature of many jobs and problems finding employment in the formal sector.

In most developed economies, the period of job search has also significantly increased. In 2010, the long-term unemployment rate of youth far surpassed that of older adults, especially in Italy, Greece, Hungary, Slovakia and the United Kingdom. Eventually, after a long time looking for a job, a large number of discouraged youth tend to give up their search, drop out of the labor market and become inactive: the worldwide labor force participation rate for 15-24 year olds decreased from 49.4 percent in 2009 to 48.8 in 2010. Those who remain in the labor force are frequently underemployed, constrained to accept a job that demands lower qualifications than what they possess. Another aspect of underemployment is an increase in part-time employment (examples include Ireland and Luxembourg, with respective part-time employment rates of 17 and 10.5 percentage points). In poor economic conditions, being underemployed in precarious jobs may still be a better option than being unemployed.

Despite the active search for solutions by governments, the current difficulties for young people entering the labor market and the high degree of uncertainty concerning the future have spread a feeling of discontent among youth, illustrated by several recent protest movements around the world. In the face of the inadequacy of current policies, there is a need for better-designed interventions to promote youth employment.

4. Information, Youth, and the Labor Market

Theme 4.1: Is there a cultural gap between youth and firms?

Young people have had limited exposure to work life, and hence to the expectations of employers about adequate behavior in the workplace. This often translates into conflicts between employers and employees and short job tenure.

Many countries have adopted a set of school-to-work programs designed to address this issue (Stern et al. 1997). These include job shadowing (following a competent worker through the work day); mentoring (matching students to an individual in an occupation); cooperative education (combining academic and vocational studies); work in a school-sponsored enterprise; tech prep (a planned program of study with a defined career focus); and internships or apprenticeships.

Neumark and Rothstein (2005) analyzed surveys from the National Longitudinal Survey of Youth (NLSY) data in the U.S. to explore the effectiveness of these programs. They found that internships and apprenticeships, cooperative education (involving a combination of academic and vocational study), and school-sponsored business were the most effective interventions for men in terms of subsequent employment rates. For women, they found that internships or apprenticeships were the only effective measure.

More evidence is needed to understand the effects of these programs and the mechanisms behind them, and to address their shortcomings. For example, Eby et al. (2008) provide a meta-analysis of findings in the psychology literature about the effects of mentoring. They report substantial positive effects on attitudinal, behavioral, health, relational and emotional outcomes. However, as pointed out by the authors, these results are more correlations than real causal relationships.

Apprenticeship programs typically require young workers not only to find a trainer enterprise but also to stay with that enterprise for the entire length of the apprenticeship. In practice, both requirements are often difficult, with many youths dropping out from the apprenticeship system because of an initial mismatch and increasing tension between the youth and his/her tutor within the firm. As a result, around 20 percent of young people in apprenticeships drop out. One attempt to close this gap currently being tested in France is to

assign young people to a mentor, who is in charge of securing good relationships between the young people and their tutors within the firms and guiding the youth and the firm about the expectations they should have about each other's demands and behaviors.

Another model is the Career Academy, which is a type of job shadowing program. Its purpose is to send young people (typically still enrolled in school) on regular visits to firms, where they can observe the firm's practices and people's behaviors. It is one of the few such programs that have been evaluated using a randomized controlled trial (Kemple, Poglinco, and Snipes 1999) and, significantly, has been evaluated over a long period. Eight years after random assignment, the program produced sustained earnings gains of 11 percent on average, concentrated among young men. Career Academies also produced an increase in the percentage of young people living independently with children and a spouse or partner.

Summer or part-time employment while youth are still in school may facilitate school-to-work transition by familiarizing students with workplace culture and fostering traits that are conducive to future career success (Schoenhals, Tienda, and Schneider 1998). Longitudinal studies demonstrate the importance of work in fostering personal responsibility and developing autonomy; the latter effect was found to be more pronounced in girls than in boys (Steinberg et al. 1982). Using U.S. longitudinal data on male students, Meyer and Wise (1982) show strong correlations between hours worked during high school and wages earned in the first four years following high school graduation. The estimated effect of working part-time during high school on annual income was estimated to be potentially as high as 30-35 percent.

Ruhm (1995, 1997) uses data from the National Longitudinal Survey of Youth to assess the impact of part-time employment during school on future economic outcomes. He finds that high school seniors who worked part-time had substantially greater future earnings, fringe benefits, and occupational status. In particular, working 10 (20) additional hours per week increased future earnings by 14 percent (22 percent), work hours by 94 (182) hours per week, and

total compensation by 8 percent (11 percent). Ruhm's results indicate that part-time employment during school increased investments in human capital and eased the transition from school to work, especially for students who went straight from high school to the workplace. While part-time employment did yield a small decrease in total education, Ruhm's results show that the gains in future economic success more than outweigh the loss in schooling.

Hotz et al. (1999) use the same dataset and employ dynamic selection models to test the robustness of Ruhm's results. They find that the magnitude and significance of the reported benefits of part-time employment to be significantly smaller under their preferred specification. Consequently, they argue that previous studies may not have adequately controlled for heterogeneity and selection into part-time employment. Light (1999) further builds on Ruhm's and Hotz et al.'s findings by using the same dataset and applying IV/GLS techniques. She finds significant but small direct effects (on the order of 2-6 percent) of part-time work in 11^{th} and 12^{th} grade on post-graduation labor market success. She also argues that part-time work poses an additional indirect effect on future labor prospects by inducing students to take more vocational classes, which further prepare them for the labor market.

While the majority of the work on part-time employment has been conducted in the United States, two studies find similar trends in other developed countries. Using longitudinal survey data from Australia, Robinson (1999) finds that having a part-time job during secondary school significantly reduced the length of unemployment following high school graduation. Hakkinen (2006) uses panel data of Finnish university students and finds that employment during university substantially increases earnings in the year following graduation. However, the effect quickly attenuates over time.

Theme 4.2: Do young people the lack information they need to enter the labor market?

A key strand in the literature on the underemployment of young people is their knowledge of the labor market and their manner of searching for work. Variation in the availability of information among job seekers may account for a large share of the heterogeneity of labor market outcomes. Because of their age and lack of experience, youths may experience an informational gap in the labor market.

The way that information is made available strongly conditions the ability of individuals to get a job. Personal contacts and social networks, by providing information, play a major role in the job search process (Mortensen and Vishwanath 1994; see also Ioannides and Loury 2004 for a review of the literature). Social networks operate on several levels, from merely passing on information about a job vacancy to providing a recommendation to an employer. Based on a series of studies that span the past three decades and use a variety of data sources from both the U.S. and other countries, Topa (2011) estimates that at least half of all jobs are typically found through informal contacts.

Youths, however, often lack access to beneficial social networks. Granovetter (1973) breaks down social networks into "strong" and "weak" ties, each of which has different implications for the job search. Strong ties, such as those among family and close friends, tend to have many other ties in common, so there may be information overlap. Weak ties act as a bridge, sharing information between two groups which interact less frequently. Weak ties may bring job seekers into contact with individuals who have a higher occupational status, and therefore they tend to be more productive in finding a job than strong ties (Yakubovich 2005). Montgomery (1992) distinguishes two reasons for this differential: weak ties relay job information more frequently than strong ties (Granovetter 1973), and/or job offers that come from weak ties may be drawn from a better distribution (Lin, Ensel, and Vaughn 1981). Since they do not have many

professional contacts when they enter the labor market, youths are more likely to use strong ties than weak ties and therefore be less successful in finding a job.

Recent empirical research has attempted to further investigate the relevance of networks for labor market integration. Munshi (2003) and Edin, Fredericksson, and Aslund (2003) find a positive relationship between the number of network members and successful labor market outcomes in the U.S. and Sweden, respectively. Beaman (2012) finds a more heterogeneous relationship between social network size and labor market outcomes: the impact of the size of the network depends on the length of time the other members have been part of the network.

Much of the recent literature has analyzed the role of neighborhood effects in labor market outcomes. Bayer, Ross, and Topa (2008) and Topa (2001) find a positive impact of social interactions among neighbors, and Calvó-Armengo and Jackson (2004) and Topa (2001) show that this effect is even stronger if more individuals in the neighborhood are currently employed. Being surrounded by social contacts that are also unemployed is likely to make it more difficult to find a job.

Recently, there has been increased interest in using mentoring programs to facilitate the development of important social networks for youth. In France, an ongoing randomized experiment tries to assess the impact on employment of providing youth with a mentor versus providing youth with information about current job openings, the content of the jobs, and the required skills (Cahuc et al. ongoing).

In order to improve youth's labor market integration, we need both more evidence about the effects of networks on the labor market integration, especially for the youth, as well as more programs, similar to that in France, to build networks or integrate youth into existing networks.

Theme 4.3: How does the lack of information about young people's ability shape the demand for young inexperienced workers? How can they signal themselves on the labor market?

As noted by Autor (2008), the main problem of information in the labor market is asymmetric information. When there is asymmetric information, low-quality workers exert a negative externality on higher-quality workers. For example, due to the large variation in quality for vocational schools in Egypt—which makes it difficult to assess the signal value of vocational school— employers are especially hesitant to employ vocational school graduates (van Eekelen, de Luca, and Ismail 2001). The problem of asymmetric information may be especially important for young people because they may have few ways to signal their quality; this is a reason why labor market intermediaries play a so strong role in the functioning of labor markets. Being able to credibly signal one's own productivity may be a key asset in the success of one's job search, and producing referrals is one of the possible ways to do so. Therefore, one possible avenue for policy is building a credible system of referral. What follows is a review of evidence about the signal effect of referrals in the labor market.

Pallais (2011) conducted a field experiment in a large online marketplace known as oDesk. She provided randomly chosen young people registered at the online marketplace with jobs, and for a subset of them she provided information about the quality of the work they did. She was then able to measure their occupation rates and their reservation wages, the minimum wages at which workers are willing to work. The results show that having a first work experience is in itself a good signal in the labor market, and that workers signaled as high quality fare better than others, with higher occupation rates and higher reservation wages. Thus, the observed effects are more related to information revelation than skill acquisition, supporting the view that improving signaling is a key labor market intervention.

Employee referrals provide another way to signal productivity, and may be a useful screening mechanism for employers to the extent that current employees refer people of similar aptitude. By relying on employees, employers can also ease the adverse selection problem. Individuals with employed connections will be more familiar with working conditions and routines and perhaps will have more realistic expectations about employment in a given firm. Recruitment and training costs are reduced and search costs are lowered on both sides.

A study of employers' treatment of job applicants (Culp and Dunson 1986) suggests that a lack of references is a significant adverse factor for youths looking for work. From the employer's point of view, a lack of a track record in the labor market adds to the uncertainty and risk involved in employing young people. Kugler (2003) presents evidence that at a sectoral level, employee-referred workers tend to have higher wages and lower quit rates, suggesting that referrals provide good matches and thus close information gaps between firms and potential employees. Using referral as the only method of recruitment would perhaps not be beneficial to disadvantaged youth, as it reduces the pool of applicants to those who have employed social connections and excludes those who are forced to take more formal approaches due to lack of contacts.

According to Fafchamps and Moradi (2009), employee referral could have three possible benefits: to aid information gathering (employee referral should help the employer with making a judgment on whether a person's unobservable characteristics will contribute to or reduce productivity); to increase productivity of future employees (the current employee will exert peer pressure or motivate the new recruit to be productive); and to reduce search costs. Using colonial-era military recruitment data from Ghana, Fafchamps and Moradi do not find evidence that referred employees had more productive unobservable traits and suggest that the motive for using a referral system is lower search costs. Evidence from a field experiment in India (Beaman and Magruder 2010) highlights the notion that employer incentives may not be aligned with network

incentives. If the employer incentivizes the current employee appropriately, they will tend to refer a more skilled person for a job; if not, the employee may be more likely to refer a friend or family member, with less focus on ability.

Ability testing and credential systems are two additional methods of revealing information about ability. In ability tests, the skills needed to perform a job are translated into a test, which enables employers to select higher-ability individuals. The organization of formal credential systems would allow the relay of information about candidates' performance to the labor market. These methods have not been rigorously tested, and more evidence is needed about the effects of ability tests on labor market integration of young people.

Theme 4.4: How strong are firms' beliefs about youth nonemployability? What role do these beliefs play in their willingness to employ youths?

In the absence of adequate information about young people's ability, beliefs may play a key role in firm decisions. Firms may have a depreciated idea about the productivity of young people, and this may reduce their demand for young people as employees and, more generally, negatively affect the integration of youth in the labor market.

Analyses of discrimination often attempt to distinguish between two sources of discrimination: statistical discrimination and taste-based discrimination. There may, however, be a third source of discrimination in which managers' beliefs that workers will perform poorly actually cause poor performance (a "self-fulfilling prophecy"). In an ongoing experiment in a large French firm (Pallais and Parienté), the beliefs of managers about the abilities of women and disadvantaged groups are first measured using an implicit association test (IAT). Then, workers are randomly assigned to managers. After three months, objective measures of worker performance are collected, and workers and managers are surveyed about the employment experience. This experiment allows the researchers to answer several questions. First, do women

and members of disadvantaged groups perform more poorly if they are assigned to a manager who is biased against them? If so, what is the mechanism though which managers' beliefs affect worker performance (e.g., do managers assign workers they are biased against to worse tasks or spend less time training them)? Finally, given the importance of managers' evaluations on workers' employment trajectories, managers' evaluations of workers will be compared to objective criteria on workers' actual performance to test whether managers give workers they are biased against poorer evaluations than are warranted.

5. Location, Neighborhood, and Mobility

Theme 5.1: What is the role of location in labor market integration? How strongly do spatial mismatches affect the labor market outcomes of young people?

One obvious issue related to integration into the labor market is physical access to areas were employment opportunities exist. The *spatial mismatch hypothesis* attempts to explain minority low-skilled workers' underemployment by the fact that they are physically disconnected from job opportunities. In its original form, this theory is concerned with the employment gap between whites and blacks in the U.S. However, it raises some larger questions about access to work. Many reasons are proposed in the literature to explain spatial mismatch (see Gobillon, Selod, and Zenou 2007 and Ihlanfeldt and Sjoquist 1998 for a comprehensive review). First, longer distances to jobs induce bigger costs to become employed. High transportation costs to reach employment areas or employment agencies may exceed the benefits of searching for a job (Holzer, Ihlanfeldt, and Sjoquist 1994). The costs of relocation near job opportunities may also prevent the unemployed from searching actively (Smith and Zenou 2003; Wasmer and Zenou 2006). Getting information on jobs can also be costly, and informational frictions are likely to increase with physical distance (Ihlanfeldt 1997).

A second channel through which location may negatively impact integration is residential discrimination. Living in a deprived area may represent a bad signal in the labor market. The term *redlining* was coined as a name for the practice of excluding people living in certain areas from access to credit. Similarly, employers may be reluctant to hire workers from segregated areas on the basis of prejudice, leading to *sheer discrimination*. Or they may consider that such workers are, on average, less productive than others, which is called *statistical discrimination*. For instance, employers may think that the productivity of workers decreases with distance to jobs (Zenou 2002), because of tiredness or lateness induced by high commuting time.

A bad location is *a priori* detrimental to everyone; however, some groups may be more affected by the mechanisms described above than others. The literature traditionally focuses on black people and/or on the poor. The youth may also suffer more than other individuals from a bad location since they are also more likely to be at a greater informational distance from job opportunities.

Many programs, especially in the U.S., have tried to cope with these spatial issues. Three types of policy intervention can be distinguished. The first idea is to move people closer to employment areas. In the U.S., this has typically meant moving them from (usually black) inner cities to (predominantly white) suburbs. Examples include housing programs such as the Gautreaux initiative in Chicago and the U.S. Department of Housing and Urban Development's Moving to Opportunity program, which provided vouchers to low-income families to help them move from disadvantage areas to new neighborhoods. A second possibility is to improve transportation access for people living away from jobs (Holzer, Quigley, and Raphael 2003). A third policy response is to encourage firms to locate near deprived neighborhoods. This is the aim of enterprise zones, where firms benefit from preferential tax treatment in exchange for locating in designated zones.

Many studies have failed to find evidence that spatially-based policies are effective in reducing employment gaps (Hellerstein and Neumark 2011). However, most research to date has been confined to the population of U.S. blacks. More evidence is needed on the effects of all three types of interventions—moving workers, making transportation easier, and moving jobs—in other contexts.

Theme 5.2: Is it where you live, or whom you live with? What is the role of social networks in access to jobs?

An alternative hypothesis holds that labor market integration may not depend so much on where one lives as whom one lives with. Instead of a *spatial mismatch*, some studies refer to a *social mismatch* that could be spatially based. There is a great deal of evidence that neighborhoods have a large effect on integration factors. Crane (1991) proposes that social problems may spread in a neighborhood much like an epidemic. Using French data, Goux and Maurin (2005) find that school performance is highly correlated among children from the same neighborhood.

Using census-tract-based data, O'Regan and Quigley (1996) measure "exposure" as the probability for a member of a group that a randomly picked resident of his or her tract is a member of another given group. They show that exposure to whites increases the probability of employment for black and Hispanic youth, and that exposure to poor people decreases employment probabilities. Similarly, studying the impact of the Gautreaux program, Mendenhall, DeLuca, and Duncan (2006) find that location in a city or suburb did not significantly explain differences in employment outcomes, but that the composition of the neighborhood did.

According to Hellerstein and Neumark (2011), place-based policies "are largely ineffective in increasing employment, likely because spatial mismatch is not the core problem facing urban blacks, and because […] the role of labor market networks was weakened." Moving

blacks toward jobs, or creating jobs where they live, is unlikely to increase employment efficiently if it neglects labor market networks. Therefore, the authors recommend that spatially-based policies also target labor networks.

Some programs have tried to adopt this dual focus to encourage access to jobs. One such program is Jobs-Plus, which attempted to deliver an employment and training program within public housing developments. One of its core components sought to strengthen labor market networks among residents. In a final report, Bloom, Riccio, and Verma (2005) find a positive effect of the program on employment, although it is difficult to assess the specific impact of the network component of the program, which was called the "community support for work."

We need more attempts to develop local employment policies--for example, policies aimed at developing local labor networks, policies based on local labor networks, or policies aimed at developing local entrepreunership.

6. Labor Demand for Young People and Contracts

Theme 6.1: How do the features of employment contracts shape labor demand for young people?

The idea that labor contracts shape firms' labor demand is an old one. The duration of contracts, as well as the relative costs of hiring workers and the ability to terminate a worker's contract, all affect firms' choices in the labor market. If firing costs are too high, firms will choose to retain inefficient workers while perhaps overlooking potentially more productive individuals who are unemployed. Another possible effect is that firms may be reluctant to hire workers without knowledge of their ability to fill the job properly, in anticipation of the difficulty involved in firing them if they prove incompetent. In general, increased firing costs tend to reduce labor market turnover. These effects can be particularly magnified for youth, as asymmetric

information, which increases the deterrence effect of stronger employment legislation on employment, is stronger for young people.

MacLeod (2011) and Kahn (2007) recently surveyed hundreds of studies looking at the effects of employment legislation on employment outcomes for European countries. Most of these follow the Organization for Economic Cooperation and Development's (OECD) seminal work on the computation of indexes of employment policy legislation and their correlates with employment across countries and time. These studies generally find little relationship between the type of legislation and employment, and despite the tremendous work devoted to collecting and synthesizing information about employment legislation, these relationships are not likely to identify causal links between employment legislation and employment outcomes. Other studies have examined the impact of legislative changes that focused on specific segments of the economy. For example, Kugler (1999) examines a 1990 reform in Colombia that lowered dismissal costs in the formal but not the informal sector. She finds an increase in labor market turnover in the formal sector compared to the informal sector. Similarly, Kugler and Pica (2008) study the effects of Italian reforms of 1990, which increased dismissal costs for small firms relative to larger firms. They find the policy change reduced hires and fires for small firms relative to larger firms.

Other studies examine regional differences within a country. For example, Besley and Burgess (2004) show that state-level changes in employment protection in a pro-worker direction induced lower output, employment, investment, and productivity in registered or formal manufacturing in India. They also show that output in unregistered or informal manufacturing increased in those states. Magruder (2011) shows that a centralized bargaining system that requires that agreements in large unionized firms extend to nonunionized, smaller firms in South Africa has strong and significant negative effects on employment, mainly concentrated in small firms. Autor et al. (2004) find the adoption of wrongful-discharge protections by U.S. state courts

leads to a significant reduction in employment flows, capital deepening, and a rise in labor productivity.

Hiring and firing costs clearly tend to reduce labor market turnover. However, they may also cause firms as well as workers to be more confident that they will appropriate a fair share of the returns to mutual investment in the relationship, for example in training. This effect is largely determined by the nature of the employment contract. Temporary contracts, as they lower the cost of hiring, allowing firms a chance to uncover more information about their employees, may favor the employment of young people. The value to the youth of obtaining a temporary contract is questionable, however, as the introduction of temporary contracts may result in less investment in the youth's human capital, less training, lower wages, and, of course, less job security than a permanent contract would offer. There is evidence that temporary jobs pay less, offer less training, and are less satisfying than regular jobs (Booth, Francesconi, and Frank 2002; Kahn 2007). Furthermore, temporary contracts do not appear to be a pathway to permanent employment; rather, they are used as a substitute for permanent contracts.

Blanchard and Landier (2002) consider some partial employment protection legislation reforms in France that concentrated on relaxing regulation around the use of temporary contracts. They find that without also addressing legislation for permanent contracts, this kind of partial reform had perverse effects: the probability of a fixed-term contract increased, but there was also higher turnover without a shortening of the average unemployment period. Even if employers find what seemed like a good match, they may still rather kept staff on temporary contracts than risk offering a permanent contract with higher firing costs (although this probably depends on the skill level of the job and the tightness of the labor market). There is empirical evidence from Spain (Dolado, Garcia-Serrano, and Jimeno 2002) that partial reforms introduced in the 1980s helped drive the incidence of temporarily employed workers up to over one-third of the workforce, the highest in the EU. High turnover and low conversion of temporary into permanent

jobs suggest employers may have been using the temporary employment mechanism as a way to make less costly adjustments to the economic environment, rather than as a means to estimate whether the worker could be a good match for a more permanent position. This high share of temporary contracts persisted into the nineties, when a more balanced reform was enacted.

Another possible avenue for policy is to concentrate reforms on specific demographic groups, such as young people. If there is a negative interaction between high fixed costs of hiring and firing and asymmetric information, and if asymmetric information is larger for certain demographic groups, then the negative effects of employment protection on job flows will be magnified for that group. Policy-induced changes in the structure of contracts can have strong effects on the relative demand for workers from at-risk groups. Kugler, Jimeno, and Hernanz (2005) study the effects of Spanish reforms in 1997 that reduced dismissal costs for permanent jobs for young and senior workers. They found a relative increase in permanent employment for these groups. Acemoglu and Angrist (2001) show that changes in employment protection reforms concentrated on disabled workers also have large effects on relative employment flows for those workers.

One key issue associated with changes in contracts for specific demographic groups is that they are likely to induce substitution effects. Easing firing and hiring rules for some groups may increase the demand for these groups, but simultaneously reduce the demand for other groups. It is important to account for these potential displacement effects.

Some aspects of contract features and their impact on demand for youth need to be explored in further detail, such as the nature of temporary-contract jobs for youth and their impact on human capital investment: Do they lead to greater integration in the labor market, or do a succession of short-term contracts weaken their attachment and wage/career possibilities? What are the optimal contract features needed to engage youth in the labor market?

Theme 6.2: How strongly is minimum wage binding for young unskilled people? Are subsidized jobs efficient in fostering labor demand for youth? How can a subsidized youth employment program be efficiently organized?

Much as higher asymmetric information and high fixed costs of hiring and firing may combine to reduce the demand for young people's labor, the low experience levels of young people can interact with minimum wage laws to reduce the demand for younger workers. If young people have less experience and are indeed less productive than other workers, then firms should be willing to offer them lower wages upon their entry into the labor market. However, the distribution of wages, even for those with more experience, is often strongly concentrated around the minimum wage. Although some youth are prepared to work for below the minimum wage to compensate for their lack of experience, the market wage of young people cannot adjust and they are often excluded from the labor market. Many policies have been proposed to offer some wage adjustment, either different minimum wages for young people or offering labor tax reductions so as to lower the labor cost, keeping the wage unchanged.

Subsidies for young unskilled workers are a frequently implemented policy. However, not much is known about their effects. This type of policy potentially has both direct effects through increased hiring rate of young people and indirect effects on hiring rates of workers of other demographic groups. One common policy involves targeted subsidies for specific jobs that are paid as long as the job is filled with a young worker. This section will cover such subsidies for young people. Specific subsidized jobs will be considered in the following section on Active Labor Market Policies.

There are many issues associated with minimum wage subsidies for young people. The first is that we do not know how sensitive the demand for young unskilled people is to wage. There are no studies examining effects of programs specifically targeted to the youth. Katz (1998)

evaluated the Targeted Jobs Tax Credit (TJTC) in the U.S., a two-year program targeted at vulnerable and disadvantaged workers (among which are disadvantaged youth), which offered a wage subsidy of 50 percent in the first year, and 25 percent in the second year. The program increased employment for both disadvantaged youth and other disadvantaged workers by 7.7 percent.

Wage subsidies may also induce substitution among workers rather than create new jobs. When a subsidy is introduced, it could increase the demand for youth, but at the expense of incumbent workers (Gustman and Steinmeier 1988). At the limit, introducing a wage subsidy could, in theory, shift the demand for new hires to young unskilled people without an increase in the total number of new hires. It is also possible that with a large part of the subsidy accruing to inframarginal hires not related to the subsidy, the demand for new hires among young unskilled people would only increase slightly.

One common drawback of these policies is to subsidize employment positions for young workers that would have been employed even without the policy. Because of this deadweight loss effect and because of possible substitution effects, the cost and benefit balance is not clear. We do not have any information about balance. Cost benefit analyses of this type of policy are strongly needed.

An important potential element of subsidy programs in developing countries is the impact of such subsidies on the formalization of jobs. In developing countries with poor institutions and large labor forces, there is a strong incentive to employ workers from the informal sector, which implies that some youth may be working but not registered as such in the data. Subsidizing wages could incentivize employers to move from the informal to the formal sector, register their employees, and thus produce a positive employment effect in the data. Evidence from two

subsidy programs in a developing country, Turkey, appears to confirm this hypothesis (Betcherman, Daysal, and Pages 2010).

Another open question is how to practically implement wage subsidies. There are several possibilities. One is through tax reduction, which impacts all participating firms and all of their eligible workers. Another possibility is to identify vacancies suitable for workers in the targeted group (such as young and unskilled workers); usually this is done jointly by caseworkers and the public employment agencies that are responsible for the implementation of the program. The public employment agency then matches targeted workers with these eligible vacancies. A final possibility is to identify eligible workers and then provide them with a voucher that they present to firms in an interview or mention when applying.

We have little knowledge about the effects of these policies and the differences between them. Voucher systems seem difficult to implement, with a lot of implied administrative costs for firms. In several attempts to implement voucher policies, a very low claim rate of the subsidy has been observed. Similarly, one observed feature for the tax reduction method is a low rate of claim of implied reductions.

7. Active Labor Market Policies (ALMPs)

With the intention of reducing unemployment, including youth unemployment, governments around the world have implemented many different labor market policies. These can be organized under three main categories: employment services, labor market training, and job creation. There has been a great deal of research effort devoted to evaluating the effects of these policies. Card, Kluve, and Weber (2010) and Betcherman, Olivas, and Dar (2004) provide very useful overviews of the results to date. In general, the evidence is not very supportive for active labor market policies (ALMPs). Although the review by Card, Kluve, and Weber did not identify any single

measure that had a significant effect across the studies surveyed, it does rank the interventions by effectiveness. Overall, subsidized public sector employment programs are found to have the least favorable estimates; there is little evidence that job search assistance programs work in the short run; and training either on or off the job provides better results in the medium-to-long run than in the short run. One clear result from the literature is that programs specifically targeting an age group within the population, such as those under 25 or over 25, are found to be significantly less efficient. The overall picture is that ALMPs fail to properly address the needs of young people.

However, the evidence from these evaluations suffers from several problems. First, they have been obtained using nonrandomized methodologies, which may result in biased estimates of program impact. This is especially true of public work programs, which are usually assigned to unemployed individuals who are very detached from the labor market. Second, the evidence was usually obtained using very large administrative files. This has some drawbacks because, as noted by Card, Kluve, and Weber (2010), the outcome variables one can obtain from these files are very poor. Frequently these files record only exit from unemployment, without information on the type of exit and the type of resulting contract. Another drawback of these files is that the programs evaluated are classified under very broad and aggregated categories, making it difficult to precisely understand the effect of specific interventions.

Theme 7.1: Employment Services

This broad category covers interventions designed to improve the matching between job seekers and employers. The basic objective is first to shorten unemployment spells, but also to provide young people with a real first job experience. Employment services usually include both assistance in the job search and monitoring. Providing unemployed and especially young people with a reinforced counseling scheme has been a major direction of public employment policy in

developed countries. These services are usually provided by public employment services, but in some circumstances, they may be offered by other labor market intermediaries.

Results in the literature tend to find limited, though usually positive, effects of counseling services. In general, our understanding of the precise effects of these policies has been limited by the fact that usually a broad set of services is evaluated, rather than a precise program intended to have a specific effect or to assist a specific population. The few existing RCTs related to counseling services tend to show positive results. In France, two large random experiments show large effects of counseling services in the short run, but not in the long run. This suggests that counseling services helped the unemployed to find a job, but that the job did not provide them with sufficient labor market experience. These experiments also found that when counseling services were provided by private operators, features of the councilors' contracts strongly shaped job seekers' performance. However, overall, given the same incentives in councilor contracts, job seekers performed less well than when the same program was offered by the public sector. One of the experiments in France detected potentially large displacement effects. The potential conclusion from these experiments is that counseling programs can be successful in the short run, but there is a potential to increase their efficacy in the long run. Given the large displacement effects, counseling services may act more like redistributive policies - the population that benefits the most from them would be those more detached from the labor market. However, these results must be confirmed by new experiments.

There are several potential research directions that can increase our knowledge of employment programs:

Does providing youth with employment services improve their labor market prospects?

This issue is especially relevant in developing countries, where frequently no services are

provided to young people.

Can employment services increase the motivation of young job seekers?

Motivation plays a key role in the intensity and the efficacy of search behavior. Young people who are far removed from the labor market can have very low motivation and little confidence in the advice given to them, including career advice. There are several ongoing experiments in France and Denmark that are testing various ways to foster the motivation of young people.

Program content: what channels of the job search should counseling focus on?

The standard job search channel in many counseling schemes is through vacancies posted at the Public Employment Service or collected by a private intermediary. Beyond just providing a list of vacancies, reinforced counseling amounts to helping young people choose suitable job offers and apply to them. It may also involve providing young people with information about which sectors are providing jobs and what skills they need. Having the right skills or being on a track to acquire them is the key issue. However, there are also informal search channels, in which just knowing the right people is the key determinant of finding a job. In many developing countries, this is often seen as the only way to find a job. Facilitating job searching through this channel is accomplished primarily by providing young people with mentors. There is currently an experiment underway in France comparing the outputs of these two types of search channels.

Program content: what are the effects of counseling versus monitoring?

Frequently, programs are a mix of counseling and monitoring an applicant's attendance and effort in the job search process. It is important to disentangle the effects of these two aspects of these interventions. Attending regular monitoring appointments is often compulsory and may be accompanied by sanctions (e.g., reduction or termination of unemployment benefit) if a lack of search effort is observed. The threat of sanctions in the event of non-compliance in the job search appears to increase exit rates from unemployment *ex-ante* (Svarer 2007; Lalive, van Ours, and Zweimuller 2005). However, this increase in exit rates may come at the expense of the quality of the jobs found. Arni et al. (2009) show that the threat or enforcement of sanctions has a positive effect on exit from unemployment, but leads to a reduction in the quality of the position found, both in term of job stability and earnings.

Meetings with caseworkers may also have both a counseling and a monitoring effect. It is during meetings with the unemployed that the caseworker gets information about search effort and gives new directions. Pedersen et al. (2012) use a set of randomized experiments to measure the *ex-ante* threat effect of the meeting and the *ex-post* effect. They find large *ex-post* effects of meetings and large *ex-ante* threat effects for men.

How should programs deal with the dropout problem?

Counseling services may require a commitment from participants over a significant period of time. Due to time inconsistency, financial constraints, or a reduced perception of the value of the counseling scheme, young people often drop out of the program. What incentives can be provided to prevent youth from dropping out of programs? There is currently a program in France that provides young people with cash transfers conditional on their continued participation in their counseling scheme.

The role of caseworkers

Although we do not know much about the impact of caseworker skill on their success in counseling young people, the outputs of counseling programs seem to depend strongly on caseworker effort. Behncke, Frolich, and Lechner (2008, 2010) show that caseworkers matter. Outcomes for the unemployed appear to be related to the caseworkers' beliefs about their role and the characteristics that they may or may not share with the unemployed. This tends to show that the motivation and type of effort put forth by the caseworker affect the efficiency of services.

Who should provide employment services?

Existing labor market programs and the intermediaries that they rely on are quite heterogeneous: some programs are operated by the public sector and others by the private sector. In general, there is great variety in the organization and regulation of the market of intermediaries. Identifying the effect of these different arrangements on the success of various interventions is a first-order issue. A related question is how programs might use the strong sensitivity of private operators to their contract to improve labor market outcomes.

Do ALMPs provide a pathway for long-lasting jobs, or do programs just provide short-term solutions with little long-term impact?

The hypothesized "stepping stone" effect is an important one for research. The basic idea behind these programs is that labor experience allows young people to increase their skills, making them productive enough to find jobs by themselves in the future. It would be interesting to know the extent to which the stepping stone effect exists, and whether the implementation of these policies helps reduce the problem of asymmetric information. Research should focus on the effects of employment programs on the quality of matches and the duration of employment.

Theme 7.2: Labor Market Training

One of the most popular explanations for youth unemployment is skill mismatch: there are skills needed and valued in the labor market, but these are not the skills youth have. Providing young people with the right skills through training is therefore seen as a major policy priority.

Overall, the picture arising from the literature is that training is not effective. Reviews in Card, Kluve, and Weber (2010) and Betcherman, Olivas, and Dar (2004) show that training has little effect, though some studies in Germany find positive results in the long run (Fitzenberger, Osikominu, and Völter 2007;, Lechner, Miquel, and Wunsch 2004). We do not know the reasons for this general failure, partly due to the fact that although there is great heterogeneity among training programs, only the effects of broad categories have been evaluated. Nevertheless, there remains a feeling that training must be a key component of youth labor market integration, given the large gap between the very low skill level of young people and the needs of firms, especially in developing countries.

Some encouraging results have been obtained from the few RCTs that have been conducted on training programs to date. Schochet, Burghardt, and McConnell (2008) carried out an experimental evaluation of Job Corps, a national training program in the U.S. for disadvantaged youths. This appears to be one of the few studies in a developed country with clear

positive results. The program was designed to provide general education, social skills, parenting and health education, as well as vocational training. Job placement services were also provided. The training took place in local centers, and participants primarily resided at these centers for the duration of their program. About 70 percent of the control group was enrolled in some other type of non-Job Corps training or schooling. Results showed improved educational attachment: participants spent more time in school or training than they would have had Job Corps not existed. Employment rates and earnings also increased for youth in the treatment group compared to those in the control group in the initial years after training. Program benefits seemed to fade after the first initial years of training, except for the oldest program participants. Furthermore, while individual outcomes improved, the overall cost-effectiveness of the program may be questionable.

Programs in the developing world that have shown some qualified success also use a balanced combination of measures: a mix of classroom training and on-the-job, internship-style vocational training targeted towards the most disadvantaged youth. A randomized trial in the Dominican Republic found that job training had a positive, albeit unsustained, effect on wages (Card et al. 2011). A more recent randomized trial using a larger sample in Colombia found stronger impacts (Attanasio, Kugler, and Meghir 2009). The program, called "Jóvenes en Acción," involved three months of classroom training, undertaken by private agencies, followed by three months of vocational training in a private company. The probability of employment rose and wages were, on average, higher for program participants, especially for women. However, we do not know whether this positive effect is due to the vocational training, the internship, or the combination of the two. Training may improve the productivity of young people, but internships may reveal useful information about the quality of a match.

We need to understand why the overall picture about training is so mixed. One possibility is that most studies have looked at training as a broad category, and there is a lot of heterogeneity

in training programs. Besides answering the question of whether training improves the labor market prospects of young people, research should explore what makes training a more valuable investment for youth.

How can high-quality training be promoted?

The quality of training varies considerably, and there is a tradeoff between offering high-quality training to a few people and offering cheap training to a larger set of people. Low-quality training may also be more common since trainers often have poor incentives to provide youths with the right skills. It would be interesting to have experiments where trainers are or are not offered incentives to provide high-quality training.

Haan and Serriere (2002) examine a number of training programs focused on informal sector employment in five countries in West and Central Africa. They find that most training programs and vocational institutions are underdeveloped and fail to focus on the job-relevant technical training that youth desire. Training programs that develop short courses which focus on technical skills have greater take-up rates and increase household income substantially. In Niger, a post-primary training school increased pass rates on a national exam. In Cameroon, a widespread training program coupled with financial assistance helped 54,000 people find employment. However, the true impact of the programs is unknown, since these findings were nonexperimental and selection bias could have confounded the results. Many interviewed entrepreneurs mention that in addition to technical skills, training programs should teach youth about bookkeeping, management, and marketing.

Since training programs and vocational institutions are extremely underdeveloped and inaccessible to most youth in Africa, apprenticeships constitute over 90 percent of all training. But low levels of education on both the teacher's and the student's part restrict the ability of the

student to obtain the necessary skills and knowledge to obtain employment. If teachers are paid a yearly fee for each apprentice, they have incentive to keep apprentices for as long as possible. Often teachers delay teaching apprentices skills crucial to the trade, and even take proactive measures to prevent apprentices from learning. Making the existence of training programs widely known and accessible is essential if policymakers wish to improve the employment prospects of youth in developing countries (Haan and Serriere 2002).

How should youths be assigned to training?

Assignment to a specific training course is usually made by caseworkers. There is room, however, to test different ways to make these choices, including providing youth with information about skills needed in different sectors and allowing them to upgrade their skills on their own, and providing them with vouchers to finance a training of their choice.

One ongoing experiment tests the idea that young people may efficiently make job placement decisions themselves. Blattman et al. (2011) randomly assigned self-organized groups of youth in Northern Uganda to receive cash transfers to use on vocational training or materials to practice a craft. Groups that received the treatment, on average, received 405 more hours of training and acquired US$300 more in assets. Blattman et al. find a sizable increase in the labor force attachment of those in the treatment group, as well as positive effects on social cohesion within the community. On average, individuals in the treatment group were almost 100 percent more likely to be employed at a skilled job, their earnings were 50 percent higher, and their average hours spent working increased by a third.

How can demand for training be fostered among young people?

Evidence shows that the demand for training is very low. In sub-Saharan Africa, youth have limited information about relevant training programs and are reluctant to enroll since being away from work reduces sales and jeopardizes their business (Haan and Serriere 2002). In developed economies, some evidence suggests that training is seen almost as a disadvantage, and that people leave unemployment programs when assigned to training. For example, Black et al. (2003) show that the threat of training may induce people to exit from unemployment programs. This may also reflect a low perceived value of skills as a way to find a job as compared to the perceived value of having a good network.

Alternatively, the "threat" of being obliged to complete a training program may increase the rate of transition to employment. An early intervention program was initiated in Sweden in which youth under 25 years old who were registered as unemployed for 100 days were guaranteed participation in a training program set up by municipalities. In their analysis of this program, Carling and Larsson (2005) find that after the implementation of the program, the probability a youth found work in the first months after becoming unemployed (i.e., before the 100 day threshold for program enrollment) rose. This indicates that the implementation of the program functioned more as a threat than as a path to employment in itself.

An apprenticeship is a longer-term training (usually two years) in which young people enter into a contract with a firm and often divide their time between the firm and a training center. Apprenticeships are commonly seen as high-quality training; however, the effects of apprenticeships on labor market prospects are not well known and policymakers may take for granted that they improve the labor market prospects of young people.

Apprenticeship programs raise several issues and complications. First, the initial matching of young people to firms may be difficult; youths are very often unable to find a firm willing to offer them an apprenticeship contract. Issues about the contract features, such as the balance of time between the firm and training and the wage level subsidy, likely affect firms'

demand for apprentices. Due to the high demand for and difficulty of finding apprenticeships, many young people fail to find a firm in their sector of choice and end up working in a different sector. This may sidetrack youth into a type of work for which they are not a good long-term match, even if it reduces short-term unemployment. Under such circumstances it is unlikely that there would be a "stepping stone" effect leading to more positive long-term job market outcomes. Therefore, alternative models of long-term vocational training need to be investigated.

Another issue for apprenticeships is the dropout problem. If the relationship between youth apprentices and managers deteriorates, young people may have to find another firm or may drop out of employment altogether. Young people with limited exposure to work life, especially those coming from more disadvantaged backgrounds, may have insufficient knowledge of the expectations of employers and adequate behavior in the workplace. This often translates into conflicts between employers and employees and short job tenure. Here also alternative models of long-term vocational training could be considered. One attempt to close this gap currently being tested in France is to assign young people to a mentor who is in charge of developing a good relationship between an apprentice and a tutor within the firm, and guiding the youth and the firm concerning the expectations they should have about each other's demands and behaviors.

Bruhn and Zia (2011) find mixed effects of a training program on business outcomes. They examine a program designed to encourage young entrepreneurs to make capital investments in businesses, and it worked: individuals randomly assigned to the treatment group were 11 percent more likely to undertake new investments. Business practices, loan terms, and investments also improved. Those who had low financial literacy in the beginning of the program exhibited improved financial knowledge, and those with higher financial literacy in the beginning of the program improved their business performance and sales. However, the businesses of individuals randomized into treatment were not more likely to survive than those randomized into control. The authors conclude that business training programs were insufficient to promote

business growth in emerging markets, but were nevertheless a necessary component to improving youth business outcomes.

Theme 7.3: Employment Subsidies

Employment subsidy programs are designed to create work opportunities for targeted beneficiaries by subsidizing firms to employ them. The subsidy is intended to compensate the firm for the potential lower productivity of youth hires as well as screening, orientation, and initial training costs. Some projects involve an additional training period for the youths outside of their employment with the firm. Ideally, these interventions would improve the employability of beneficiaries by the end of the program, creating a stepping stone to find jobs by themselves. These programs might also enable firms to screen workers, identify the most able, and offer them a more long-term position. There are various ways to implement this type of policy, ranging from tax reductions for hiring employees from an eligible population to vouchers distributed to the unemployed. One common difficulty with these policies is very small take-up rates: many firms do not claim their tax refund or understand how to use the voucher.

The main finding shared by many evaluations of employment subsidy programs, and by Card, Kluve, and Weber (2010) and Betcherman, Olivas, and Dar (2004), is the absence of any long-term impact. This result is, of course, shared with many other ALMPs. In developed countries, it is unclear if even the short-term effects of employment subsidy programs are positive, suggesting that there may be potentially sizeable deadweight losses. However, randomized experiments suggest more positive impacts of employment subsidy programs, at least in the short run, especially when combined with other components, such as training or job-search assistance. Galasso, Ravallion, and Salvia (2001) evaluate a randomly assigned wage subsidy scheme targeted to workers in temporary employment in Argentina. The program, called Proempleo, subsidized 50 percent of the first 18 months of wages for workers employed in

permanent, regular jobs. The results show that the program helped low-wage workers find regular wage employment. Interestingly, these effects were statistically significant only for women and youth. One striking feature of this study is that, as usual, few firms actually claimed the subsidy, suggesting that there is room for improvement in the implementation of these policies, possibly by reducing administrative costs.

The cost of employment subsidies may exceed the expected benefits. Levisohn and Pugatch (2009) use data from unemployed South African youth to demonstrate that the high rate of unemployment in youth is in part due to the fact that youths' reservation wages exceed their offered wages, especially for high-ability youths who value their abilities more than the labor market does. An employment subsidy causes youths' reservation wages to increase, but modestly enough for the subsidy to still increase accepted wages and shorten unemployment duration. However, the authors question the cost-effectiveness of such a policy, since it's unclear as to whether the benefits exceed the costs.

Can subsidized employment programs be improved to help young people durably integrate into the labor market? How strong are displacement effects?

There may be a large number of reasons for the failure of subsidized employment programs, which suggest different solutions:

- Beneficiaries do not reach the skill level necessary to find a job by themselves at the end of the program because the experience accumulated during the subsidized job is not sufficient. Changes in the type and duration of the job may improve the relevance of the experience accumulated.
- Beneficiaries do not accumulate experience because they are not sufficiently motivated by the job. Providing beneficiaries with incentives—for example, through conditional

renewal of the contract—is one way to address this problem. Another solution may be to provide beneficiaries with "soft skills" training, with the intention of increasing the perceived social value of being at work.

- Beneficiaries are not able to communicate effectively about their experience and signal themselves convincingly to the labor market after completion of the subsidized job. A possible solution would be to provide participants with referrals and counseling about how to communicate their experiences in their CVs and in interviews.

Finally, little is known about substitution effects within firms induced by these programs, but the displacement of nonsubsidized employees is likely important. Evaluations of the effects of subsidized jobs at the firm level, not just at the worker level, would be useful.

Theme 7.4: Public Works Programs

Some countries struggling with extremely high rates of youth unemployment have resorted to direct employment programs. These programs are often politically attractive because they appear to be the only way to have first-order effects on unemployment. By enlisting unemployed youth to work on short-term projects aimed at developing economic and social infrastructure, such as building restoration and the construction of roads and channels, public work projects aim to expand local infrastructure, which would create permanent jobs. However, Kluve (2010) and Betcherman, Olivas, and Dar (2004) conclude that direct employment programs in the public sector are rarely effective and, in fact, are frequently detrimental to participants' future employment prospects. Moreover, these programs are especially costly and attract almost exclusively males due to the nature of the work (van Eekelen, de Luca, and Ismail 2001). A natural policy implication of this research is that these programs should be discontinued, but political pressures are often such that the programs are difficult to close. Given the political

context, can the objectives of direct employment programs be broadened to encompass future employability?

What is the effect of public works programs when measured with rigorous experimental methods? Are these programs cost-effective?

Public works programs are a case where addressing selection bias probably requires the use of randomized methods. Eligible participants for public works usually have very low labor market prospects, suggesting that nonexperimental estimates of their impact are likely biased downward. Unfortunately, most of the results to date in the literature have been obtained using less rigorous methods.

One example of a randomized evaluation of a public works program is that of the Community Employment Innovation Project (CEIP) in Canada. CEIP beneficiaries are eligible for three years of work in order to afford them a meaningful longer-term employment experience. Although no long-lasting effects have been found, the program was found quite effective in the short-run, which is much more promising than the usually negative effects found in the nonrandomized literature.

Another point worth noting is that, as these public works programs are often seen as a safety net (in addition to a labor market program), it would be valuable to undertake a comprehensive cost-benefit analysis, including a large set of potentially omitted costs and benefits. It would be especially worthwhile to account for effects on consumption, education, health, crime, and labor supply at the household level.

One such example from a developing country is Attanasio, Meghir, and Vera-Hernandez (2007) which accounts for the impact of the Colombian workfare program Empleo en Accion on individuals as well as household earnings. Attanasio, Meghir, and Vera-Hernandez show that

participation in the program increased household income by more than the increase in the individual earnings of participants. Therefore, participation in the workfare program generated positive externalities for household members other than the participant. The effects remained significant six months after program completion for participants in small towns, but became insignificant for the rest of the sample.

Imbert and Papp (2011) find that a public works program in rural India increased public employment by 0.3 days per month for prime-aged, low-skilled people living in poorer districts. Wages for casual laborers increased by 4.5 percent in poorer districts and 9 percent in states that implemented the program the most efficiently. The program induced an increase in equilibrium wages in the private sector and generated sizable welfare gains to the poor overall. Effectively, the wages redistributed income from net buyers of labor, richer households, to net suppliers of labor, poorer households.

How can the future labor market prospects of public work beneficiaries be improved?

Variations on public-sector employment programs should be tested to help us understand why these programs typically do not work in the long-run and how they could be made more effective. For example, one hypothesis could be that the public-sector jobs do not provide valuable labor market experience because they are not interesting, inspiring, or motivating. One could assess this possibility by comparing the effectiveness of these programs across different types of jobs, or by assessing the impact of combining public sector jobs with soft skill training programs aimed at increasing self-esteem and the perceived value of public employment. Another potential hypothesis is that the nature of public sector jobs makes it particularly difficult for participants to signal the experience they have accumulated to potential private-sector employers later on. One could consider combining public sector employment with the production of a credible referral that could be used by participants as they exit the program and start looking for their next job.

Do public work programs have perverse effects on private sector employment?

One common criticism of public work programs is that they crowd out private-sector activity.[6] In order for public works programs to reach a large enough scale to be effective, they frequently have to diversify the type of work activity offered, which may involve some activity close to the private sector. In India, Imbert and Papp (2011) find evidence suggesting a one-to-one crowding-out effect of public works programs on private sector work.

Provision, or even the hope of provision, of public work positions may also have disincentive effects on labor supply, though Attanasio, Meghir, and Vera-Hernandez (2007) did not find evidence that Empleo en Accion crowded out the labor effort of family members of program beneficiaries. Research looking at the effects on labor supply in the neighborhood or the family of public work beneficiaries would shed light on this issue. Further studies could also experiment with different provision rates within pre-identified neighborhoods.

In summary, given the political attractiveness of public sector employment, rigorous cost-benefit analysis should be undertaken. Further research should be targeted towards discovering

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[6] Besley and Coate (1992) present a case for instituting work requirements in government poverty-alleviation programs. They argue that workfare would generate both a screening effect and a deterrent effect. Under the screening effect, workfare can be used to target transfers to only those individuals who truly need the assistance. Such an outcome is particularly desirable since governments do not know individuals' earning-opportunities function—that is, governments cannot identify whether a poor individual is poor because of low human capital or if she chose to reduce her work hours so as to qualify for government assistance. Workfare may exert a deterrent effect in that it is more likely to encourage individuals to escape poverty than public assistance, which doles out cash transfers and incents individuals to remain poor.

Besley and Coate formalize an economic model which assumes that high-ability people can work themselves out of poverty and that low-ability people cannot. Government assistance would therefore try to target transfers only to low-ability individuals. Besley and Coate demonstrate that workfare programs decrease incentives for high-ability individuals to mask as low-ability individuals, since entering into a workfare program makes high-ability individuals worse off than they would have if they did not enter into the workforce program. However, workfare programs do not decrease gains to low-ability individuals.

how to make these public sector employment programs more valuable experiences for unemployed youth.

Theme 7.5 Self-Employment and Development of the Informal Sector

A final type of program provides incentives to start businesses or to expand existing small businesses. The emerging literature on the impact of policies for the unemployed directed towards start-ups, entrepreneurship, and self-employment assistance is still light, particularly with regard to youth. Programs usually combine financial aid to the unemployed, either through direct cash transfers or reduced-rate loans, with mentoring or business training. Caliendo and Kritkos (2010) provides an overview of the evidence in this area, which tends to show increased labor market attachment even in the long run but no effects on earnings.

In many developing countries, the informal sector is a substantial share of the economy. As of 2001, in fact, most work in sub-Saharan Africa lay in the informal sector, which is responsible for 60 percent of urban employment in Ghana and Senegal and 80–90 percent of nonagricultural urban employment in Benin, Cameroon, and Niger. Informal sector workers are overwhelmingly low-educated and low-skilled, which contributes to the low productivity of the informal sector. However, that is starting to change, since educated youth are increasingly opting for informal work due to limited employment opportunities in the public sector and the formal private sector. Women usually participate more in the informal sector than men, yet training for informal sector work overwhelmingly favors males (Haan and Serriere 2002).

Nyshadham (2011) uses panel survey data from Thailand to assess whether households select into entrepreneurship because they have a comparative advantage in entrepreneurship as opposed to nonentrepreneurial labor (i.e., farm or wage labor). He finds significant evidence of heterogeneity in entrepreneurial abilities. Households learn about their comparative advantage in entrepreneurship over time, and choose entrepreneurial or nonentrepreneurial work accordingly.

Nyshadham concludes that policies which encourage entrepreneurship may not be optimal, since they may target nonentrepreneurial households that have low returns to entrepreneurship relative to alternative options for income generation.

Many programs provide business training to already existing, small enterprises. Using a randomized design, Karlan and Valdivia (2011) evaluate a business training program for a set of microfinance clients in Peru. The results are quite disappointing, as they find no statistically significant effects on business outcomes or employment. However, business practice and knowledge seemed to improve somewhat: client retention rates and loan repayment rates improved for the microlending program. While the preferred specifications did not detect significant effects, the difference-in-difference estimates detected a small increase in revenue for service and retail businesses. These effects were even stronger among the subset of clients with less initial interest.

There are currently several ongoing experiments related to business training and business start-ups. One is evaluating a program in France that provides young people from deprived suburbs assistance and counseling in starting firms or projects. A noteworthy feature of this program is its emphasis on the soft skills related to running a project.

Microcredit is a very popular intervention related to self-employment and business. However, evidence from the few randomized evaluations of microcredit programs has generally found only modest results: one RCT in India (Banerjee et al. 2010) and another in the Philippines (Karlan and Zinman 2010) find little effect. Another evaluation in rural Morocco (Crepon et al. 2011) finds small effects of microcredit on business development, and increased self-employment and formal employment. In Thailand, increased access to loans primarily improved business outcomes for the middle class (Nelson 2011). However, the results suggest that microcredit can

have unintended side effects, since increased access to loans also caused children to work longer hours. The increase in child labor persisted even 12 months after the initial loan.

Given the high potential of employment associated with the informal sector, how can policy foster the development of this sector?

Mechanisms to develop informal-sector businesses may include developing role models, and providing ideas and know-how about various potential self-employment positions. Another possibility is to provide incentives for firms in the formal sector to address demand in the local informal sector. The informal and formal sectors are not independent from one another: the decision to start a business is related to existence of jobs and wages in the formal sector, and labor market rules in the formal sector have effects on the development of the informal sector. Preference for a sector varies with age and experience. Narita (2011) finds that the rate of self-employment increases as individuals grow older since they are better able to find good business opportunities as their labor market experience increases.

Studies in South Africa and India point to labor regulation as a significant factor in explaining employment outcomes in the informal sector. Magruder (2011) looks at bargaining councils in South Africa, which can extend an arbitration industry-wide to cover all workers within a given district. If centralized bargaining in a town is extended industry-wide, as is the case in some industries in South Africa, entrepreneurship and employment may be discouraged. Magruder finds quite strong effects. Besley and Burgess (2004) study the impact of labor regulation reform across states in India on economic performance. Evidence shows that amendments to the industrial arbitration legislation in a pro-worker direction leads to lower manufacturing output and a larger informal sector accompanied by a rise in urban poverty.

Few small and medium enterprises (SMEs) expand into larger businesses even though together they command a sizable share of the economy. Lack of managerial human capital may limit the ability of SMEs to expand, particularly if it limits access to other resources, such as finance. In an ongoing study in Uganda, Fischer, Karlan, and Startz are evaluating an intervention that provides training services to female entrepreneurs. Improvements in business outcomes in the treatment groups may suggest that lack of managerial human capital is indeed limiting the growth of SMEs in Uganda. More systematic evidence is needed on the potential of such programs to help SMEs expand into larger businesses.

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