

Gender, Behavior, and Women's Economic Empowerment

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1. Introduction

While the processes of economic development and poverty alleviation can reduce some of the inequalities between men and women that arise when families and communities face extreme resource constraints, growth alone is not enough to guarantee women equal access to health, education, earning opportunities, rights and political participation (Duflo 2012). For this reason, a strong case can be made for policies and programs that seek to address gender-specific constraints to economic empowerment. Many of these constraints are external in nature, for example educational opportunities, access to financial services, and asset ownership. In addition, gender differences in internal constraints—psychological and behavioral preferences rooted in social evolution and cultural norms—may play an important role in shaping the choices that women make with respect to labor market participation, entrepreneurship, technology adoption, and expenditure and consumption patterns. This paper explores the evidence on gender differences in behavior and how program design can best utilize our growing knowledge about the nature of these differences to inform policy going forward.

One of the most exciting recent intellectual trends in the field of development economics is the incorporation of important insights from behavioral science into the understanding of economic decision-making. Indeed, the World Bank’s 2015 *World Development Report*, entitled “Mind, Society, and Behavior,” was devoted to exploring this paradigm, and how it can be applied in diverse policy areas such as early childhood development, household finance, and health. In the coming years, as the international development community moves away from classical assumptions about rationality and learns more about the complexities of cognition and identity, the influence of culture, and the biases and seemingly less than rational preferences characterizing human choices, we are sure to see increasing numbers of policies and programs being guided by behavioral design principles.

While this introduction of behavioral principles into the design of development policy is in many ways an extremely welcome evolution, little attention has been paid thus far to how gender equality might be served by behavioral insights. Insofar as attitudes and beliefs regarding fundamental behaviors such as competition, risk-taking, aspirations, trust and solidarity act as internal constraints to economic empowerment, and insofar as these behaviors are systematically different between men and women, it is important to harness the growing body of knowledge to inform gender-targeted policies and programs. Whatever the origins of these gender differences are, as Fletschner et al. (2010:1476) argue,

If women are systematically less prone to take risks or to compete we would expect that, compared to men of equivalent socioeconomic conditions, they will be more likely to opt out of a wide range of economic opportunities that are expected to yield higher returns but require them to be entrepreneurial, specialize in one or two sectors, take out loans, make relatively large investments of capital, and become more vulnerable to changes in prices or climatic conditions. At an aggregate level, their choices may have a multiplier effect. If a sufficiently large number of women choose not to take up these opportunities, other women might have to follow in settings where the social penalty for deviating from the norm is high.

How might the insights of behavioral economics be utilized to economically empower women? In a developed country context, an important recent contribution (*Bohnet* 2016) *makes the case that there are many low-cost interventions* in the work environment that can alter the “choice architecture” in favor of gender equity. For example, concealing the identity of job applicants through blind auditions or removing names from resumes can have a significant impact on hiring decisions. In low and middle income countries, a small but growing body of evidence is discerning when and under what conditions behavioral “nudges” can alter the impact of programs intended to economically benefit women.

The remainder of the paper is organized as follows: Section 2 starts with an overview of the scientific theories of the origins of gender differences and reviews the behavioral economics literature in two key areas of relevance to economic decision-making: risk and competition. While much of this work is based on experimental research with high-income country populations, there is some cross-cultural work that suggests relevant variation in gendered economic behaviors across societies of different income levels and indicators of gender equity. Section 3 examines the evidence on the impact of program interventions specifically designed to address behavioral barriers to women’s economic empowerment. Because this is an emerging area of research and policy, there are still a relatively limited number of published studies, but we are already learning a good deal about the effects of peer support, role modeling, gender-targeted transfers, and risk-mitigation schemes in encouraging positive outcomes for women. Section 4 looks at how some women’s empowerment programs have influenced the behaviors—specifically, competition, deception and trust—of female beneficiaries. The paper concludes by drawing out the main lessons of the use of behavioral design to promote women’s economic empowerment in developing countries, and outlining an agenda for future research and policy experimentation.

2. Behavioral Differences Between Men and Women: Theories and Evidence

Origins: Evolutionary Psychology and Biosocial Theory

Over the past several decades, economists have been increasingly interested in documenting possible differences between women’s and men’s behavior in areas likely to have economic consequences, such as altruism, cooperation, risk aversion, trust, and the desire to compete., leaving to other scientists, especially psychologists and anthropologists, the task of explaining the origins of such differences (in the few areas in which they have been found). After a long period of debating the roles of nature versus nurture, recent anthropological and psychological theories are advancing models that put an equally important emphasis on both the biological and sociocultural aspects whose interplay could explain how differences in gender behavior came about and continue to adapt and change.

A stronger emphasis on the process of evolutionary adaptation is advanced by evolutionary psychologists who argue that those behaviors and traits found universally in all cultures (like the ability to infer others' emotions or a preferential treatment of kin) are the result of psychological adaptations that evolved to solve persistent problems in human ancestral environments, i.e. traits that can be seen as the functional products of natural selection or sexual selection. According to this theory, divergences between the minds of the two sexes should be only expected to be found in those domains important for sexual reproduction, where differential pressures related to mating and reproduction would have left a lasting impression on the minds of males and females (Campbell 2002). Human reproduction requires different strategies, depending on whether the female or the male needs to invest more in her/his offspring. Following Trivers' theory of parental investment, the sex making the greater parental investment would become a resource for which members of the other sex compete (Browne, 2006). Among humans, males have to invest less in providing for an infant, therefore they can increase their reproductive success by having numerous partners and increasing the number of offspring. Quite differently, females cannot increase their reproductive success in the same way, because they need to invest more in their children through, at the very least, gestation and lactation.

This fundamental difference would have extensive psychological implications. With numerous males following the same multiple mating strategy, it follows that males would need to compete among themselves for the most desirable females. This competition could take many forms, from contests of physical power to acquiring status and amassing resources highly valued by females. Because of higher variance in male reproductive success than among females, the risks and rewards of the mating game are higher for males than for females. Thus, evolutionary theory predicts that males, to be successful, should exhibit greater tolerance for risk, and a behavior geared towards acquisition of dominance and status (Browne 2006). More recently, a less passive interpretation of female role in the mating game sees females not simply as inert object of male competition, but active actors competing for the wellbeing of their offspring and for best suitable mates, depending on their genetic endowment, abilities and anticipated willingness to invest in them and their offspring (Hrdy 1981, 1999; Cassar et al. 2016). For women, reproductive success emphasizes quality over quantity, while risk-taking behavior conveys not only lesser reproductive rewards but also greater cost to reproductive success, as shown by the finding that the life prospects of a child in primitive societies were more impaired by loss of its mother than of its father (Campbell 1999). To the extent that certain behavioral traits are genetically influenced, successful mating and reproductive behaviors would tend to be passed down from one generation to the next and increase in number, while less successful ones would decline.

A contrasting view of the origins of gendered behavior comes from biosocial theory (Wood and Eagly 2012). While still recognizing the underlying biological differences between men and women, expressed in women's reproductive activities and men's greater strength and size, such differences are considered to be only "distal" causes of male and female behavior, while social processes are taken to be more proximal. According to this model, in conjunction with the need to thrive and adjust to local socioeconomic and ecological environments, early human societies adopted a division of labor in which women specialized in activities compatible with infant caretaking (such as gathering) while men specialized in activities requiring greater physical strength, uninterrupted periods of time, and long-distance travel away from home (such as

hunting). This division of labor, which was itself transformed by the advent of settled agriculture into further differentiated gender activities, is then regarded as the basis for the social construction of gender: to ensure that children are well equipped to successfully fulfill adult roles, societies would socialize the young, instilling, expecting, punishing and rewarding behaviors consistent with the cultural beliefs about the attributes of the sexes (ibid.) At the most general level, these cultural beliefs about masculine and feminine personality traits can be subsumed under two broad categories: communion, involving warmth and concern for others, and agency, involving assertiveness and competitiveness. As individuals internalize these beliefs, “culture gets inside the person” and creates observable sex differences in behavior (ibid.).

Regardless of the ultimate origins, these deeply rooted behavioral differences are likely to have important economic implications. If men, whether because of genetically transmitted traits or because of gender role socialization, strive to achieving high status by entering competitive environments, working longer hours and undertaking risks necessary to achieve top positions and greater income, while women, independently on the reasons, strive to obtain the best possible outcomes for their children’s wellbeing, differences in occupational interests and distributions are likely to emerge (Browne 2006). In developed countries, such differences have the potential to contribute to the glass ceiling and the gender pay gap. In developing countries, where poverty and social norms breed even worse unequal treatments of girls and women, the consequences are likely to be even more dire. Development programs, explicitly those targeting women’s empowerment, need to incorporate in their design the local gendered social norms and sex differences in preferences for risk-taking, competitiveness, confidence, concern for social positioning, resource allocation and social outcomes.

Experimental Evidence of Gender Differences in Behavior

In economics, experimentalists have long been focusing on sex difference in behavior and have found that for most domains such difference don’t exist, while for others, like risk aversion and the desire to compete, they do (see extensive surveys in Croson and Gneezy (2009) and Niederle (forthcoming)).¹ In the following we put a particular emphasis on the lab and lab-in-the-field results important for designing development policies.

Attitudes Toward Risk

Risk tolerance involves choosing options that have the potential to bring great benefits, but could also lead to negative consequences. In economic terms, risk tolerance implies preferring opportunities that offer higher expected returns but expose individual to greater uninsured risk to more secure but less profitable economic alternatives (Dercon 2006). Risk taking can be adaptive, when the benefits of choosing some activity are more likely to occur than the potential hazards, or maladaptive, the opposite. The successful adaptation by individuals to their environment then depends by systematically pursuing certain risks while avoiding others.

¹ As in many fields, publication bias may influence the body of accumulating knowledge since experiments with positive findings are more likely to be published (and submitted to seek publication) than those which cannot reject the null hypothesis of lack of gender differences.

Avoiding all risks is not just impossible, it is also maladaptive, as individuals unwilling to invest in economic activities that naturally involve the possibility of losses would forgo the prospect of great gains. If certain risks are then adaptive, finding a systematic gender difference in preference would imply a greater or lesser degrees of environmental adaptation in women versus men (Byrnes et al.1999). If there were systematic differences in men and women's risk preferences, with women showing lower tolerance, we would expect to find more resistance among women to embrace programs that produce higher but more variable returns, or require the adoption of new technologies with better but uncertain outcomes (Liu 2008), or take out loans to meet credit needs (Boucher et al. 2008, Fletschner et al. 2010; Dercon 2006). If women had higher risk aversion than men, they would forgo opportunities that offer higher expected returns but more variability in outcome and would prefer less profitable but more predictable outcomes.

Risk preferences in the laboratory and in lab in the field experiments can be elicited through different methods. The most common ones are based on a protocol that requires subjects to choose between a pair of lotteries in which one is a safe (or less risky) option while the other offers higher but riskier (higher variance) payoffs. Subjects have then to make several of these choices, structured so that the crossover point from the low-risk lottery to the high-risk lottery can be used to infer the degree of risk aversion. Holt and Laury (2002) describes this methodology and analyses treatments that differ in terms of payoff amounts and hypothetical vs. real incentives. Their findings show that even with hypothetical payoffs the vast majority of subjects exhibit risk aversion at all level of payoffs while, with real stakes, risk aversion increases significantly when payoffs increase. Laboratory research, analyzing the behavior of subjects in advanced industrialized countries, has found women to be more risk averse than men in the vast majority of environments and tasks (e.g., Eckel and Grossman 2008a, 2008b). A comprehensive meta-analysis of the psychological literature provides gender comparison for 322 effects size, coded separately for different tasks (hypothetical choices non-incentivized, e.g. choices among hypothetical gambles; self reported behaviour, e.g. drug use or unprotected sex in the previous 12 months; observed behaviour, e.g. turning left in front of traffic), for different content within each task and for participants' age (Byrnes et al.1999). The results show that for the majority of the effects (60percent) the idea of greater risk taking on the part of males is supported. For nearly half of the effects (48percent) men were at least 20 per cent more prone to take risks (conventional cutoff point for small effects). It is important to notice, though, that a sizable minority (40percent) were either negative or close to zero. Gender differences varied greatly according to context and age level, and differences between observed risk behaviors were larger than the ones reported in hypothetical choices.

In the experimental literature, Charness and Gneezy (2012) provides an analysis of experimental data from 15 sets of experiments all using the same framework ("investment game") but differently implemented with respect to countries, instructions, researchers, payoffs, subject pools, etc. In this investment game the subject receives a certain amount of money and is asked to choose how much of it he wants to invest in a risky option and how much to keep. The amount invested yields a dividend with a known probability or is lost. The money not invested can be kept by the subject as sure payment. Despite all the differences between the studies, the authors report that men choose to invest more in the risky project than women, who appear to be more financially risk averse than men.

Evidence on gender differences in risk preferences from developing countries is more limited. Recent lab-in-the fields studies, while confirming overall similar patterns, show additional evidence of the importance of cultural factors and that in certain rural and traditional societies there are no systematic different risk preferences between women and men. In line with the main laboratory studies in developed countries is Fletschner et al. (2010)'s analysis of the behaviour of husband and wives in 500 couples in rural central Vietnam. They use three hypothetical risk scenarios involving two options with the same expected payoffs (option 1 represented the certain outcome, option 2 always involved taking a risk). The risk scenarios (all hypothetical in nature) elicited individual willingness to take risks in the gains domain, under high stakes, and in the loss domain. Regardless of the frame (which indeed produced different results), women were in all three cases significantly more risk averse than men. Instead of using hypothetical payoffs, Sandrik (2011) examines risk attitudes amongst low-income peasants in the rural highlands of Peru using a risk game with real monetary rewards, finding that women are significantly more risk averse than men.

Several recent studies suggest that the gender gap in risk-taking behavior is highly sensitive to cultural context. For example, Ponderfer et al. (2014) analyses gender differences in risk preferences and gender stereotypes in two traditional island societies which differ in the social status of women: the patrilineal Palawan in the Philippines and the matrilineal Teop in Papua New Guinea. The experiment uses a simple gamble choice task plus an activity in which each subject is asked to predict the gamble choice of another female and male subject from the same society. Their findings show no significant differences in actual risk preferences between men and women of the same society. Nevertheless, they find that men from the patrilineal society overestimate women's actual risk aversion and men from the matrilineal society underestimate women's actual risk aversion, indicating that these biases are culture-specific. These results support the findings of earlier work by Gneezy et al. (2009), which doesn't observe gender differences in risk preferences among the patriarchal Maasai in Tanzania and the matrilineal Khasi in India, and Gong and Yang (2012), which finds that women are more risk averse than men in patriarchal and matrilineal societies in China but the gender gap is smaller in the latter one.

Further exploring the role of social context, Cardenas et al. (2012) analyses gender differences in preferences for competition and risk among children aged 9-12 in other two very different societies in terms of gender equality, Colombia and Sweden. They employ four types of tasks (running, skipping rope, math and word search) in order to vary the gender stereotype attached to it. Their results show that boys in both countries are more risk taking than girls, but in Sweden there is a smaller gender gap.

Competitive Behaviors

As with risk aversion, individuals less likely to choose competitive environments might self-select in activities that have lower but more predictable returns. If these individuals were disproportionately women, their lower preferences for entering competitions might generate important differences in occupational distribution where top status and income earning positions are fewer and wanted by many. This effect can have especially dire consequences for women in rural economies, where development programs strive towards market development. For example, Fletschner et al. (2010) argues that moving up the supply chain towards more

market oriented products increases the level of competitiveness at every level (input market, production and sales), so policies that offer higher prospects but that require higher competition might have different effects by gender, with some (most likely the majority of those to whom the intervention has been targeted) not willing to participate.

While in most of the papers we want to highlight the data come from incentivized experiments, it is interesting to start with the findings of a survey conducted on 25,000 individuals from 36 (mostly developed) countries, (Bönte 2015). The survey contained questions in which respondents were asked to assess their (self-reported) preference to enter competitive situations, willingness to take on risk, self-efficacy and confidence in general. The empirical results show that gender differences are statistically significant and substantial in size in almost all countries with women having, on average, a substantially lower self-reported preference to enter competitive situations than men. Importantly, gender differences vary considerably across countries. Such lower competitive preferences didn't vanish after including a standard set of controls that may affect gender differences. Interestingly, preferences don't seem to be affected by age.

Moving to incentivized laboratory methods, an initial thread of literature, exemplified by Gneezy et al. (2004), analyses the hypothesis that men perform better than women under competitive environments, even when they perform equally well under non-competitive environments. In their study, subjects are divided in groups of three men and three women and asked to complete mazes within a certain time limit. In one treatment, subjects are compensated on a piece-rate scheme, in which subjects are paid a certain amount per completed maze. In another treatment, subjects are compensated on a tournament scheme, in which they are paid six times as much per completed maze, but only if they completed the most mazes out of their group of six. The authors of the study report that while men and women performed equally well under the piece-rate treatment, men significantly outperformed women in the tournament treatment.

The hypothesis that women do not like to compete as much as men is the focus of a second thread of experimental literature. In the seminal experiment by Niederle and Vesterlund (2007) men and women are given a series of computational tasks (adding numbers) under two different payment conditions: lower but non-competitive (piece-rate scheme) or higher but competitive (tournament scheme). Before a third similar task, subjects are then asked which condition they would prefer. Depending on the choice (piece-rate vs. tournament), the researcher can infer a subject's preference for competition (i.e. choosing the tournament scheme). Niederle and Vesterlund (2007) reports that while performance (number of correct answers) is equally good between men and women, when offered the choice to be paid based on a non-competitive, piece-rate payment scheme or on a tournament (competitive) payment scheme, men chose the tournament in significant higher numbers than women, indicating that men have a higher level of competitive inclination than women. This finding has been replicated in numerous subsequent studies in western developed countries, and alternative possible explanations such as confidence, beliefs, and risk aversion have been considered (see survey in Niederle and Vesterlund 2011). Such observed behavioral differences are important because they suggest a plausible alternate hypothesis to the more traditional explanations for gender differences in labor market outcomes based on human capital accumulation (Altonji and Blank 1999) and

discrimination (Goldin 2000): women simply do not like to select into competitive environments as much as men do.

While the Niederle and Vesterlund results have been reliably replicated, especially in university laboratories, the gender gap in competitive inclination can be greatly reduced or even eliminated when the experimental design is altered in important domains. Changes to the tournament rules (Niederle et al. 2008, Healy and Pate 2011), to the experimental task (Shurchkov 2012), or to the subject population (the main focus of the review below) have been able to reduce or eliminate gender differences in competitive inclination.

As with the other behavioral differences between men and women, even if the consequences might not change, it may be important for policy design to know whether such difference in competitive inclinations originate in nature or nurture. The answer is that the gender gap in competition seems to be both of biological and cultural nature. On the biological side, female competitiveness over cash has been shown to vary with hormone levels (Wozniak et al. 2014; Bateup et al. 2002), and post-menopausal women are found to be more competitive than younger women (Flory et al. 2012). At the same time, several studies indicate that the reported gender differences in competitive behavior are not universal, but highly dependent on the culture, institutions, and context, as well as age, experimental task, and tournament rules. Booth and Nolen (2012), for example, compared both risk-taking and competitive behaviors among girls attending single sex and co-educational schools in Britain. The subjects, grouped into same gender groups and mixed gender groups, had to solve mazes (instead of mathematical additions) and, after having tried both piece-rate and tournament payments, and chose which payment system they preferred. The results show that in coed schools girls are 71 percent less likely to enter the tournament than boys while girls from single-sex schools are as likely as coed boys to choose competitive behavior. Furthermore, girls in same gender experimental peer-groups choose to enter the tournament more than girls in mixed gender experimental peer-groups.

In a developing country context, Fletschner et al. (2010) analyses a simplified version of the original game with 500 married couples in rural central Vietnam. The results show that despite an identical performance in the digit recall task, 49 percent of men chose to compete vs. only 37 percent of the women, a difference that stayed significant (yet smaller) after controlling for many factors. Furthermore, analysing data by ability (i.e. number of correct answers) a substantial proportion of men who were unlikely to succeed (poor performance) choose competitive situations over more secure but lower paying opportunities while a large proportion of women who were likely to succeed in competitive situation choose to forgo higher returns for guaranteed remuneration.

Among the first to establish that the gender gap in competitive inclination is not universal across all cultures is Gneezy et al. (2009). In their experiment, subjects from the patrilineal Maasai in Tanzania and matrilineal Khasi in India (where men take on a large role in childcare) are matched in pairs (without knowing the identity of the partner) to participate in a bucket toss game and to make the decision about how they want to be paid. Their results show that men are more competitively inclined than women among the Maasai, whereas for the Kashi the gender gap in competitive inclination is reversed. In addition, the study shows that the proportion of males in a group is negatively related to the probability of choosing to compete and no significant correlation was found between the performance in the task and the decision to

compete. Interestingly, there were no gender differences in risk preferences in either group (only between groups).

Cardenas et al. (2012) analyses gender differences in preferences for competition and risk among children aged 9-12 in Colombia and Sweden, two very different societies in terms of gender equality. They employ four types of tasks (running, skipping rope, math and word search) in order to vary the gender stereotype attached to it. Surprisingly, their results show that boys and girls are equally competitive in all tasks and all measures in Colombia, a country in which women are believed to be less empowered than in Sweden. In Sweden, instead, the results in Sweden are mixed, with girls being more competitive than boys in some tasks but not in others are boys overall more likely to choose to compete than girls.

Examining the relationship between culture and biology, Flory et al. (2016) investigate preferences for competition with a subject pool of women and men between the ages of 12 and 90 in two cultures in rural Malawi, one matrilineal and one patrilineal. Their results show that a gender gap is found only in the patrilineal culture (with women less competitive than men), but no gap in the matrilineal one. Furthermore, women in the matrilineal culture are more competitive than women in the patrilineal culture. Importantly, women in the patrilineal culture increase their willingness to compete at important fertility markers in their lives: adolescence, having a surviving child (older than six), and menopause, displaying less competitive inclinations than male only in post-adolescence without a child. Such changes are not discernible in the matrilineal society. Comparing all age groups and societies, except for the post-adolescent women without a surviving child over the age of 6 in patrilineal societies, all other women are found to be as competitive as or more competitive than men.

In similar vein, Zhang (forthcoming) compares two traditionally similar cultures (the Han and the Yi) differently and exogenously exposed to the communist reforms that began in China in the 1950s. Both the traditional Han Chinese and Yi were patrilineal societies in which women had little economic independence and were mostly confined within the household. The political reforms sent a large number of women into the paid labor force through labor collectivization and legislative reforms, bringing lasting changes around gender norms related to work. For reasons largely independent from cultural attributes, these reforms exposed the Han to exogenously imposed institutional changes in women's role in society, while the Yi were left largely exempted from them. Once the probability of winning, overconfidence, and risk aversion are controlled for, the experimental data show a statistically insignificant gender gap in competitive inclination among the Han Chinese subjects but a 24 percentage points gap among the Yi, with the Yi women less competitively inclined than the women and the men of the Han Chinese. The Yi men are equally competitively inclined as the Han Chinese, suggesting that the reforms did not affect male competitive inclination.

With respect to context, Bjorvatn et al. (2016) compares the willingness to compete among secondary school students between urban and rural Uganda. The authors focus on context because of its importance for development policies. Like in many developing countries, there is ample evidence that also in Uganda gender discrimination is particularly pronounced in the rural areas where the gender gap in literacy rates is higher, females' control over own income is lower, and acceptance of gender-based violence is higher. The results from their lab experiments find no significant gender bias in competitiveness in the urban context, while in the rural context

females compete less than half as much as males. Males, instead, are found to be equally competitive in both contexts. Importantly, such results hold after controlling for differences in knowledge, risk preferences and confidence. The authors speculate that cultural factors are likely to be important determinant of difference in female's willingness to compete, with women in the urban location being more empowered than those in the rural one. These results are consistent with other research that shows that female empowerment promotes competitiveness.

Findings like the ones in the previous studies suggest that when women are expected to earn wages and be important source of income, they display competitive inclinations similar to men's. Another interpretation of this result is that women in the classic lab experiment do not display a preference for competition similar to men's because the task or the prize in the experiment does not trigger their sphere of competitiveness. In other words, the reason women do not compete is not because they do not like to compete, but because they feel ambivalent about "winning" in a professional setting due to perceived tradeoffs with child well-being that men do not feel, or feel to a lesser extent, implying that if the prize were made more appealing to women, they would compete more (Hrdy, 1999). To test this hypothesis, Cassar et al. (2016) modifies the standard protocol by introducing a fourth competitive round in which the prize benefits one's child, i.e. they add to the traditional cash incentive a round with an equal-valued voucher for a child benefitting product (a test-preparation bookstore voucher). Their subject pool is comprised by mothers and fathers of middle school children in Shanghai, China. Their results show that mothers increase their willingness to compete when the prize benefitted the child (i.e. in the voucher treatment compared to the cash treatment) while fathers reduced their willingness to compete, so that while a significant gender difference existed in the cash treatment, no gender difference was found in the voucher treatment. Relative to fathers, mothers were 10 percentage points more likely to compete in the voucher treatment compared to the cash treatment, a result significant at the 1 percent level. This result is very important because it shows that females are not necessarily less competitive than males, but their preferences are triggered by different incentives than male. The result that women can compete as much as men once we change the experimental reward medium to something more in line with women's goal (here to the benefit of one's children) is consistent with an exciting body of recent interdisciplinary literature (including biologists, anthropologists, psychologists, economists, and sociologists) advancing the hypothesis that women are not endowed with lower competitive traits, rather, they express them in different ways. Policy implications are that a change in the workplace incentive structure could induce more women to enter workplace competitions, in both rich and developing countries.

3. Behavioral Design and Women's Economic Empowerment: What Do We Know?

The explicit use of behavioral design to promote women's empowerment in the context of economic development is quite novel, and there is not yet a large body of evidence from which to draw lessons about what sorts of interventions have the greatest impact. However, the relatively small number of field experiments and pilot programs that have been implemented give some idea of what is possible and promising in this new area of gender programming. In the previous section, we identified two key behavioral areas in which systematic differences have been found between men and women in the context of laboratory experiments: risk and competition. In this section, we examine the findings from evaluations of programs that have explicitly addressed gender-specific behavioral constraints, or attempted to take advantage of gender-specific behavioral traits, in three broad categories: (1) cooperation, specifically as it relates to creating and strengthening women's opportunities to mentor and support one another in setting and achieving economic goals; (2) preferences over technologies, expenditures, and investment, and how these relate to control over household income; and (3) attitudes towards risk, with a particular focus on agriculture.

Networking, Cooperation and Role Modeling

The behavioral dimension with some of the strongest empirical support in terms of program design is cooperative behavior, specifically the way in which women respond to opportunities to learn with and from other women in their communities. Three distinct randomized control trials conducted in different areas of the developing world (Asia, Africa, and Latin America) lend strong support to the proposition that for poor women, female networks that arise out of program design can serve to raise aspirations and induce economic behaviors such as savings, investment, and technology adoption.

The first of these studies (Macours and Vakis 2014) was conducted in rural Nicaragua, in the context of a conditional cash transfer program that had two unique features: one arm of the CCT provided a \$200 grant for productive investment aimed at developing small non-agricultural businesses, and the program also put in place a system of local *promotoras* (female leaders) to enhance information flows and compliance with program requirements. Since both beneficiaries and local leaders were randomly assigned to the productive investment grant group, the researchers were able to identify the causal impacts of social interactions between women who received the grant and the *promotoras* who were also included in the same arm of the program. The principal findings of the impact evaluation were:

- (1) A higher share of women leaders receiving the productive investment package is associated with increases in educational and nutritional outcomes, and with income from non-agricultural activities.
- (2) These social interaction effects are concentrated on beneficiaries who themselves also were eligible for the productive investment package.
- (3) Women in households eligible for the productive package are more likely to express positive attitudes when there are more leaders with the productive investment package in their proximity: they are more optimistic about the future, happier in life and have lower indicators of depression.

- (4) The higher the share of leaders with the productive investment package, the less likely beneficiaries of the productive investment package answered they would not do anything to reduce the impact of future shocks.
- (5) There is also a positive relationship between the post-intervention incomes and attitudes of leaders with the productive investment package and the attitudes of beneficiaries with the productive package.
- (6) The program increased social interactions both among community members generally and between beneficiaries and leaders; this is particularly the case for leaders and beneficiaries of the productive investment package.
- (7) Technical learning and economic spillovers cannot explain the social interaction effects of the program.

Taken together, these findings suggest that, if women are provided with both financial resources and social support (here in the form of examples of positive experiences of nearby female leaders), some of the external and internal barriers to risk-taking may be mitigated. Specifically, if program design can facilitate regular communication between higher achieving women and their less well off neighbors, this may help ease some of the concerns that prevent poor women from investing in (relatively risky) new undertakings.

A study with complementary results on the power of social interactions among women to mitigate risk aversion with respect to new technology adoption was undertaken among women cotton growers in Uganda (Vasilaky and Leonard 2015). Here, a social network intervention (SNI) was randomly offered to subset of female farmers as part of an agricultural extension program. The treatment involved pairing each woman with another randomly selected female cotton farmer whom she did not already know. Each pair received a Polaroid photo of themselves and their partner, identified cultivation issues, chose a collaborative goal, and set potential times when they would meet to exchange information. The impact evaluation found that:

- (1) Cotton farmers in villages that received the SNI experienced large gains compared to the control group for all but the highest performing farmers compared to the cotton farmers in control villages.
- (2) The intervention was successful in creating new links between female cotton growers who, prior to the SNI, did not know one another, but following the intervention, reported sharing cotton-growing information.
- (3) While there is no significant impact on the total network size of women farmers after the SNI treatment, there is a change in the composition of these networks, with treated women reporting higher proportions of other women and "key" cotton growers.
- (4) Knowledge about cotton farming improved among treated women, which accounts for about a quarter of the total gains in yields.
- (5) For a small subsample of women in which yields are observed for both of the paired members at the baseline and endline, being paired with a higher-yielding farmer led to significant increases in yields, whereas being paired with a worse farmer had no impact on yields.

As with the CCT in Nicaragua, it seems that woman-to-woman mentoring—particularly where one of the women is somewhat better off economically and can therefore set an achievable example—facilitated Ugandan women farmers’ ability to acquire new crop information and to improve their yields. There are several plausible mechanisms that could explain these effects, including elevating aspirations, increasing confidence, mitigating risk aversion, and technical information sharing.²

A third recent study in India also explores the effects of peer support in encouraging women to undertake entrepreneurial activities (Field et al. 2016). In a field experiment conducted as part of a business counseling program for clients of a large women’s bank (SEWA), a subsample of participants were invited to bring a friend with them to attend the two-day training, which included instruction in literacy and business skills, as well as financial goal-setting and planning. The results after four months were:

- (1) Women in the Treated with Friend group are 7 percentage points more likely (more than a doubling) to take out a loan relative to women who were in the Treated Alone, who exhibit no change in borrowing. This increase was concentrated in business-specific loans.
- (2) Women in the Treated With Friend group had higher levels of business spending, were significantly more likely to report concrete actions and moderately more likely to report plans to increase business revenue, and more likely to report a higher volume of sales relative to a typical week in the previous year.
- (3) Relative to those treated alone, Treated With Friend clients show large (12percent and 16percent, respectively) significant increases in both income and expenditures, and are 4 percentage points less likely to report their occupation as housewife.
- (4) The main outcome measure impacts are concentrated among women who face greater restrictions on their mobility as measured by a culturally relevant social restriction index.

These findings suggest that one potentially important factor limiting financial inclusion efforts is inadequate peer support among many of the women who have the potential to start or expand entrepreneurial activities. Thus, programs designed to empower women through business training or by giving them loans or cash grants may be more successful if they harness peer support as part of the program design, particularly when working with clients from restrictive social backgrounds.

² Positive role models and mentors do not necessarily have to be female. In a study of Ugandan women entrepreneurs, encouragement and support from male relatives and business owners played a large role in determining sectoral choice: women who had male role models in their youth were 32% more likely to “cross over” into more profitable male-dominated sectors, and women running non-traditional businesses were equally likely to have been introduced to their line of work by men as by women (McGorman 2013, Campos et al. 2015).

Preferences, Gender Targeting, and Bargaining Power

There is mixed evidence from laboratory experiments on systematic behavioral differences between men and women in the area of other-regarding preferences, including altruism and cooperation. However, in the somewhat narrower realm of spending and consumption preferences, there is a large body of cross-cultural research indicating that women are more likely to allocate income to household public goods, and in particular to invest in their children's nutrition, health and education.³ Policymakers have responded by implementing gender-based targeting of many income support programs, including conditional cash transfer and microfinance programs. Several recent studies make important contributions to our understanding of the behavioral assumptions underlying gender targeting, and the impact of these programs on women's empowerment.

Miller and Mobarak (2013) utilize an innovative experimental methodology to first elicit rural Bangladeshi women's unconstrained preferences for a household public good (improved cookstoves), and then to see what happens to demand for that good once a positive price is charged and/or husbands are allowed to weigh in on the decision. To distinguish preferences from constraints, the researchers cross the gender of household members to whom they offered improved stoves with the price of the stoves. Specifically, half of the villages were randomly offered two alternative types of free cookstoves (one which reduced smoke pollution and other which used fuel more efficiently). The remaining villages were offered the same stoves at highly subsidized prices. Sample households in both village-level treatments were then randomly assigned to either the "husband choice" or the "wife choice" group denoting whether the male household head or his wife (typically the primary cook) would be offered the stove choice. While the comparison between husbands' and wives' choices in villages where the stoves were offered for free allows for the study of unconstrained gender differences in prioritization of budget-saving and health-improving technologies, the gender differences when stoves are free vs. when small positive prices are charged allows the researchers to uncover the degree to which each gender is able to act on their underlying differences in preferences in the presence of positive prices.

The main results of this experiment are as follows:

- (1) When improved cookstoves are offered for free, women are 6.1 percentage points (6.5percent) more likely than men to order any cookstove, regardless of type.
- (2) Conditional on choosing an improved stove, women are 6.4 percentage points (7.9percent) more likely initially to choose the healthier chimney stoves over the fuel-saving efficiency stoves.
- (3) Among households initially offered a stove, there was an 11.3 percentage point (14.9percent) higher order rate for the healthier chimney stoves when the marketing offer was made to the wife rather than the husband.

³ Comprehensive reviews of the literature on gender differences in expenditures can be found in Doepke and Tertilt (2011) and Yoong et al. (2012).

- (4) When positive prices are charged, women are more likely to reject the stove offer altogether, and to shift their choices (by 15 percentage points) from more expensive chimney stoves to cheaper efficiency stoves.
- (5) In the free stove condition, women's initial choices were more likely to be un-done by their husbands as information was revealed between first stage offers and second stage deliveries.
- (6) Using an index of female empowerment, households with more empowered women are more likely (by 8 percentage points or 14percent) to order the chimney stove at a positive price, and the probability of husbands overturning their wives' stove orders is decreasing in women's empowerment.

Taken together, these findings suggest that an important non-price impediment to the adoption of new technologies at the household level is the presence of an intra-household externality: male financial decision-makers do not internalize the costs and benefits of new technology that accrue to their wives. Therefore, while women may have stronger preferences for welfare-enhancing products and services than men, when individual choices cannot be hidden, public policy may not be able to exploit these stronger preferences absent broader changes in intrahousehold bargaining power. This study lends support to the idea that successful strategies for distributing gender-specific technology will need to simultaneously address both the gender differences in preferences as well as intra-household differences in decision-making power.

Many conditional cash transfer programs address the dual issue of gender differences in preferences and intra-household bargaining power by targeting payments to female household heads, on the assumption that mothers will make better use of the allowances, are in a better position to enforce compliance with the conditionalities, and will be empowered within beneficiary households. Several recent studies in Macedonia (Armand 2014, Almas et al. 2015) and Morocco (Benhassine et al. 2015) explicitly test these assumptions by comparing outcomes when CCT payments are made to fathers instead of mothers. The combined results suggest that while the human capital investment objectives of these programs may be achievable by substituting gender targeting with behavioral design, the women's empowerment goals are best served by providing the income directly to mothers.

In Macedonia, an experiment was designed to test whether gender-targeted transfers during the first three years of a national CCT program would generate differential outcomes in terms of household decision making and human capital investment. The 84 municipalities in the country were randomly assigned to one of two groups. In the first group, payments of the CCT were made to the mother of the child, while in the second group they were made to the male head of household. Therefore, the program provided an exogenous variation in the share of resources controlled by mothers which can be studied to determine whether channeling resources to women has an impact on children's human capital investment and on mothers' bargaining power within the household.

With regard to the human capital objectives of the program, the Macedonian experiment found that targeting CCT payments to mothers had a small and not statistically significant effect on child enrollment in secondary school (Armand 2014). However, when ex-ante parental perceived returns to schooling are sufficiently large, channeling resources to women led to an increase in enrollment and achievement rates. This effect is associated with an increase in individual expenditure shares on education for the children in this group. For children in the higher tercile of the parental perceived returns, individual expenditure shares increased by roughly 4 percent. These findings support the idea that households tend to invest more in children when the payment is transferred to mothers, but only when the perceived returns to schooling are large enough to justify the investment. The results provide unique insight into the interplay between subjective expectations, control over income, and intra-household resource allocation.

Recent research in Morocco further tests the efficacy of gender targeting of CCT payments and the role of parents' subjective valuation of education with respect to human capital investments in children (Benhassine et al. 2015). In this experiment, four different cash transfer modalities were implemented: (1) an unconditional "labeled cash transfer" (LCT) paid out to fathers, which retains an implicit endorsement of education through its school-based enrollment procedure; (2) a transfer to fathers made explicitly conditional on regular school attendance (CCT); (3) the LCT with payments to mothers; and (4) the CCT with payments to mothers. The motivation for the labeling variant is to see if offering a small cash transfer and tying it loosely to the goal of education may be able to make the importance of education salient and increase the demand for it even without formal incentives—a potentially much less administratively costly way to improve poor households' incomes and increase school enrollment and attendance of their children. While the study's emphasis is on labeling versus conditionality, it is noteworthy that the positive impacts on school participation were not significantly different when transfers were paid to fathers instead of mothers. This could be partially attributable to the specific social norms governing intrahousehold resource control in the the Moroccan cultural context, where it is commonly men who handle money and go to weekly markets to make most purchases and sales. However, the finding is also consistent with the results from the more ethnically and religiously diverse population in the Macedonia, suggesting that the gender targeting feature of CCTs may be less important than has been commonly believed to achieving the human capital goals of these programs.

But might gender targeting be important for achieving other objectives? The randomization of the payment recipients in the Macedonian CCT also allows for evaluation the impact of the program on women's empowerment within the household. Almas et al. (2015) carried out an innovative artefactual field experiment with a subset of program-eligible married urban women which elicited wives' willingness to pay to receive transfers themselves versus transfers being paid to their spouses as an indicator of female empowerment. The interpretation is that where women exercise more influence over spending decisions, they should not be willing to pay anything to keep the transfer themselves, and should try to maximize the transfer. On the other hand, the weaker the position of the woman in the household, the more she should be willing to pay to obtain control of that transfer. In municipalities where mothers are the recipient of the CCT (and therefore are potentially more empowered), women are on average willing to pay a

lower amount (5-6 percentage points) to keep the cash from the laboratory experiment, than in municipalities where the CCT recipient is the head of household (and therefore, the level of empowerment of women is potentially smaller). These results support the notion that gender targeting can improve women's decision-making power within households.

Gender, Risk, and Agricultural Insurance

The large body of experimental literature on gender differences in attitudes towards risk raises the concern that women may be less inclined to engage in economic activities which offer higher returns but greater variability. This is particularly relevant in agriculture, where risk abounds: weather and climate risk, price fluctuation risk, and the risks associated with new and unfamiliar crops and technologies. Over the past decade, developing countries have been introducing an innovative insurance product to help low-wealth agricultural and pastoralist households manage such risks. The novelty of index-based insurance is that, unlike standard insurance, index insurance contracts are not designed around policyholders' actual losses, but around an exogenous index, such as local rainfall or crop yields, that is supposed to be highly correlated with policyholders' losses. Recognizing that there are significant gender differences both in risk attitudes and exposure to risk, researchers have begun to examine the gender dimensions of demand for and utilization of index-based insurance in Africa and Asia.

Evidence from several recent artefactual field experiments suggests that women in low-wealth agricultural households in developing countries are on average more risk and loss averse than their male counterparts, and that this gender gap is particularly large for the poorest women, and those who are single heads of their households. Among 500 rural couples in Central Vietnam, Fletschner et al. (2010) find that women are between 6 per cent and 13 per cent less likely to choose the gamble choice in a risk elicitation experiment compared to their husbands. In rural Bihar, India, a recent study demonstrates that, on average, women are more averse to risks and potential losses than men (Ward and Singh 2014). But while this holds for women on average, the researchers find that most of the differences in such aggregate comparisons are due to a nontrivial number of women who are extremely risk averse, which skews aggregate statistics on risk aversion. These extremely risk averse women tend to come from poorer households, suggesting that liquidity constraints affect their willingness to put what little they have at risk, as also demonstrated by a corresponding higher degree of loss aversion. A pair of complementary studies among maize farmers in rural Kenya find no significant differences in risk preferences between males and females within the same household, or between men and women in the whole sample (Love et al. 2014; Sheremenko and Magnan 2015). Female household heads, however, are significantly more risk and loss averse than both women and men in male-headed households. The researchers conjecture that since female headed households face greater income and credit constraints, they are more sensitive to potential losses, compared to women in male-headed households who have the security of another source of income in the household.

What are the implications of the gender gap in attitudes towards risk for agricultural technology adoption and farming practices? In a rice growing region of India, where extreme risk aversion is prevalent among women in the poorest income quintiles, a choice experiment which elicited farmers' preferences for drought-tolerance characteristics in hypothetical seed options determined that both more risk averse and more loss averse farmers are more likely to switch to the rice cultivars which perform best under drought stress (Ward and Singh 2014). In one of the Kenyan studies mentioned above (Love et al. 2014), gender-disaggregated risk measures were matched with maize farmers' decisions to use non-hybrid seed, adopt a high yielding hybrid, or adopt a drought and disease-tolerant hybrid. While neither male nor female risk preferences significantly affected the adoption of either category of hybrid in male-headed households, risk-loving female household heads were more likely to adopt high-yielding hybrids, and less likely to adopt stress-tolerant hybrids, compared to non-hybrid seeds. In the same rural Kenyan context, women's attitudes towards risk were only relevant to the household's decision to purchase and apply fertilizer when they exhibited relatively high levels of bargaining power, as measured by the Women Empowerment in Agriculture Index (Sheremenko and Magnan 2015). The idea is that if a wife has greater bargaining power, her risk preferences will play a greater role in how the household uses fertilizer on female and jointly controlled plots. If she has weak bargaining power, then her husband acts as a sole decision maker in a household, and his risk preferences alone determine the household's agricultural choices. The study finds that farm households with empowered females who are more risk and loss averse use less fertilizer than households with disempowered females. More risk averse and loss averse female household heads are also less likely to use riskier types of fertilizer.

If women farmers and pastoralists do have different risk tolerance profiles than men, and if this generally greater aversion to risk can affect—at least under certain conditions—their adoption of new technologies and investments in their agricultural production, it is reasonable to expect that women's receptivity to crop or livestock insurance might also be distinct. In particular, it would seem that products such as index-based weather insurance would be appealing to female farmers seeking to mitigate risks to their crops and livestock. However, empirical research into the gendered determinants of demand for index insurance have found a much more nuanced picture with respect to rural women's uptake of these products.

In coastal Bangladesh, where maize is being promoted as a supplementary cash crop for sale into the burgeoning poultry and fish feed industries, Akter et al. (2016) conducted an attribute-based choice experiment to investigate farmers' preferences for several different versions of bundled savings and crop insurance products. They found significant insurance aversion among female farmers, irrespective of the attributes of the insurance scheme. Moreover, the gender gap in insurance choices could not be explained by differences in men's and women's risk and time preferences, or agency in making agriculturally related decisions. Rather, gendered differences in farmers' level of trust in insurance institutions, and financial literacy (eg. their ability to understand the trigger levels and compensation mechanisms of the insurance product) were the key factors driving women's lack of demand. A particularly interesting aspect of this study is that approximately one-third of the sub-sample included in a follow-up qualitative stage of the research (27percent of men and 38percent of women) reported having had past experiences with financial fraud. As the authors note,

Women who were previous victims of financial fraud were more likely to be skeptical about the credibility of the proposed insurance scheme in delivering payouts than were men, despite similar experience. This finding can be partly explained in light of the theories of the financial economics literature which suggest women tend to feel more regretful than men due to poorly made financial decisions in the past, and thus exhibit more loss aversion behavior when it comes to making future investment decisions (Arora and Kumari 2015).

Bageant and Barrett (2015) likewise estimate gender-disaggregated demand functions for index-based insurance in the context of Ethiopian pastoralists. While they find no gender differences in overall demand for livestock insurance, their results suggest that women are more influenced by their baseline levels of measured risk aversion, their access to informal sources of insurance (which may serve as alternatives to market-based products) and by the form of marketing. Specifically, high risk aversion increases women's purchase of insurance by 36 per cent compared to an equally risk averse man; informal insurance has a larger negative effect on demand, and women are more responsive to home-based product education than men.

In rural West Africa, identical lab in the field experiments were carried out to test how demand for insurance and for savings varies with gender (Delavallade et al. 2015). In this context, where fertility rates are high and women are both more exposed to physical risk during their childbearing years and are more involved in caring for children than men, women appear less immediately concerned than men about the risks associated with drought and more vulnerable to health-related shocks to themselves and their children. In the experiment, farmers were randomly offered one of four products: weather index insurance and three different savings devices. Controlling for access to informal insurance, area cropped, and types of crops grown, the researchers found much stronger (by 30percent) demand for weather insurance among men than among women, and stronger demand for emergency savings among women. These results are consistent with the idea that those individuals who are more exposed to income risk that is uninsured in a weather contract (basis risk) are less likely to purchase the product. In other words, womens' relatively greater exposure to health- and child-related shocks limits their demand for insurance coverage that is only linked to crop failure. And since the same research found that insurance was more effective than savings at encouraging agricultural investment and enabling significantly higher yields, the results suggest that different patterns of demand for financial products among men and women can result in welfare differences in the long run.⁴

⁴ The savings treatment had no measurable impact on agricultural input use, yields, consumption, or managing shocks.

Changing Behavior with Empowerment Interventions

The programs we've discussed thusfar have in some way taken into account different facets of what is known about behavioral differences between men and women, in the realms of cooperation, preferences, and risk, in order to increase the impact of the intervention on economic empowerment outcomes. Here we consider a handful of studies that have looked at the impact of development programs—and in particular programs geared towards women's economic empowerment—on these behavioral parameters themselves.

In rural Ethiopia, a novel social experiment tested the effect of exposure to role models on poor men and women's aspirations and expectations for themselves and their families (Bernard et al. 2014). Male and female research subjects were shown four 15-minute documentaries in which people from similar backgrounds to the audience tell stories about their lives. The individuals featured in the documentary films (half of whom were women) describe how they improved their socio-economic position from being poor or of average socio-economic position in their communities to being relatively successful. Researchers then utilized a specially designed survey instrument to elicit subjects' own desires and goals in a number of areas. The results of such a modest intervention were remarkable:

1. Being invited to a documentary screening session has a positive and significant effect of 0.12 (aspirations) and 0.11 (expectations) straight after the screening, compared to being assigned to the control group—or about 20 per cent of a standard deviation.
2. These effects persist after six months, although they decrease in size: aspirations and expectations among treated group are significantly higher than among the control group by 5 per cent of a standard deviation for expectations and 3 per cent of the standard deviation for aspirations.
3. Results show strong and positive direct effects on aspirations for children's education, and no such effects on income, wealth, or social status aspirations.
4. The aspirations boost from the experiment after the screening is only for those with above median aspirations and those with above median wealth. There is significant depreciation of this effect, and the boost in aspirations after six months remains only for those with above median aspirations to start with. Those with lower initial aspirations to start with are not affected by the screenings.
5. The intervention had positive and statistically significant effects on savings and borrowing behavior, as well as on children's enrolment in school and the amount spent on their schooling.
6. The effects on aspirations are in part mediated through the number of peers also exposed to treatment, and presumably by the discussions one has had with these peers.

A second study that considers the behavioral impacts of a program intervention looks at the effect of BRAC's Empowerment and Livelihood for Adolescents (ELA) program in Uganda on experimentally elicited competitive conduct (Buehren et al. 2016). ELA provides adolescent girls between the ages of 14 and 20 with training on 'hard' vocational skills to help them successfully transition into the labor market, and on 'soft' life skills to enable girls to make informed choices about sex, reproduction and marriage. The program is delivered from development adolescent

clubs, which are open five afternoons per week after school, and are led by a local female mentor. The results of the research, which were somewhat unexpected, were:

1. In contrast with the literature, adolescent girls and boys in Uganda compete at similar levels.
2. The study does not find evidence that the empowerment effects of the program on girls were accompanied by increased competitiveness.
3. In line with previous evidence, having sisters, relative to brothers, is associated with a lower willingness to compete for boys in control communities.
4. This pattern is reversed in treatment communities. There, the study finds that boys surrounded by (empowered) sisters are more willing to engage in competitive behavior.

Programs that seek to empower women by encouraging them to assume leadership positions may also have intended and unintended behavioral consequences. One such program is the Bihar (India) Rural Livelihoods Project (JEEViKA), which establishes women's community-based self-help groups (SHG) that provide a mechanism for savings and borrowing; the project also includes funding for community investment, technical assistance and innovation (Gangadharan 2014). Researchers were interested in the behavioral response to this kind of program, which has the potential for elite capture of resources by local female leaders. To measure these impacts, they conducted a series of artefactual field experiments eliciting intra-community levels of trust and willingness to contribute to a public good, where the key treatment in both sets of games was information about the gender of the other player(s). Comparing results across JEEViKA villages and a control group, subjects in treatment communities were on average more trusting, especially among women who were specifically targeted as program beneficiaries (literate women over 18 years old). Survey data also suggest that residents in JEEViKA villages were more likely to support women completing tertiary education and moving away from traditionally female occupations; they also see women as effective political leaders at the village level. However, using a measure of dishonesty taken from the public goods experiment as a proxy for elite capture, female leaders in program villages were more deceptive. This suggests that there may exist both behavioral costs and benefits to some women's empowerment programs.

4. Conclusions and Recommendations

A copious body of experimental research documents gender differences in some, but not all, areas of behavior relevant to economic decisions and conduct. Evolutionary and social psychology provide compelling theories for the origins of these differences, and persistent cultural norms around gender identity and women's continued primary responsibility for child rearing most likely reinforce their greater aversion to risk and competition, along with higher levels of cooperation and other-regarding preferences. In order for these behavioral insights to better inform development policy, we need to know more about how these experimentally-elicited gender differences vary with real world context. For example, do attitudes towards risk change when the risk is monetary, agricultural, or health-based? Does the gender gap in competitive behavior vary when the prize is financial versus related to children's well-being? And more generally, how do these behaviors differ across societies, cultures, and levels of economic development?

Because behavioral economic insights are still relatively new to many development policymakers, a limited number of programs have explicitly incorporated them into their design. In the three categories of behaviorally-based interventions reviewed here, results have been mixed in terms of impacts on women's economic empowerment. With regard to cooperation and peer mentoring, the evidence thus far suggests that if women are provided with both financial resources and social support (for example, in the form of examples of positive experiences of other women), some of the external and internal barriers to risk-taking may be mitigated. In a variety of social contexts, it appears that woman-to-woman mentoring—particularly where one of the women is somewhat better off economically and can therefore set an achievable example—can elevate aspirations, increase confidence, and diminish risk aversion. Building peer support into different kinds of programs—especially those seeking to encourage women to take on new financial or entrepreneurial risks, or to adopt unfamiliar technologies—may be particularly valuable for women who face a large number of restrictions on their mobility and opportunities to interact with others in their communities.

Programs that target women within households as the direct beneficiaries of welfare-enhancing technologies or income transfers may conflate two underlying hypotheses: that mothers' objectives and expenditure preferences are more closely aligned with those of her children and family, and that providing women with economic resources in her name will empower her with respect to intra-household resource allocation. Even where transfers are heavily subsidized (as in the case with cookstoves), it appears that women are sometimes unable to exercise their preferences if their husbands wield strong decision-making power. And while several studies now suggest that many of the human capital investment objectives of CCT programs may be achievable without gender targeting of payments, women's intra-household empowerment goals are most likely best served by providing the income directly to mothers.

Finally, with regard to agricultural insurance programs that have the potential to help rural women manage risk, it appears that more needs to be done to address gender-specific barriers to the uptake of these products. In particular, there is scope for learning more about women's lack of trust in financial institutions, low levels of financial literacy, and the relative weight they place on the kinds of environmental risk that crop and livestock insurance typically cover relative to other kinds of risks, such as those related to the health of themselves and their children.

Going forward, there is a promising research agenda to increase our knowledge of variations in gender differences in behavior across cultures, societies and levels of development. Replicating both laboratory and fieldwork-based experiments in a multitude of settings could help us learn more about the specific contexts in which women and men have distinct responses to risk, competition, cooperation, and a range of other important behaviors relevant to economic activities. In addition, modifications of existing protocols could help us go beyond generalization about gender differences in these fundamental behaviors, and learn about which kinds of incentives and program design principles would be most beneficial to women. Building the systematic measurement of gender-disaggregated behavioral preferences as part of program evaluation is another exciting area for future research.

With regard to program design, the clearest recommendation coming out of this review is to build on successful experiences of fostering woman-to-woman peer support and mentoring by building this feature into many different kinds of programs. Specifically, if program design can facilitate regular communication between higher achieving women and their less well-off peers, this may help ease some of the concerns that prevent poor women from investing in (relatively risky) new undertakings. A second recommendation, emerging from the research on gender-specific preferences and intra-household bargaining, is that the gender targeting of income transfer programs be maintained to help achieve women's empowerment objectives, even if human capital investment goals are not necessarily improved by making payments to mothers versus fathers. Finally, with respect to risk-mitigation programs such as index insurance, a promising approach worthy of piloting in several different contexts is to bundle the agricultural or livestock insurance product with financial education and instruments to help women address their other areas of concern and responsibility, such as saving for health emergencies.

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