Chapter 15

GENDER, HOUSEHOLD BEHAVIOR, AND RURAL DEVELOPMENT

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Our understanding of decision-making within rural households has changed substantially since interest in intrahousehold decision-making emerged in the 1980s. Conventional wisdom, rooted in the unitary theory of the household, held that households are groups of individuals who have the same preferences and fully pool their resources (Becker 1981). Accumulating empirical evidence has shifted this concept of the household in which households decide "as one" to a "collective" model in which individual household members may have different preferences, may not completely pool resources, and may bargain over outcomes in both production and consumption (Haddad, Hoddinott, and Alderman 1997).

Much of the literature on gender and agriculture since the late 1990s has contributed to the empirical evidence supporting the collective models of the household. These have included studies showing differential propensities to spend out of income controlled by men or women (for example, Hoddinott and Haddad 1995); differential effects of men's and women's assets on consumption (Doss 2006), household expenditures, and schooling (Quisumbing and Maluccio 2003); incomplete sharing of risk within the household (Doss 2001; Goldstein and Udry 2008); and inefficiency of resource allocation on plots managed by men and women (Udry 1996). These findings have influenced the design of programs that targeted women, such as conditional cash-transfer programs, which have in turn generated a large pool of evidence that economic transfers controlled by women are associated with investments in child schooling, health, and nutrition (see the systematic review by Yoong, Rabinovich, and Diepeveen 2012).

Although this transition has provided important insights into how we understand rural households, it misses key elements of household dynamics. Even if household members do not completely pool resources, the fact that they form households and share ownership and control over some resources, work on family farms, produce output jointly, have and raise children together, and share in some consumption indicates that there are gains to jointness in

gender and family dynamics (Fafchamps and Quisumbing 2008; Doss and Meinzen-Dick 2015). Understanding both individual roles within households and the levels of cooperation or jointness is essential to analysis of households, especially in rural areas where households engage in both production and consumption.

This chapter reviews recent conceptual and empirical developments regarding household behavior and gender norms in developing countries covering the following general topics: (1) What do the data tell us about gender gaps in control and ownership of resources? (2) What have we learned about jointness in household behavior? (3) What do the data tell us about the resources that men and women control, whether solely or jointly? (4) Why does it matter?

Household Behavior: Beyond Individual Threat Points to Cooperation

Early work on household decision-making (Becker 1981) treated the household as the decision-making unit.[1] Analytically, this assumes either that all household members have the same preferences, pool all resources, and agree on all decisions, or that one household member makes the decisions for everyone. Although these models have been enriched by including both production and consumption, as in the agricultural household model (for example, Singh, Squire, and Strauss 1986), which treats these decisions as recursive (households first decide how much to produce, then allocate what is produced across public and private household goods), most of them relied on the assumption of the unitary household. The women in development literature provided initial evidence that households did not necessarily make joint decisions and that men's and women's roles and responsibilities impacted production decisions.[2] While this literature initially focused on demonstrating that ignoring gender roles could result in inefficient outcomes for projects, it also had implications for understanding how gender roles and power dynamics shape household decisions. Studies of agricultural commercialization and nutrition drew attention to the possibility that potential losses of control of women's income would have detrimental effects on nutrition (von Braun and Kennedy 1994) and led to increased interest in resource allocation within households.

1 This section draws heavily on Doss and Meinzen-Dick (2015).

2 See the edited volume by Dwyer and Bruce (1988).

The increased attention to intrahousehold outcomes occurred in parallel with the development of the collective model of the household. All collective models of the household have two common features: they allow different decision-makers to have different preferences and do not assume a single household welfare index or utility function (Chiappori 1992). Much of this literature uses a game theoretic framework and begins with the assumption that the household will reach an efficient outcome. Thus the household could not produce more simply by reallocating labor or other resources, and goods and services could not be reallocated across household members to make at least one better off without making anyone worse off. Assumptions that preferences differ by gender allow tests of how men's and women's bargaining power affects outcomes.

In cooperative bargaining models, a subset of the collective models, each individual is defined as having an outside option or a "threat point." This is the amount of resources that they could access if they were not part of the household. Each individual must obtain at least their outside option within the household or they will leave. Depending on the context, "leaving" could involve divorce or desertion, or it could involve simply opting out of pooling resources and making joint decisions. The important policy insight from these models is that outside options affect household resource allocation. For example, women's wages, such as in public works programs, affect household resource allocation, even in households where women are not employed. Changes in laws governing men's and women's property rights and transfer programs, particularly those targeting specific household members, all change the outside options of individuals.

Studies have tested the collective model of the household in developing countries, using various proxies for women's bargaining power within the household including education, assets, and family background (for overviews of the literature, see Schultz 2003; Quisumbing 2003; Fafchamps and Quisumbing 2008). Although endogeneity problems often make it difficult to establish causal relationships, there is increasing evidence that women's bargaining power affects the outcomes of household decisions. Impact evaluations of conditional cash-transfer programs implemented in the late 1990s and beyond provided additional evidence that resources controlled by women had differential impacts on household decisions, particularly those related to child health and education (Yoong, Rabinovich, and Diepeveen 2012).

In contrast, noncooperative bargaining models do not assume that resources are pooled and explicitly allow for outcomes where potential gains

from cooperation have not been realized. Individuals may act strategically; each individual makes separate but interrelated production and consumption decisions based on his or her own preferences and interests and expectations of what others will do. Many studies find outcomes that are consistent with noncooperative bargaining models. Jones (1983) found that women contributed less than optimal amounts of labor to household rice production, preferring to produce lower-value sorghum, since women felt that they were not adequately compensated within the household for their work on irrigated rice fields. Udry (1996) found that total household crop yields could have been increased by shifting fertilizer from men's fields to women's fields. McPeak and Doss (2006) found that male household heads among East African pastoralists located the household farther from town to limit women's milk marketing. Experimental games, in particular, have identified strategic behavior between spouses (Ashraf 2009), couples making choices that do not maximize surplus (Iversen et al. 2010), and that outcomes differ depending on the process through which income was acquired (Dasgupta and Mani 2013).

Bargaining models, however, typically formulate threat points as individual threat points—resources that the individual can control upon leaving the union—and most often focus on individually consumed goods (or leisure) rather than joint production or consumption of the public good. Yet the existence of public goods and economies of scale in household production are two reasons that households form. And the reality is that all over the world, men and women work together on family farms. Even if some plots may be solely managed by the man or the woman, there is joint production and management of at least some of the household's land, men's and women's labor are applied on each other's plots, and children are very often raised jointly by their parents.

The focus on individual control or ownership of resources may lead us to neglect the possibility that individuals within households may engage in some resource-pooling and risk-sharing, even if incomplete. A recent study on Malawi by Josephson (2016) tests the assumption that all household income is pooled, accounting for joint income, as well as income earned individually by men and women. Exploiting the variation in expenditure by different income earners resulting from exogenous variation in rainfall, she finds that household members partially insure one another for expenditure on essential goods (such as food, clothing, education, and healthcare) but do not insure one another for luxury goods, including cigarettes and alcohol, recreation, and housing and utilities. Interestingly, she finds that households in matrilineal

areas of Malawi completely pool income and fully insure one another against income variation, while households in nonmatrilineal areas do not. This societal difference is not driven by the sex of the household head: female-headed households do not behave differently from those headed by men. She concludes that societal structures play an important role in intrahousehold income allocation.

Quisumbing, Kumar, and Behrman (2018) use panel data to examine whether shocks affect men's, women's, and jointly held assets differently in Bangladesh and Uganda. Across countries, covariate and idiosyncratic shocks have different effects on solely and jointly owned assets. Jointly held land and assets were better insured against food price increases in Bangladesh, unlike jointly held assets and wives' assets in Uganda. Similar to Josephson's findings on societal structures, Quisumbing, Kumar, and Behrman (2018) posit that differences in the institution of marriage and cultural concepts of joint and individual ownership affect the extent to which joint or individually owned assets are used to cope with shocks. In Bangladesh the results that show generally insignificant impacts on joint land and asset holdings—while individual assets are sacrificed at the margins—indicate that husbands and wives try to preserve the economic base of the household unit. In contrast, in Uganda husbands' assets appear better insured than wives' or even joint assets.

Most of the intrahousehold bargaining literature focuses on the relationships within a couple. This work has expanded to also consider the dynamics within polygynous households, especially regarding production efficiency (Akresh, Chen, and Moore 2016; Kazianga and Wahhaj 2013), cooperation (Barr et al. 2019), potential impacts of transfer programs on intimate partner violence (Heath, Hidrobo, and Roy 2020), and the dynamics between parents and children, especially in the context of migration (Cong and Silverstein 2011; Ambler 2016).

Research is beginning to explore the circumstances under which households cooperate and the circumstances under which there are gains to cooperation. Some of this research is inspired by work on collective action and natural resource management (see an extensive review in Doss and Meinzen-Dick 2015), by more detailed data that are better able to identify sole and joint asset ownership, and by findings from impact evaluations. Work by Barr et al. (2019) explores decision-making and cooperation within polygynous households; as cash-transfer programs expand to Africa, impact evaluations are also paying more attention to the implications of polygyny on the design and implementation of those programs (Heath, Hidrobo, and Roy 2020). We discuss emerging findings below.

What Do the Data Tell Us about Gender Gaps and Joint Ownership?

The shift to collective and bargaining models of the household resulted in a focus on the individual level. Slowly, large-sample household surveys have begun to collect more sex-disaggregated data. For agricultural household surveys this often includes information on ownership and management of plots within the household, information on the ownership of agricultural and other assets, and questions on who is involved in decision-making, regarding both production and consumption decisions. These data have facilitated both gender analyses and intrahousehold analyses, and have revealed the extent of gender gaps in the ownership and control of resources.

Gender Gaps

Although there are wide regional and country variations, most data sources show that there are persistent gender gaps in the ownership and control of land and assets (FAO 2011; World Bank 2011). Gender gaps have been documented across resources such as land (Lastarria-Cornhiel et al. 2014; Doss et al. 2015; Kieran et al. 2015; Deere and Leon 2003), assets (Deere et al. 2012; Doss et al. 2014), nonland inputs (Peterman, Behrman, and Quisumbing 2014), credit (Fletschner and Kenney 2014), and extension services (Ragasa 2015). In land, arguably one of the most important assets for rural households, analysis of nationally representative datasets in Africa south of the Sahara and Asia shows that men own a much larger proportion of household agricultural land than women do (Table 15.1), although a considerable proportion of land is also owned jointly.

Similarly, an analysis of housing and livestock data from surveys designed specifically to examine gendered assets ownership in Ecuador, Ghana, and Karnataka, India, finds that individual men are much more likely to own the principal residence as well as large and small livestock than women (Doss et al. 2011). The one exception is in Ecuador, where individual women are more likely than individual men to own their residence. This reflects the joint marital property regime in Ecuador, which attributes all property acquired during the marriage jointly to the husband and wife. Thus married men own their residence jointly with their wife, and fewer single heads of household who are men own a residence compared with those who are women. Only in Ecuador are individual women more likely than individual men to own any form of livestock and that is only for small livestock and poultry.

There is also evidence that gender gaps in schooling, historically favoring men, have begun to close. The World Bank (2011) estimates that gender gaps

TABLE 15.1 Share of household agricultural land area held by women, men, and jointly by both (%)

Country (date)	Definition of ownership	Women	Men	Joint
Ethiopia (2011–2012)	Registered	15	45	39
Malawi (2010–2011)	Owned	40	42	18
Niger (2011)	Owned	9	62	29
Nigeria (2010)	Right to sell (use as collateral)	4	87	9
Tanzania (2010–2011)	Owned	16	44	39
Uganda (2009–2010)	Owned	18	34	48
Bangladesh (2011–2012)	Documented	10	88	2
Timor-Leste (2007)	Land manager	12	88	n.a.
Tajikistan (2007)	Owner	14	86	n.a.
Viet Nam (2004)	Owner	72	15	13

Source: Doss et al. (2015); Kieran et al. (2015).
Note: n.a. = not applicable

in primary education have closed in almost all countries. In secondary education these gaps are closing rapidly and have reversed in many countries, especially in Latin America, the Caribbean, and East Asia—but it is now boys and young men who are disadvantaged. Among developing countries, girls now outnumber boys in secondary schools in 45 countries, and there are more young women than men in universities in 60 countries.

Joint Ownership

While the data reveal striking patterns of gender differences, they also reveal that property is often owned jointly, although the patterns differ widely across countries and assets. Table 15.1 shows a high proportion of agricultural land owned jointly; in Uganda 48 percent of agricultural land is owned jointly. In five of the eight countries in Africa and Asia for which data is available, more land is owned jointly than owned by women. Similarly, Table 15.2 shows that, in Ecuador, among households that owned their principal residence, 41 percent of the time it was owned jointly by the couple. Deere, Alvarado, and Twyman (2012) analyzed data from nationally representative surveys in Latin America and found wide variations in the extent of joint ownership.[3] Among households owning their home, the percentage of households

3 These data were all from nationally representative household surveys collected between 2000 and 2005. See Deere, Twyman, and Alvarado (2012) for details.

TABLE 15.2 Distribution of asset ownership, by form of ownership (%)

Asset	Country	Individual woman	Individual man	Couple	Household	Other
Principal residence	Ecuador	30	16	41	5	9
	Ghana	25	51	11	0	13
	Karnataka	23	64	4	0	9
Large livestock	Ecuador	10	48	27	12	2
	Ghana	8	84	1	2	5
	Karnataka	3	5	5	85	2
Small livestock	Ecuador	34	18	28	18	2
	Ghana	29	61	4	3	2
	Karnataka	3	5	6	84	2
Poultry	Ecuador	43	7	28	20	2
	Ghana	34	55	5	5	1
	Karnataka	10	7	7	75	0

Source: Based on Doss et al. (2011).

reporting joint ownership was very low in Central America (2.5 percent in Guatemala; 3 percent in Honduras; 6.3 percent in Nicaragua) and in Paraguay (3.5 percent), Chile (3.4 percent), and Mexico (3.3 percent). In other areas it was much higher: 15.9 percent in Panama, 40.7 percent in Argentina, and 41.3 percent in Ecuador.

For livestock, Table 15.2 indicates that it is common for livestock to be owned jointly in Ecuador and that in Karnataka the majority of respondents indicate that livestock is owned by everyone in the household. These data are all based on reports of ownership from one respondent in household surveys. Typically the respondent is the head of the household or the person who claims to be most knowledgeable. Yet evidence suggests that the responses to a variety of survey questions depend on who is providing the answers. These include questions about income (Fisher, Reimer, and Carr 2010), financial information (Fletschner and Mesbah 2011), and labor force participation (Badarsi et al. 2011). Data experiments conducted in Uganda, using an experimental design to identify the impacts of the choice of respondent(s) on patterns of asset ownership (Kilic and Moylan 2016), find differences in the reported patterns of asset ownership, depending on which household member was interviewed, whether multiple household members were interviewed, and whether respondents were asked about only their own assets or about those of all household members.

Analysis of the Bangladesh Integrated Household Survey finds that husbands and wives provide different answers about whether the household owns any agricultural land in 4.5 percent of households, and of those households that agree that land is owned, the spouses report the same answer for who owns most of the agricultural land in only 83 percent of households (Ambler et al. 2021). One reason for the discrepancy is that women are more likely than men to include others as owners. In other words, men will report that they own the land individually, while women report that it is owned jointly. Thus the analyses discussed earlier might suggest higher patterns of joint ownership if women were the ones responding.

A second challenge in analyzing data on joint ownership is that "joint" doesn't necessarily mean "equal." Evidence from both Uganda and South Africa finds that wives have fewer rights than their husbands over land that is reported as jointly owned (Jacobs and Kes 2015; Doss, Meinzen-Dick, and Bomuhangi 2013). Little quantitative data is available to analyze these issues. Even if surveys ask about joint ownership, they don't follow up with questions that would provide insights into what that means. Qualitative fieldwork may be useful for understanding the rights held by joint owners. The literature is still quite unclear on whether joint or individual ownership is better for women and what "better" might mean.[4] Women's property rights are embedded in the household and community; depending on the particular context, women may prefer individual or joint rights. Laws and norms identifying all property of married couples as being jointly owned will typically give married women claims to a larger amount of property than if they simply own some property individually. However, joint property rights may make it more difficult for women to leave abusive relationships, since it may be more difficult to retain their property.

Joint Decision-Making

Analyzing women's role in household decision-making has a relatively long history. The Demographic and Health Surveys have collected decision-making questions routinely for many years and these data are often used in analyses of outcomes related to the well-being of both women and children. Similar questions are now incorporated in many other large sample surveys. Many agricultural surveys have now incorporated questions about who decides with regard to choice of crops, use of inputs, and what to do with the output.

4 See Jackson (2003) and Agarwal (1994) for two different perspectives on this.

Decision-making within the household is used as an indicator of women's agency, women's empowerment, and women's bargaining power.

The DHS asks who usually makes decisions about six different areas, including contraception, expenditures, healthcare, and visits to family. The answers are typically coded as respondent, spouse, joint, or someone else. Most of the analyses using these data either combine the respondent and joint responses (Acharya et al. 2010) or treat them as hierarchical, with women making the decision alone as demonstrating the most decision-making power, and thus the most empowerment, followed by joint decision-making, with the woman not being involved as indicating the lowest level of empowerment. The questions may be framed in different ways. The DHS asks who usually makes decisions. Other surveys ask who has the final say. Other surveys simply ask if the woman participated in the decision. There is no consensus on which set of questions is best. However, these questions do not consider the processes of decision-making nor the issue of whether there is conflict or agreement within the household about what the decision should be. It is quite different to claim to be the one with the final say when you disagree with your spouse about the outcome than when you share the same preferences.[5] In addition, the reasons for why the decisions are made by a particular person may affect the outcome. If the man makes all of the agricultural decisions because he is running the farm while his wife is running another business, the implications may differ from a situation where she contributes much of her labor to the farm.

Surveys that allow options for reporting joint decision-making frequently find a relatively high proportion of decisions being made jointly. In a sample of couple households in Ecuador, Twyman, Useche, and Deere (2015) find that 63 percent of cultivation decisions and 50 percent of the input decisions are made jointly. They also find that the reporting differs depending on whether you interview a man or a woman. Similarly, in Tanzania, Anderson, Reynolds, and Gugerty (2017) find statistically significant differences in responses regarding wives' authority in making agricultural decisions, although the magnitudes of the differences are small. In Ecuador, Alwang, Larochelle, and Barrera (2017) randomized who was interviewed about agricultural decisions, interviewing only a man, only a woman, and interviewing both within a household (interviews were separate, but they knew the other would be interviewed). Men were more likely to claim that they were solely responsible; women claimed some responsibility for themselves and also were more likely to say that the responsibilities were joint.

5 These issues are discussed in much more detail in Donald et al. (2020).

Although households may make some decisions jointly, it is also important to recognize that household members may behave strategically with regard to resources and information. The experimental evidence on this is growing. Ashraf (2009) finds that the financial choices of married individuals vary depending on whether their choices are private or observable and whether spouses are encouraged to communicate as part of the savings choice experiment in the Philippines. In Uganda there is evidence of couples making choices that do not maximize surplus (Iversen et al. 2010); Dasgupta and Mani (2013) find that the process through which income was acquired affects outcomes. And finally, Ambler (2015) finds strategic behavior on remittance decisions in transnational households and the amounts of remittances vary based on the extent of the information between the migrant and the recipient.

Research on decision-making in polygynous households has lagged behind that focusing on spousal pairs. Yet the high incidence of polygyny in Africa south of the Sahara, with more than 40 percent of women in polygynous marriages (Barr et al. 2019), particularly in West Africa, demands that close attention be paid to this more complex household structure. Barr et al. (2019), using a series of public goods games in Kwara, Nigeria, find that in comparison to monogamous couples, polygynous husbands and wives are less cooperative with each other and that co-wives are least cooperative with each other. In contrast, in another study using observational data, Damon and McCarthy (2019) find that jointly managed plots in polygynous households in Malawi have higher yields and higher crop values than either men's plots in polygynous households or plots in monogamous households. Although the two studies do not study the same outcomes in the same context, it is clear that these findings are context-dependent and that it would be unwise to assume that polygynous households in different societies behave alike. Research on the institution of polygyny is an important area of future work, particularly in relation to the design and implementation of development programs. Heath, Hidrobo, and Roy (2020), for example, find that a cash-transfer program in Mali, where transfers were given to household heads, who were mostly male, significantly reduced intimate partner violence in polygamous households but had limited effects in monogamous households. They attribute the differential impact among polygamous households to reductions in men's stress and anxiety in polygamous households and larger reductions in disputes in polygamous relative to monogamous households. We have very little evidence on how other programs may differentially affect households with complex structures; this is a promising area of future work.

Why Understanding Household Behavior—and Jointness—Matters

Myths and assumptions regarding rural household behavior can be barriers to reducing poverty and achieving desired development outcomes. In this section we discuss the consequences of assuming that households act in a unitary manner, the unintended consequences of targeting women only, and the potential benefits to recognizing areas of joint and individual ownership and action in rural households.

Consequences of Assuming a Unitary Model of Household Behavior

In their 1997 book, Haddad, Hoddinott, and Alderman list four types of policy failures that may arise if policymakers use the unitary model of the household as their basis for policy prescriptions: (1) differences in the effect of public transfers, depending on the identity of the recipient; (2) the possibility that nonrecipients of the transfer may compensate for the transfer, thereby negating the intention of the transfer; (3) implications of targeting only one household member for information because of the assumption that information, like other resources, is shared within the household; and (4) most important, disabling policy instruments that could be brought to bear on development problems. The authors argue that the unitary model predicts that household behavior can be changed only by changes in prices and household incomes.

In contrast, collective models posit that a large range of policies can be used to affect household allocation outcomes, such as changes in access to common property resources, credit, public works schemes, and legal and institutional rights. Policymakers have used the findings from early research on intrahousehold issues by designing programs that aim to change household behavior, such as the conditional cash-transfer programs in Latin America (now all over the world), most of which designate the mother as the transfer recipient (see the edited volume on the Latin American experience by Adato and Hoddinott 2010 and the systematic review of programs transferring economic resources to women by Yoong, Rabinovich, and Diepeveen 2012).

The assumption that resources are completely pooled has been used to justify the lack of attention to closing gender gaps in resources. Yet, as gender gaps are documented, and as evidence accumulates about the nonpooling household, more estimates of the costs of gender gaps have become available. FAO (2011) estimated that if women had the same access to productive resources as men, they could increase yields on their farms by 20 percent to

30 percent, potentially raising total agricultural output in developing countries by 2.5 percent to 4 percent, which could reduce the number of hungry people in the world by 12 percent to 15 percent. Although these estimates are plausible and attracted attention to the potential costs of the gender gap in agriculture, these numbers were calculated using the estimated production functions for women assuming that they used the same levels of inputs as the men. They are not the result of programs that provide men and women with equal levels of inputs, such as a randomized controlled trial (Doss 2017). They do not account for the endogeneity of input application nor ways to feasibly increase input application by women.

More recently, estimates of the costs of gender gaps in access to resources have been further refined using data from the World Bank's Living Standard Measurement Study–Integrated Survey of Agriculture and Kitagawa-Oaxaca-Blinder decomposition analysis in six countries in Africa south of the Sahara (Kilic, Winters, and Carletto 2015).

These results are summarized in World Bank and ONE Campaign (2014) and reproduced in Table 15.3. The value of total crop output per hectare is compared across plots managed by men and women. Analyses from six countries (Ethiopia, Malawi, Niger, Nigeria [analyzed separately for northern and southern Nigeria], Tanzania, and Uganda) find statistically significant gender gaps in productivity for all but northern Nigeria and Tanzania when simply comparing the differences in value of output. Controlling for plot size and geographic factors, the gender differences generally increase rather than decrease. In Niger the gender gap increases from 19 percent to 66 percent. While the gap loses statistical significance in southern Nigeria, a gender gap of 46 percent results in northern Nigeria. Doss (2017) points out that one reason for these dramatic differences is that women, on average, have smaller holdings than men. Given the inverse relationship typically found between farm size and productivity, since women have smaller farms, they would be expected to have higher productivity per unit of land than men. For Malawi, Niger, Nigeria (both northern and southern), and Uganda, after accounting for the differences in farm size, the gender gap widens. In these countries, among smallholder farms, there is an inverse relationship between farm size and productivity; smaller farmers are more productive per unit.

There are fewer estimates of productivity gains in Asia, where men and women farm most land jointly, and therefore sex-disaggregated data on plot managers are rarely collected. A recent exception is a study from Bangladesh using nationally representative data from a 2012 survey that collected information on men's and women's empowerment using the Women's Empowerment

TABLE 15.3 Gender gaps in agricultural productivity, by country (%)

Country	Simple difference	Difference after accounting for plot size and regions
Ethiopia	23***	24***
Malawi	25***	25***
Niger	19***	66***
Nigeria, northern	4	46***
Nigeria, southern	24*	17
Tanzania	6	23***
Uganda	13***	33***

Source: World Bank and ONE Campaign (2014).

Note: * = difference significant at $p < 0.10$; *** = difference significant at $p < 0.01$.

in Agriculture Index (Alkire et al. 2013). Seymour (2017) found that reduced gender disparities within households (measured in terms of the empowerment gap between spouses) are associated with higher levels of technical efficiency both on plots that women jointly manage with their spouses as well as on those for which women did not report any involvement in agricultural decision-making. Aside from potential gains in agricultural productivity and incomes, closing gender gaps has potential returns in terms of investment in the next generation's education and health as well as more representative decision-making (World Bank 2011). This does not include the intrinsic gains from women's empowerment and gender equality in their own right.

The existence of social norms and gender-specific constraints affecting women is well documented, and so are their consequences both globally as well as in the agricultural sector (World Bank 2011; FAO 2011; Quisumbing et al. 2014). While national legislative structures are now in place in many countries, efforts to transform gender norms often continue to meet with reluctance or resistance, especially when they involve changing deeply embedded norms that are tied up with what it means to be men or women in different cultures. This issue is exemplified in discussions about women's land rights, where even when they are codified in statutory law, they are often not recognized in practice (Meinzen-Dick et al. 2017). Yet many development projects, particularly those implemented by civil society organizations, explicitly aim to transform gender roles and empower women.

Consequences of Targeting Women Only

To redress years of agricultural development programming targeted to men, many development organizations and governments have targeted women

exclusively. One widespread example is the targeting of microfinance programs to women, arguing that such programs contribute to their empowerment. Another example is the targeting of transfers to women, as in conditional cash-transfer programs or food aid, as well as the targeting of nutrition behavior change communication (BCC) programs to mothers. Although these programs cite the findings from early work on intrahousehold allocation demonstrating the high returns in terms of child health and nutrition from targeting transfers and credit to women, as well as the hypothesized positive relationship between women's empowerment and child nutrition, much of this evidence comes from observational studies.

For example, the systematic review of interventions by Yoong, Rabinovich, and Diepeveen (2012) found that economic transfers controlled by women tended to improve child human capital outcomes, but only 15 studies using experimental or quasi-experimental techniques met the inclusion criteria. Another recent systematic review finds mixed effects of microcredit on women's empowerment, with small effect sizes. Moreover, the authors are doubtful about the methodological quality of the evidence base (Duvendack, Palmer-Jones, and Vaessen 2014). These mixed results are partly attributable to the heterogeneity of microcredit interventions, contexts, and target groups (Duvendack, Palmer-Jones, and Vaessen 2014: 75), which in turn come from differences in the way that women's empowerment is conceptualized, both in the interventions and in impact evaluations.

The synthesis of findings from gender-sensitive impact evaluations of eight agricultural development projects (Johnson et al. 2016) is also instructive about the limitations of designing and implementing any program or project that targets women in isolation from their households, families, and communities. First, there is no guarantee that such a transfer, even if designed to be controlled by women, will remain under their control—or that households will not undertake compensatory behavior. Of eight projects included, four increased women's assets. Three of these four distributed assets directly to women and took steps to ensure that women maintained control of the transferred assets. The steps taken—putting a women's name on the land title, supporting women to reclaim assets that were taken from them, influencing gender norms about asset ownership—varied but all had the effect of supporting the initial asset transfer. Although the CARE dairy value chain project did not distribute assets, households that received the value chain intervention were able to increase their stock of jointly held nonagricultural productive assets because dairy incomes were reinvested in other types of assets, diversifying the asset portfolio (Quisumbing et al. 2013).

However, men in participant households also increased their assets through the projects, and often more than women did, leading to a net increase in men's asset holdings relative to women's. An evaluation of BRAC's Targeting the Ultra Poor asset transfer program found that, relative to the control group, while women's ownership of program assets grew, men's sole ownership of all other assets grew (Das et al. 2013; Roy et al. 2015). CARE reported significant increases in household-level assets (goats, agricultural productive assets, nonagricultural productive assets) relative to a control group of households in the same villages that did not participate in the dairy value chain program. These increases were driven largely by increases in assets owned by men, although the increase in men's assets is not significantly different relative to the control group. Only in a homestead food production program in Burkina Faso, implemented by Helen Keller International (HKI), was there any evidence of women closing the gender asset gap. Women's value of agricultural assets in intervention villages increased, whereas men's decreased (van den Bold et al. 2015). The project had no impact on the area of land cultivated by either men or women, although qualitative work indicates that gender norms became more favorable toward women's landownership in treatment as compared with control areas.

Taken together, these results show that although it is possible to increase women's control and ownership of assets, it is not easy or automatic, even in projects that transfer assets to women. Given the gender norms that govern asset ownership, to the extent that project benefits get reinvested in assets, those assets are likely to be controlled primarily or exclusively by men. Explicit steps appear to be necessary to increase the chance that women will maintain and accumulate assets, including efforts to influence the norms around the acceptability of women having control of assets, either individually or jointly with others in the household. Some common barriers that projects face include: resistance or uncooperative attitudes of local government officials or even program staff toward women asset owners; deep-seated cultural norms that view particular types of assets as men's assets, such that even if a program targets women, men still maintain control of those assets and make major decisions regarding them; and possible dilution of the net effects of the asset transfer as proceeds are reinvested in assets owned by men (Johnson et al. 2016). Recognizing joint ownership—not only in how assets are measured but also in how asset transfers are designed in projects that target households—could broaden the scope for change.

In addition, targeting agricultural programming to women may inadvertently increase their workload. A recent systematic review of the impact of

agricultural interventions on time use (Johnston et al. 2018) found that (1) women play a key role in agriculture, which is reflected in their time commitments to these activities, whether as farmers or as farmworkers; (2) women are important actors in the uptake and response to agricultural interventions; and (3) agricultural interventions tend to increase women's, men's, and children's time burdens. Consistent with the findings of the systematic review, the evaluations of asset-transfer projects reported that the transfer of assets had impacts on women's time. All projects that transferred livestock—BRAC, Land O'Lakes, and HKI—found that caring for livestock, especially improved or exotic breeds that tend to have greater nutrition and health needs, led to an increase in demand for women's time (Quisumbing et al. 2015). These new livelihood strategies increased demand for time of other household members as well, including men and children. The Land O'Lakes study reported that although the greatest increase in time spent on dairy was for women's time, labor increased for all household members, and men provided the largest amount of total labor for dairy production (Johnson et al. 2015).

To understand the impact of these increased time burdens, we need to know what household members were doing with their time *before* the projects. The CARE evaluation looked at changes in time spent by household members in a range of activities and found that women in program households spent more time on dairy and less on childcare (feeding and general care) than control households in the same communities (Quisumbing et al. 2013). This could be a cause for concern because the time women spend on childcare is a determinant of child nutritional outcomes (Herforth and Harris 2014). Findings from the BRAC evaluation state that some women complain about workloads associated with program assets and said that other family members had to help with care of livestock, especially cows (Das et al. 2013). Nonetheless, these women prefer their current situation to the previous situation of not having livestock and working outside the home.

Gains to Recognizing Jointness and Addressing Both Men and Women

Early work to include women in agricultural development projects typically targeted women as independent producers, growing particular crops on their own plots of land. Yet both women and men are involved in agricultural production within the same household as well as being involved in consumption decisions. Failing to recognize jointness in decision-making and control of productive resources may neglect gains to cooperation and to involving men as well as women. For example, most agricultural programs target extension

advice about agriculture to men, and nutrition messages, as relevant, to women. For example, a HarvestPlus project that disseminated biofortified orange sweet potato (OSP) vines to farmers' groups gave nutrition messages about vitamin A to women but not their husbands. In examining adoption decisions within households, Gilligan et al. (2020) found that plots of land exclusively controlled by women are not more likely to contain OSP, but plots under joint control of men and women, in which a woman has primary control over decision-making, are significantly more likely to contain OSP. Plots exclusively controlled by men are the least likely to contain OSP.

This evidence indicates that women play an important role, and often a leading role, in the decision to adopt OSP, but that this decision is often jointly made with their husbands. Because of the jointness of these decisions, the current strategy of targeting only women with nutritional training may be missing an opportunity to create an awareness of the benefits of OSP among men. The evaluation of the REU project found no evidence of impact of fathers' knowledge of child-feeding practices in Uganda (de Brauw et al. 2010), but the contribution of nutrition messages received by women on the impact of the project on OSP adoption and dietary intakes of vitamin A appears to be relatively small (de Brauw et al. 2012). Nonetheless, in this setting our results suggest that engaging with adult men and women household members might be the best strategy to promote adoption.

In a study of the adoption of maize technologies in Ghana, Doss and Morris (2001) found that there were no significant differences in technology adoption between men and women farmers living in male-headed households. Women living in female-headed households were less likely to adopt the technologies. This suggests that women living in male-headed households had access to information or other resources through their households that women in female-headed households were not able to access.

In a study of social networks and the adoption of agricultural technologies in India, Magnan et al. (2013) found that men and women in the same households have very distinct networks of agricultural contacts. Although women's networks are as large as men's or, in the case of poor households, substantially larger, women's connections are more likely to be with poorer households that are less likely to adopt new technology. In contrast, poor men with smaller agricultural networks tend to be connected to wealthier and more progressive farmers who are more likely to be early technology adopters—either because being wealthy or progressive has a direct positive influence on adoption or because these factors attract extension assistance. Because of their wider reach,

public extension services and private service providers could use women's social networks, particularly among poor households, to facilitate inclusive technology dissemination.

Conclusion and Ideas for Future Research

Many policies and interventions designed to address intrahousehold relations and promote gender equality have been influenced by the intrahousehold literature, particularly that based on bargaining models. These policies and interventions have targeted women, seeking to strengthen their incomes or bargaining power. Although this is an improvement over policies that were gender-blind, and assumed that gains from the project would be shared equally within the family, this framing implies a zero-sum game and can lead to opposition or backlash from men. By contrast, framing the policies or interventions as seeking to strengthen household welfare for shared gains can gain greater support from men as well as women. Children's welfare is often one of the household "public goods" that can be highlighted for cooperation. For example, a homestead garden project of Helen Keller International in Burkina Faso emphasized improving maternal and child nutrition but contributed to changes in attitudes that favored women's access to and control over land (van den Bold et al. 2015).

Similarly, acknowledging that households have joint interests, and designing policies and programs to strengthen cooperation and collective action among household members, may open new areas for policies and interventions. This could lead to designing and implementing agricultural development projects that (1) involve men as well as women in nutrition education activities; (2) target agricultural extension to both men and women within the same household; (3) discuss gender norms within the family and community to address women's decision-making power in agriculture and nutrition, time burden, mobility, as well as household resource allocation, domestic violence, and intrahousehold respect and communication; and (4) involve other household members, such as elders, in project activities (Quisumbing et al. 2017).

Simply shifting from a model of the household in which everyone is an independent actor to one in which there is both cooperation and conflict is an important first step. Household members do come together, to produce both agricultural and nonagricultural goods and use some for home consumption while selling others. We need to understand which resources are shared, and what "shared" means, in different social and cultural contexts, including

contexts with more complex family structures such as extended families and polygynous households. We also need to better understand the decision-making processes; knowing when we need information from both spouses (in a monogamous union) and from co-wives (in a polygynous union) and finding ways to categorize a range of decision processes that involve different levels of input and final control from various household members. While we should not assume that they always obtain Pareto efficient outcomes, neither should we assume that there is no joint production.

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