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Gender in Economic Research on International Migration and Its Impacts: A Critical Review

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Gender in Economic Research on International Migration and Its Impacts: A Critical Review

The determinants and impacts of international migration have been the subject of a prolific and growing literature in economics and the other social sciences. More than 175 million people live outside their country of birth. Since the 1960s, the number of females who have participated in international migration has been nearly as great as the number of males, and today the share of females in the world's international migrant population is close to one half. Nevertheless, only recently has there been a concerted effort to bring gender into the study of international migration, and most of the gender-and-migration research to date has been in fields outside of economics.

Even the most highly aggregated data suggest that international migration patterns vary between the genders. For example, the 2000 U.S. Decennial Census uncovered more male than female immigrants from El Salvador, but more female than male immigrants from the Dominican Republic. India-to-U.S. migration is male dominated, while immigration from China and South Korea to the United States is dominated by females.

Differences in gender ratios between temporary and permanent migrants are similarly intriguing. The 2002 Canadian Census found about twice as many foreign-born female as male permanent residents. The female-to-male ratio is smaller for Canadian immigrants from the United States and Central and South America than for other regions, but females still predominate. In contrast, temporary migrant entries from the top sending countries in 2002, including Mexico, India, the United States, France, Germany, and China, were dominated by males.¹

On a more micro scale, data from the 2003 Mexico National Rural Household Survey show that most villages in Mexico send more males than females to the United States, but some send more females.

What can explain these differences in migratory patterns between men and women? There are many potential hypotheses. Gender segmentation of the immigrant labor market in receiving countries undoubtedly influences the gender composition of immigration flows. For example, the United States economy draws large numbers of low-wage laborers from Mexico to work in male-dominated agricultural and service jobs, including construction, gardening, and janitorial work. Asian cities attract large numbers of nurses and domestic-service workers from the Philippines. Immigration laws also can affect the gender mix. The gender composition of permanent and temporary immigrant visas reflect historical and current policies, which may affect women differently than men. Some policies promote family reunification, some aim to fill low-paying jobs that cannot be filled by domestic workers, and others attract high-skilled workers in competitive fields in which one gender may predominate. Immigration laws can induce temporary or permanent migration, individual or family movement, and legal or illegal border crossings, all of which may have different implications for men than for women.

The level of economic development in destination countries also seems to matter. Females tend to claim a larger proportion of total immigrants in developed than in developing countries, possibly because of a tendency for immigration laws to evolve towards a greater emphasis on family reunification as incomes rise, or because developed countries offer women access to a wide variety of educational and employment opportunities, autonomy and independence not found at

¹ Citizenship and Immigration Canada, Facts and Figures, 2002

home. Nevertheless, developing countries are attracting an increasing number of female immigrants as dependents of migrant workers or to fill positions in female-dominated professions, including nursing and teaching (Zlotnik, 2003).

Models of international migration that disregard gender have a difficult time explaining these migration patterns. In any international migration model, considerations of gender are likely to become increasingly critical as the female share of international migration rises. The gender composition of world migration reflects a complex interaction among social, political, and economic conditions, migration histories, labor demands in destination countries, and household and community dynamics.

Fortunately, researchers, particularly outside of economics, are becoming more aware that gender is important when studying the motivations, outcomes, and barriers to international migration. Kanaiaupuni (2000) states that “migration is a profoundly gendered process and the conventional explanations of men’s migration in many cases do not apply to women.” Theoretical models and empirical findings focusing on male migration do not adequately describe migration by females, and studies that do not distinguish between males and females may yield findings that are biased for both genders. Furthermore, research that does not consider structural differences between the genders may yield unreliable policy prescriptions. Parameters and variables in international migration models can differ significantly between men and women.

The goal of this paper is to present a critical review of the treatment of gender in economic models of international migration and its impacts and to discuss priorities for “gendering” international migration research. The rest of the paper is organized into 6 parts. Part 1 sketches out a simple, general theoretical framework as a starting point for thinking about gender’s role in shaping international migration and its impacts. Part 2 offers a critique of the treatment of gender in economics research focusing on individuals. Part 3 discusses gender in “joint” models of migration, that is, migration by entire households in which women typically are viewed as tied movers. Part 4 considers the role of gender in “split” household models of migration, including new research inside and outside economics that attempts to bring gender into the study of migration determinants and impacts on sending households and communities. This includes research inspired by the so-called “new economics of labor migration” (NELM), now more than two decades old, which views migration determinants and impacts in the context of larger social units, usually households or communities. Part 5 is dedicated to the role of international migration networks, the study of which has entailed an increasing focus on gender in recent years. We conclude in Part 6 by suggesting some priorities for incorporating gender into future economic research on international migration.

Our objective in this review is neither to propose a comprehensive modeling framework nor to provide a complete cataloguing of theoretical and empirical studies of international migration in the social sciences. Rather, it is to represent, as accurately as we are able, the current state of social science thinking about the role of gender in international migration, with a particular focus on economics. To this end, we have selectively chosen studies that we believe represent the major theoretical and empirical approaches that have been used to incorporate gender into international migration research. While the focus of this review is on international migration, research on internal migration is occasionally cited to illustrate key theoretical and empirical points.

1. “*We go to get ahead.*” A General Model of Migration

The existing social science literature on international migration lacks a coherent theoretical framework. Massey, et al. (1998, p. 17), concluded:

“At present, there is no single theory...by social scientists to account for the emergence and perpetuation of international migration throughout the world, only a fragmented set of theories that have developed largely in isolation from one another, sometimes but not always segmented by disciplinary boundaries.”

This state of international migration research persists. Moreover, relatively little work on international migration explicitly addresses gender issues.

Most researchers would agree that, in the majority of cases, people migrate internationally in an effort “to get ahead” (Malkin, 2004), to provide a better life for themselves, their children, or their family members left at home. Migration decision makers, be they individuals, households, or some complex combination of the two, presumably make use of all of the information that is available to them to perform what an economist might call “a cost-benefit analysis” of international migration. The information at their disposal may be limited, and they may face severe constraints on their migration (and other) choices, but if the benefits of participating in international migration exceed the costs (however these benefits and costs may be defined, and subject to information and other constraints), an economic model would predict that international migration will result. Economic models generally emphasize monetary costs and benefits, including wages, the probability of employment, opportunity costs, and transportation costs, along with risk. These are undoubtedly important. However, other considerations also may affect the benefits and costs of international migration, particularly if one defines these benefits and costs more broadly. The legal viability of migration, the social impacts of loss of contact with friends and family, and cultural norms may significantly increase or decrease benefits and costs, while limiting the viability of international migration as an option for some individuals and households.

Considering that less than 3% of the world’s population currently resides in a country other than that of its nationality or birth, despite massive international wage and income differentials, it is clear that a relatively small group of individuals and households has the ability and/or the incentives to participate in international migration. Models of migration determinants attempt to describe the ways in which international migration selects on characteristics of individuals and of the households and larger social units (e.g., communities or nations) in which they live prior to migrating.

As a starting point for thinking about the role of gender in international migration, we present a very general stylized model to describe the cost-benefit analysis that is at the heart of any migration decision model, either explicitly or implicitly. This model can be envisioned for an individual or a household migration decision maker; it can encompass a wide variety of benefit, cost, and risk variables, including variables that are not traditionally “economic,” and it can include any type of individual, household, or community characteristics that are deemed to be important influences on international migration.

Suppose that the opportunity cost of migration by person i of gender g , w_{0ig} , is a function of a vector of variables denoted x_{0ig} , while the benefits of international migration by the same individual, w_{1ig} , are a function of variables x_{1ig} , such that

$$\begin{aligned} w_{0ig} &= f_{0g}(x_{0ig}; \alpha_g) + \varepsilon_{0ig} \\ w_{1ig} &= f_{1g}(x_{1ig}; \beta_g) + \varepsilon_{1ig} \end{aligned} \tag{1}$$

The vectors α_g and β_g contain parameters representing the effects of the explanatory variables x_{0ig} and x_{1ig} on w_{0ig} and w_{1ig} , respectively, and ε_{0ig} and ε_{1ig} are error terms. Let $c_{ig} = c_g(z_{ig}; \gamma_g) + \eta_{ig}$ denote migration costs, which are a function of z_{ig} , a vector of individual and household characteristics, the effect of which on migration costs is given by the parameters γ_g , and let η_{ig} be the error term in this migration cost equation. The benefits and costs of migration, together with the variables that researchers include in the vectors x_{0ig} , x_{1ig} and z_{ig} , reflect the assumptions of the underlying theoretical model, including whether the migration decision-maker is an individual, a household, or both.

This model is stylized, because a wide variety of benefit, cost, and risk variables can be incorporated into it. Micro-economic theory would dictate that human capital variables be included in the vectors x_{0ig} and x_{1ig} . The opportunity cost of migration, w_{0ig} , may be a wage or an expected wage at the origin in an individual migration model, or it may represent the value produced by the individual in household production activities in a household model. Other variables potentially affecting migration costs include immigration laws, risk aversion, the loss of family contact, and the rupture of societal norms. The migration benefits, w_{1ig} , might be a wage or expected wage abroad in a wage-driven model, or remittances in a household model. The benefits include outcomes of international migration besides income, including those that are not traditionally emphasized by economic studies, such as increased autonomy and independence, the formation of a migration network, or increased opportunities for future generations. The benefits of migration may be influenced by characteristics of other households in the migrant-sending or receiving area (e.g., see Stark and Taylor, 1991), and there may be external costs and benefits as well (Taylor and Adelman, 1996).

A model that pools men and women can be justified only if the parameters α_g , β_g , and γ_g do not vary by gender. Most microeconomic models of migration determinants involve a reduced-form specification, in which the probability of migration is modeled simply as a function of x_{0ig} and x_{1ig} . However, few studies test for pooling or even control for gender, besides including a gender dummy in the list of explanatory variables. That is, with the exception of the intercept, all elements of α_g , β_g , and γ_g usually are assumed to be the same for men and women.

A comprehensive international migration model with all of the conceivable benefits and costs of migrating abroad is not feasible, given existing data and modeling capabilities. All existing models represent, in some sense, a special case of this very general model, excluding some elements while emphasizing others. Nevertheless, it is important to try to conceptualize of all the possible

factors that affect international migration decisions in order to help situate models within the range of modeling possibilities and identify their limitations.

In the following section we discuss the treatment of gender in the largest existing component of economic literature on international migration, which focuses on individuals as separate from households.

2. The (Mis)treatment of Gender in Economic Models of International Migration Focusing on Individuals

The primary motivation for Todaro's (1969) expected income model of individual migration was to explore why migration from rural to urban areas was high, even amid increasing urban unemployment. Insights from that model have guided economic research on individual migration. A primary assumption of the Todaro model is that the wage at the destination is institutionally set and rigid, i.e., an increase in the supply of labor via an increase in migration, *ceteris paribus*, reduces the probability of employment at the destination but not the destination wage. Human capital theory (Mincer, 1974; Becker, 1975; for an application to migration see Sjaastad, 1962) posits a wage that is a function of an individual's human capital. However, the key implication of both models is similar in this respect: individuals who migrate are those for whom the discounted future stream of earnings (or expected earnings) differentials between destination and origin is greatest (given migration costs) and/or for whom migration costs are lowest (given earnings differentials). This implication leads to several testable hypotheses that economists have not thoroughly examined through a gendered lens, even though researchers in other social sciences have hypothesized that wages, migration costs, and returns to education, the key elements of these models, are almost certainly different for men than for women.

It is instructive to think about gender in the context of five testable hypotheses that emerge from human capital theory. First, individuals with high human capital, other things being equal, locate themselves in the labor market in which the economic returns to this human capital are highest. This may imply that relatively highly educated individuals have a higher propensity to migrate abroad than do the less educated, if the returns to schooling abroad are higher than at home (see Mora and Taylor, 2005, and Boucher, et al., 2005 for examples in which this is not the case). Second, the young tend to be more mobile than the old, inasmuch as they can expect to reap the returns from migrating over a longer time period. Third, migration between locales is negatively related to migration costs and risks. This has been interpreted by many researchers to imply a negative association between migration propensities and distance to prospective migrant destinations. However, other variables may make distance less of a migration deterrent, including access to information and networks of contacts with past migrants. Moreover, a greater distance may decrease the covariance between migrant and household incomes, making migration a more effective way to spread income risk. Fourth, the probability of employment as well as wages at the destination matter. Contact with past migrants can help new migrants find jobs and obtain information about employment opportunities, increasing the probability of employment. Finally, human capital theory implies that migration will narrow wage differentials for specific worker types between sending and receiving areas over time. In equilibrium, wages (or expected wages) for the same worker type should equalize across space, including between nations, and migration should cease.

All five of these hypotheses should hold whether migrants are males or females. Nevertheless, the variables that influence wages, the returns from human capital and migration costs could vary between the genders. We now discuss a selection of empirical studies that have evaluated each hypothesis with or without a gender focus.

Hypothesis One: Wages and the Returns from Human Capital

Wages or incomes in the migrant-sending and destination country are a key component of the benefits from migrating. An individual's income is a function of her productivity, which in turn depends on human capital variables including education and experience. The little migration research focusing on gender produces evidence that human capital variables influence migration differently for the two sexes. The economic rewards to schooling in destination and sending areas may be different for men and women if labor markets at destinations and origins are gender segmented or if other factors create gender disparities in the returns to human capital. If this is the case, then one would expect migration to select differently on men's than women's schooling.

Elnajjar (1993), in his analysis of international migration from the Gaza Strip, finds that migrants have significantly higher levels of education than non-migrants, and those with higher education levels are more likely to be employed. However, he also found that women and men have different likelihoods of employment in the sending communities, and women seem not to respond to unemployment and education in the same way that men do. Kanaiaupuni (2000) found that international migration from Mexico selects positively on education for females; for males it does the opposite. High unemployment rates in the country of origin increase men's propensity to migrate but have no effect on migration by women. This empirical finding is supported by qualitative studies that describe how women with higher education feel constrained by social norms and a lack of employment opportunities in their origin country, and how crossing a border provides new employment as well as social opportunities (Hondagneu-Sotelo, 1994). Thus, the wage-driven neoclassical and Todaro expected-income models may not explain female migration as well as male migration. Separate modeling approaches allowing for variables that differentially affect migration benefits and costs for the sexes may be needed.

Several studies suggest that an increase in income that is a result of a "better marriage" creates an economic pull for women to migrate. Thadani and Todaro (1984) revised the classic Todaro model to include the benefits of a "better marriage" as a reason for a female to migrate. In their model female migration is a function of the expected wage gap, a "mobility marriage" differential, and a "customary marriage" differential. The "mobility marriage" differential is a single female migrant's probability of achieving a certain income through marriage to a male at the destination, while the "customary marriage" differential is the probability that a single female migrant can find *any* husband at the destination. Behrman and Wolfe (1984) empirically tested this model for internal migration in Nicaragua. They found that women moving from rural to urban areas generally did so for employment reasons. Nevertheless, the probability of finding a spouse motivated a significant amount of migration. Findley and Diallo (1993) used this model to study the movement of women in Mali. They found that women respond to source-region economic and social variables and not just to the probability of marriage to a rich husband.

Another study, which does not support the marriage mobility hypothesis, is by Liang and Chen (2004). It separately analyzes the employment opportunities and professions of male and female migrants in China and finds that women primarily migrate from rural to urban areas for employment reasons; rarely are they motivated by marriage prospects. The study also concludes

that the majority of the difference between male and female migrant wages can be attributed to the fact that female migrants, in general, have lower levels of education than male migrants.

The role of home-country characteristics, such as investment in female education, can affect productivity and thus the propensity to migrate. Borjas (1987) estimated the impact of home-country characteristics on the observed wages of foreign-born wives in the United States, arguing that differences in the economic performance of immigrants with the same measured skills may be the result of selectivity in unobserved characteristics. Thus, the “quality” of immigrants, in terms of their ability to succeed in the U.S., depends on which foreigners have an incentive to emigrate. Cobb-Clark (1983) empirically applied Borjas’ work by using country characteristics to control for these unobservable individual characteristics. She found that greater income inequality, returns to education, and GDP in the country of origin are all positively related to female immigrant wages in the United States. Moreover, women who immigrated as family members earn significantly higher wages than those who immigrated as individuals. These findings point to the importance of linking female immigrants’ labor-market performance not only to their own characteristics at the time of immigration, but also to other variables that influence the decision of whether or not to migrate, including origin-country characteristics.

All of these studies indicate that an individual’s human capital is an important variable shaping migration decisions. However, the economic literature has only begun to consider how human capital variables might differentially affect international migration by males and females.

Hypothesis Two: Lifetime Expected Earnings

According to Todaro, individuals migrate if, over their lifetime, the expected income differential between migrating and not (appropriately discounted) is positive. This implies that, other things being equal, the young are more mobile than the old, and an increase in the cost of migrating, holding wages constant, decreases migration more for older than younger individuals.

There has been limited research on the topic of age and international migration by the two sexes, but some suggestive findings are available. Kanaiaupuni (2000) found that rural Mexican men are more likely to migrate than women except after the age of 50. This finding is consistent with the argument that women often migrate to reunite with family members or to join their husbands abroad once their children are older.

Gender differences in the effect of age on international migration could be an important topic for future research, particularly if the motivations for migration by females are distinct or are contingent upon past migration by males. For instance, if family reunification is an important motive for female but not male migration, one could observe delayed migration by women or the apparently paradoxical outcome of female migration being associated with a negative expected income differential.

Hypothesis Three: Migration Costs

The third hypothesis of the human capital model is that migration between locales is negatively related to migration costs and risks. While distance is the most logical correlate of migration cost, migration networks have been shown to decrease these costs. If individuals have contact with migrants who can help them cross a border, provide information to arrive safely, and help with locating a job, the costs of migration can fall dramatically. The literature on migration

networks is vast and has important implications for migration by men and women; thus, we dedicate a separate section to migration networks (see part 5).

Other variables could explain migration costs and opportunity costs, particularly when these are defined more broadly. For example, individuals who are married and have children will have higher costs of family migration and perhaps an incentive to split the family between locales (e.g., the male migrating while the female remains at home). These variables have been included in models of migration and immigrant employment, a step towards developing more gendered human capital migration models. Kanaiaupuni (2000) finds that civil status and number of children affect international migration propensities differently for males and females. Also Kossoudji and Ranney (1984) in their evaluation of wage rates among Mexican immigrants, find that differences are not explained by education or work experience, but instead by civil status and number of children. Maxwell (1988) finds that employment differences among men and women vary according to civil status. Cackley (1993) looked at wage differentials by sex and their impacts on migration within Brazil and found that single women respond to positive wage differentials between the sending and receiving communities, but married women do not. These studies indicate that women and men may evaluate the costs and benefits of migration differently; correct delineation by gender is essential to estimate international migration propensities.

Hypothesis Four: Probability of Employment

The probability of employment is central to Todaro's migration model: Even if wage rates are relatively high at a prospective migrant destination, a low probability of employment reduces the expected income differential. Contacts with migrant networks can increase migrants' probability of employment. Immigration laws also can be a critical component in a person's migration decision. For example, if a migrant can earn the same wage, with the same employment probability, in two different countries, but immigration laws are more lenient in one country than in the other, the expected income differential will be higher in the country with the more lenient laws. Immigration laws may discriminate by gender, for example, if a country has a perceived shortage of nurses (or the political will to rely on a foreign source for nurses), it may provide work visas for nurses but not for other (e.g., agricultural) workers. Such a policy would clearly affect the gender composition of immigration if labor markets tend to be gender segregated.

One example of an immigration law that changed the propensity for international migration and had a gender bias is the Bracero program. Male workers from rural Mexico were recruited under the Bracero program to alleviate U.S. labor shortages created by World War II. From 1942 to 1964, more than 4.5 million Mexican *braceros* temporarily worked in United States agriculture (Donato and Patterson 2004; Durrand, Massey, and Paredo 1999). Not only did the Bracero program increase the flow of Mexican migrants into the United States, but it also established migration networks that altered the benefits, risks and costs of migration for many years to come.

The demand and supply of migrant labor by gender may be affected by migrant labor recruitment strategies as well as by the economic activities in which male and female migrants concentrate. Tyner (1996) found that migrant labor recruiters in the Philippines match men and women with specific kinds of jobs abroad. Men typically are employed in professional jobs, while women work in domestic services or in the health profession. The probability of obtaining a job as a lawyer is lower for Philippine female than male migrants, while the probability of

obtaining a nursing job is higher for females. King and Zontini (2000) found that a rise in female immigration to Southern Europe can be explained predominately by an increase in jobs in the service and informal sectors.

In 1986, the United States Congress passed the Immigration Reform and Control Act (IRCA), which had three main components aimed at curtailing and controlling immigration (Cerruitti and Massey 2004). The first was to legalize migrants who had worked in the country continually and in an unauthorized status since 1982. Legalization of migrants decreased circular migration and stimulated new migration for family reunification. Cornelius (1990) argued that female immigration was positively impacted by IRCA, as wives and children in Mexico crossed the border to reunite with husbands and fathers in the United States. One study estimated that 300,000 persons per year migrated illegally for family reunification, while another found that a family member legalized by IRCA increased the probability of illegal entry by a factor of seven (Durand et al. 1999). Researchers are only beginning to explore ways in which females may respond differently than males to migration policy shocks.

Hypothesis Five: Equalization of Wages over Space

In addition to the previous four hypotheses, human capital theory implies that migration will narrow wage differentials for specific worker types between sending and receiving areas over time. If female and male workers are not perfect substitutes at the origin and destination, migration will tend to equalize female and male wages separately across space but not necessarily between genders.² An increase in demand for female labor at the destination would induce more female migration, which in turn would raise female wages at the origin until a new equilibrium in the female labor market were achieved. The same would hold for males. However, one could imagine a scenario in which wage differentials between men and women at the origin might decrease as males migrated. Other things being equal, higher substitutability between male and female labor at the destination would promote wage equity at the origin, and vice-versa. No empirical studies to our knowledge have tested this gender-specific wage equalization hypothesis.

In short, in a gendered neoclassical model of international migration, gender-specific wage differentials between origin and destination countries would be the primary drivers of migration by both sexes. If migration costs are significant, as is usually the case for international migration, there would be a wedge between source and destination wages reflecting those costs. If migration costs differ between men and women, so will equilibrium wages. Furthermore, one would assume that the probability of employment at the origin and destination may potentially be a function of gender. Development of gendered wage and expected-income models of international migration is critical, but researchers face obstacles in doing so.

Obstacles to Incorporating Gender into Wage- and Employment-driven Models

Three problems hamper researchers in their efforts to conduct empirical studies of migration and its impacts using individual-based wage and expected-wage models. First, wages and employment often are not observed for individuals prior to migration. Second, individuals often work in household activities, which requires that wages be estimated in a household context. Third, imperfect labor and capital markets affect the opportunity cost of migrating. For the various reasons

² Note that males and females need be perfect substitutes at only one locale in order for there to be an equalization of wages between the genders at both locales.

discussed below, these problems tend to be magnified when one tries to calculate expected income differentials for women.

Data on wages are not available for individuals who are not in the wage labor force prior to migration. Where wage labor markets exist, wages are not observed if individuals choose not to supply their labor to these markets. For the econometrician, this creates a potential endogenous selection problem that may require bringing household variables into the analysis. For example, household assets may influence reservation wages, labor-force participation, and thus the observed wages of those who are in the labor force. Also, in many of these cases wages are not observed in sending areas where economic activities are carried out by households that employ (and supply) little wage labor.

Women may be employed entirely in unpaid family work prior to migrating, which makes their wage unobservable and their departure a cost to the household. If women are employed in the production of household non-tradables, i.e., Becker (1965) “Z-goods” like raising children, cooking, etc., one does not have access to market prices to help determine the opportunity costs of migrating. This is an important drawback, inasmuch as the “reproduction” sector appears to be economically important. Estimates of the value of reproduction activities (cooking and cleaning; home repair; home-produced furniture and clothes; care of children, the sick and the elderly; and personal, social and community support services) in LDCs have ranged as high as 26% of conventional GDP (e.g., see Fontana and Wood, 2000).

Individuals, not households, are the unit of analysis in most existing wage- and expected income-driven models of international migration, including multi-country computable general equilibrium (CGE) models.³ Individuals, especially women, often are engaged in household production activities prior to migration, particularly if migration originates from rural areas. A model of migration based solely on wage or earning expectations is unrealistic in cases where individuals are involved primarily in household economic activities prior to migration and share their earnings with sending households after migration. If the choice for an individual were between migrating for a wage and carrying out an independent production activity at the origin, one could calculate the individual’s discounted future stream of income or expected income from each activity and then apply a neoclassical or Todaro migration rule. However, this would require an unrealistic extraction of individuals from the households in which their economic activities usually are carried out. This would almost certainly result in biased estimates of female wages and income when wages for many women are not only unobserved but also a function of household variables. From the household’s point of view, the Todaro migration rule would compare the discounted future stream of expected migrant remittances with the future stream of the individual’s expected marginal contributions to household income at the origin, with the household as a production (and reproduction) unit.

Finally, labor markets at the origin are often imperfect (e.g., the household cannot hire a perfect substitute for the family members who migrate) and wages at the origin may not accurately represent the opportunity cost of migration to the household or sending economy. The substitution

³ Almost without exception, multi-country computable general equilibrium (CGE) models assume that international migration is driven by wage differences across borders. Examples include the NAFTA models of Robinson et al. (1991), the 10-country CGE model of Pacific Basin economies by Lee and Roland-Holst (1996), and a number of CGE studies of trade liberalization using GTAP models. However, none of these models disaggregates labor by gender so as to predict differential effects of trade reforms on international migration and wages for men and women.

between male and female labor in household activities is critical in determining the costs and benefits of migration by individual family members. If males and females are engaged in different activities in the source economy, then opportunity costs of migration almost certainly will depend on gender. The opportunity cost of the migrant's labor in the sending economy, as discussed above, is positive and equal to the marginal value product of labor in a neoclassical model. If, prior to migration, women are employed largely in unpaid household work while men work the fields, it is possible that migration by women would not reduce crop production while migration by men would. However, if the "missing" females pull male labor out of the fields and into activities traditionally dominated by women, then female migration could reduce crop production via a labor substitution effect. Migration by males could pull females into the fields, as well.

The limitations of individual-based approaches and the obstacles of incorporating gender into an economic model point to the need to model migration decisions within the household. Ethnographic studies, including those critical of the unitary household assumption common to economic studies (Wolf, 1992), highlight the importance of the household as a social unit influencing behavior. Increasingly, the consensus of social science researchers is that it is unlikely that individuals make migration decisions independently from the household of which they are members (e.g., see Aguilera and Massey, 2003; Curran and Rivero-Fuentes, 2003; Munshi, 2003). This implies moving beyond classical, neoclassical and "neo-neoclassical" expected income models focusing on individuals.

Economic studies of migration that take into account the role of the household generally take two forms, split migration and joint migration. Split migration refers to migration by one or more household members but not entire household units. Joint migration is migration by the entire household unit (the bane of panel surveys). The differences between split migration and joint migration sometimes are subtle and often are not clearly spelled out in the literature. The main distinction is that in the case of split migration the household unit does not change location, whereas in the case of joint migration the household's location changes, either all at once or via sequential moves in which other household members follow the initial migrant. We first discuss joint migration models.

3. Beyond Individuals: Joint Household Models of Migration

Joint migration models might conveniently be viewed as an extension of the Todaro individual expected income model, as in Mincer (1978). In a household context, household members maximize their net family gain, G_f , instead of their individual gains, G_i . The net gain for the household from migration is defined as $G_f = R_f - C_f$, where R_f is the sum of the revenues and C_f is the sum of the costs of migration across family members. Costs and revenues can assume all of the forms mentioned in the previous section. If there are only two household members with expected gains from migration equal to G_1 and G_2 , respectively, then the overall gain for the household is $G_f = G_1 + G_2$. The individual decision to migrate will not conflict with the overall family decision to migrate if G_1 and G_2 are of the same sign. If individual gains are not of the same sign, one individual will be tied to the other (Mincer, 1978).

A tied individual is one whose gain from migrating or not migrating is smaller than that of the spouse. In some cases, the gain may be negative. A tied mover is one whose individual gain from migration is negative when the overall family gain from migration is positive. In contrast, a tied stayer is one whose individual gain from not migrating is negative when the overall family gain from not migrating is positive. When the externality imposed on the tied individuals is not internalized by the household and exceeds the gain from marriage, the marriage will dissolve. Family migration is less likely than individual migration (Compton and Pollack, 2004; Mincer 1978), given this formalization. Mincer (1978) finds that married persons are less likely to move than are singles, and the mobility of separated and divorced partners is higher than that of married partners. There is evidence that migration rates are lower for families with working wives. Distance is found to be a deterrent to migration.

The literature has shown that women are more likely than men to be tied movers, while husbands are more likely to be tied stayers than tied movers (Compton and Pollack, 2004). Women are generally disadvantaged by moves (Smith and Thomas, 1998). Compton and Pollack (2004) find that couples tend to locate in large metropolitan areas because of the husband's and not the wife's education.

Few studies have analyzed the role of joint migration in international migration or in developing countries. Smith and Thomas (1998) analyze the migration moves of wives and husbands in Malaysia. They found that joint moves comprise less than two-thirds of all migration moves, and a wife's characteristics matter little in determining post-marriage moves. Solo moves, or split migration, are distinctively different for men and women. Solo moves by women are made for familial reasons, such as relocating where there are other family members for the birth of a first child. Men make solo moves for income generation purposes. In a separate study of Malaysian migration patterns, Chattopadhyay (1998) finds that joint migration negatively impacts women's economic achievements and favors men's.

The majority of economic studies of joint migration moves have found that migration has a negative impact on a married women's labor-force participation, employment, weeks worked, hours worked, income and attitudes toward work. The assumption that women are tied movers is troubling. One study assumed that all women are tied movers and used that assumption as a basis for dropping all female migrants from the analysis (Aguilera and Massey, 2003). Cerrutti and Massey (2001) assume that women are tied movers if they migrated after other family members. Cooke (2003) used a dataset that matched incomes of husbands and wives over two time periods and then documented whether or not they migrated during this time. However, this approach hinges on the ability to observe wages for the same individual at both origin and destination, which as noted earlier can be problematic, particularly in developing countries. Cooke found that a positive effect of migration on income resulted from an increase in the husband's, not the wife's, income. The effect of women's income was not statistically different from zero. All of these studies are plagued with obstacles that include unobservable wages, economic activities performed at the household level, and imperfect labor markets.

Mincer (1978) defined tied movers as individuals who do not enjoy an individual gain from migration when the overall family gain is positive. Previous studies did not measure whether individual gains from migration were positive or negative. This may not be a major problem when modeling migration if the husband's gain from migration always exceeds the wife's loss (in absolute value). However, it is likely to create serious problems when modeling

female migration if the rest of the household is not taken into account. Husbands may move first, in order to set up a house, find a stable job, save money, or establish other connections that will aid the arrival of the rest of the family. Meanwhile, females may stay behind, even if their expected net income gain from migration is positive. One can also imagine a scenario in which female migrants gain from moves in which they follow their husbands, but these women are excluded from migration studies on the assumption that they are tied movers. Males may migrate to supplement a family's income on the assumption that the move is temporary, but over time they may decide to settle at the destination, thereby delaying an eventual move by the female. The potential biases when estimating female migration are manifold.

The joint migration model does not consider possible frictions between household members over migration decisions. Each individual is assumed to have the same amount of bargaining power (Cooke, 2003). Most split household migration models share this limitation; however, the limitation seems less glaring in a split than in a joint model in which the entire household moves, even when the gains from migration may be negative for one or more household members.

There may be dynamic considerations that are overlooked by joint migration models, as well. Women may choose career paths that are easy to move, such as nursing or primary education, and gender roles may encourage the betterment of the husband's, at the expense of the wife's, career. Compton and Pollack (2004) found that women chose occupations that were more transferable; thus, only the male's education or income mattered in determining relocation decisions. This could conceal tied-mover effects, making women's moves appear to be less tied than they really are. If this is the case, then the effects of family migration on women may be more negative than studies indicate.

Few researchers have collected data on joint migration, due to considerations of cost and feasibility. When a household migrates it is costly for a survey team to search for it in the destination country. When surveys are conducted at the destination, reliable data on income and wealth prior to migration are difficult to gather. The majority of the international migration literature focuses on split migration decisions, for which data collection is easier, with the justification that households rarely move all at once to another country. Still, the joint migration literature suggests some promising avenues for future research. It highlights the complexity of potential benefits and costs of international migration within households, and it offers an explanation for why some individuals (particularly women) move even when migration does not maximize their (individual) expected incomes.

4. Gender in "Split" Household Models of International Migration

In "split" household models, individual household members may migrate and the household's demographic composition thus may change, but the household survives as an economic and social unit in the migrant-sending area. The new economics of labor migration (NELM; Stark, 1991) integrates the study of migration into a theoretical framework in which migration may be undertaken by individuals as members of larger social units, usually households, and both determinants and impacts of migration are analyzed in the context of households or communities. NELM models expand the list of objectives underlying migration decisions beyond the goal of maximizing income or expected income. Households are assumed to allocate their members' time

to work and non-work activities at home and abroad so as to maximize household welfare, which can take various forms. Primary interest usually is placed on the nature of the household objective function and on the market context within which migration decisions take place. These, in turn, determine the nature of the opportunity costs and benefits of migration by a given household member.

The simplest household modeling framework that can be used to study international migration is that of a unitary household that maximizes its utility obtained from the consumption of goods, subject to a time and cash income constraint. The household's time allocated to leisure, migration, and local work cannot exceed its total time endowment. The household's cash outlay on tradables cannot exceed its cash income. Cash income may include the sum of wages of household members who participate in a labor market; household profits from producing goods for which there are markets (i.e., tradables); migrant remittances; and other income, including non-earned income and non-remittance transfers. If a perfect labor market exists, then labor is a tradable and valued at the market wage. The time of an individual who migrates is valued not at the local wage but at the destination wage if the individual is considered to be part of the household after migrating. Implicitly, migration raises the value of an individual's time above the local wage; otherwise the individual would not migrate.

Assuming that all prices are determined in markets and all goods and labor are tradable, household utility maximization in this model implies income maximization. This, in turn, implies that each household member's time will be allocated to the labor market (local or migrant) in which his or her contribution to household income will be greatest.

In practice, identifying the benefits, costs, and even the decision maker can be challenging; this has been a source of disagreement in the social sciences literature. The NELM perspective does not posit a specific form for any one of these. As mentioned above, its main contribution is to view migration decisions and impacts within the context of larger social units. It is up to the researcher to specify what these social units, the decision maker, and the costs and benefits of international might be, as well as the role that gender plays in each.

The most well known migration-development interactions in the NELM revolve around market failures in migrant-sending areas. For example, Stark (1978) argued that migrants, through remittances or the promise of remittances in the event of adverse shocks, provide households with capital and insurance that may facilitate the transition from familial to commercial production. This argument implies that households lack access to capital and income insurance to begin with—that is, capital and insurance markets are missing or incomplete. When households in migrant-source areas also face imperfect labor markets, this has important implications for the conceptualization of the opportunity costs of migration.

From a household perspective, the opportunity cost of migration can take on three different forms, depending upon an individual's involvement with the labor market and the household's involvement in markets for the commodities that it produces. They are:

- 1) The market wage, for household members who are actively engaged in wage labor
- 2) The market value of the marginal product of labor in household production, for those who are not actively engaged in labor markets but dedicate their work time primarily to household production activities, for example, cultivation of staples for sale in

markets and/or for home consumption. Determining this market value, of course, assumes the existence of markets for the goods produced

- 3) The shadow value of labor in reproduction activities, including subsistence production when high transaction costs isolate households from markets, as in Strauss (1986) and de Janvry, Fafchamps and Sadoulet (1991).⁴

The NELM perspective is particularly germane to the study of gender and migration because of the household context in which women's activities often are carried out and the frequency with which wages for females are not observed prior to migration. In addition, productivity in different activities, and thus the opportunity cost of migration, may differ between the genders.

The main modifications of this basic model for the study of international migration have been in two directions. The first is to consider alternative forms of the household welfare function.

Household Welfare in a Context of Imperfect Markets

In theory, household welfare can be modeled in many different ways. All of the models discussed so far assume that migration decision makers are risk neutral. A household variant of David's (1974) model, in which families allocate individual members' time to a portfolio of migration activities, including internal migration, in an effort to maximize expected income subject to a risk constraint, appears in Taylor (1986). Household portfolio models of migration also appear, explicitly or implicitly, in Rosenzweig and Stark (1989); Stark and Katz (1986); and Levhari and Stark (1982). Implicitly or explicitly, these models posit that alternative forms of insurance are not available; that is, insurance markets are imperfect. Households also may have an incentive to participate in migration as a way to obtain liquidity, through remittances, when credit markets are imperfect or missing.

When households are risk averse and do not have access to formal insurance, individual family members' labor time is allocated between migration and nonmigration work activities with uncertain returns so as to maximize household expected utility, which is a function of both the expected value and variance of end-of-period wealth. Thus, household variables shaping both the first and higher moments of income—including the human capital of all family members and family assets—may figure prominently in the migration decision, together with the human capital of prospective migrants. Maximizing expected utility does not necessarily imply allocating family members' time to migration or nonmigration activities in which the expected earnings or contributions to household income are highest; there may be a tradeoff between expected income and risk. Stark and Levhari (1982) argue that households spread risks by allocating some members to migration, and Rosenzweig and Stark (1987) find evidence that households in rural India make use of the “marriage market” as a variant of migration to achieve a similar result.

The view that migration entails an implicit contract between migrant and household to overcome risk and liquidity constraints suggests a venue for collective models of household behavior (e.g., Bourguignon and Chiappori, 1992), including the role of altruism in shaping migration and remittance behavior. Household welfare may reflect heterogeneous preferences of household members and unequal control over household resources, as depicted in a variety of intra-

⁴ The shadow wage is the shadow value on the individual's time constraint divided by the marginal utility of income; see Skoufias (1994), Jacoby (1988) or Benjamin (1992).

household models focusing on gender, including tests of the Nash-bargained models inspired by McElroy and Horney (1981) and Pareto optimality of intra-household resource allocations (e.g., Udry, 1996). There is a growing realization in the micro-development economics literature that gender is a critical source of intra-household heterogeneity that can shape resource allocations (e.g., see Udry, 1996 and Schultz, 1990).

In a Nash-bargained rural household containing migrants, household utility might be represented by the product of net utility gains deriving from household membership for female and male migrants and other household members. Migrants' utility as nonmembers of the household—that is, the utility they would enjoy by severing their ties with the household—represents the threat point in this game. Threat points, preferences, and control over household resources are likely to differ between men and women, and migration may influence these in important ways. The more insecure that migrants perceive their future prospects outside the household, *ceteris paribus*, the smaller this threat point, the less likely migrants will sever their ties with the household, and the more income migrants will remit. While a model of pure altruism would predict a negative association between migrant earnings and rural-household wealth, a game-theoretic model might predict just the opposite. Chen (2006) and de Laat (2005) consider how asymmetric information may induce opportunistic behavior by the members of the household that do not migrate; consideration of this information failure increases the costs of migration for the potential migrant. Intra-household economic research may hold promise for bringing gender into theoretical models of international migration behavior and impacts, offering an avenue to model potentially competing interests of migrants and other household members and a response to criticisms of unitary household models.

Migration and Remittance Determinants in Split Household Models

Split-household models have a potentially rich set of implications for predicting international migration and remittance behavior by men and women. For example, asset rich households, in which the productivity of family members' labor at home is high, other things being equal, are likely to have a lower probability of sending members with similar human capital abroad than are asset poor households. Findings by Donato (1993) and Cerruti and Massey (2001) support this prediction; they found that land, home, and business ownership decreased the probability of migration by women. If households participate in migration to overcome risk and liquidity constraints on production, then migration will be lower for wealthy households, which have access to liquidity, are less risk averse, and may enjoy other forms of income insurance. On the other hand, if migration itself is costly and risky, poor households may not be able to afford the costs or be willing to bear the risks of sending migrants abroad. Cerruti and Massey (2001) also found that home ownership increased the probability of migration for males. It may be that opportunity costs constrain women's decisions, while actual costs constrain men's.

Individual human capital characteristics undoubtedly affect migration propensities, and it is important to include these in any household model. It is reasonable to expect that many characteristics will affect migration differently for men than for women. For example, Kanaiaupuni (2000) finds that women are more likely to migrate internationally if they are single or no longer married, and international migration selects positively on schooling for females but not for males.

Remittances, in addition to potentially being influenced by household wealth, may reflect migrants' insurance role. If migrants are insurance substitutes, one would expect remittances to

respond positively to adverse income shocks in sending areas. If households get disutility from being relatively deprived within the reference group, then greater income inequality in the sending area might stimulate migration as well as influence remittances.

A split household model is used in Taylor's (1987) empirical analysis of Mexico-to-U.S. migration. Both expected remittances and non-migration cash income contributions were found to be significantly lower for females than for males. Low non-migration contributions for women are almost certainly due, in part, to women's participation in non-pecuniary (e.g., household production) activities. Lower remittances by women may be due either to lower earnings at the destination or less willingness to share these earnings with the household of origin. The analysis did not test for differences in the effects of human capital and other variables on migration by gender; however, migration determinants and net returns could be estimated separately for males and females.

De la Brière, et al (2002) find that the determinants of remittances to rural Mexico vary with migrant gender and destination. They reject the null hypothesis that the effects of gender can be captured by simply including a dummy variable in the remittance equation; interactions of gender with other hypothesized determinants of remittances were jointly significant. This suggests that there are structural differences in remittance behavior of men and women. Other things being equal, female migrants in the United States send home significantly more remittances than male migrants. Moreover, remittances from female but not male migrants respond positively to the number of lost working days by parents. The authors conclude that female migrants and migrants in the United States perform an insurance function for their households of origin, while male and internal migrants do not. It appears that men remit more to invest while women do so to insure their family and assist siblings. A limitation of this study is that it does not estimate separate remittance functions for males and females and for internal and international migrants or test for 3-way interactions between gender, destination and other explanatory variables in the pooled migrant sample.

Outside economics, studies by Ribas and Semyonov and Gorodzeisky (2005) found that Philippine male migrants abroad were more likely to remit than females. However, Ramirez, Dominguez and Morais (2005) caution the interpretation of this result because labor exporting tends to be highly gender segregated.

Gender and the Economic Impacts of International Migration in Sending Areas

NELM models lead to a richer set of potential impacts of international migration on sending areas, as well. The effects of international migration on sending areas are not very interesting in models in which individuals are studied in isolation of households. There are no direct benefits from international migration to the sending area in a model that lacks a rationale for the migrant to continue her involvement in the sending economy via remittances or other means. In a classical model, the opportunity cost of international migration to the sending area is assumed to be zero (Lewis, 1954). In a neoclassical model it is equal to the marginal value product of the migrant's labor; when individuals migrate, the sending-area labor supply shifts inward, wages increase slightly, but employment and output fall.

There have been a few attempts to test the prediction of the NELM that migration and remittances influence production in migrant-sending households. Lucas (1987), Rozelle, et al. (1999), Taylor (1992) and Taylor, et al. (2003) find evidence of negative lost labor and positive

remittance effects on production. These models treat household labor as homogeneous, without regard to gender, and model the allocation of this labor to migration and non-migration activities. The assumption frequently made in household models that family labor is fungible is questionable if the activity spheres of female and male time are different. Some economic research has addressed gender differences in productivity and activity participation in rural households. Jacoby (1988) found a gendered division of labor in household production in the Peruvian Sierra, with females specializing in livestock production. Adult male labor was found to contribute more to farm output at the margin than female labor; the use of animal traction and land affected the marginal productivity of male and female labor differently. Udry (1996) rejected Pareto optimality in the allocation of resources across plots controlled by males and females in Burkina Faso.

Anthropological and sociological studies conclude that women's participation in agriculture in some countries has been increasing, due at least in part to migration by males in search of wage work and women's lower opportunity cost (Deere and León, 1982; Crummet, 1987; Pou et al., 1987; Lago, 1987). A reallocation of family labor between household and production activities when individuals migrate is consistent with the predictions of agricultural household models, particularly where labor markets are imperfect. A critical question is whether output changes in response to migration and whether the output effect depends on the gender of the migrants. We are not aware of any gender-specific tests of migration impacts on production in migrant-sending households.

Nevertheless, a gender focus has appeared in empirical economic research on migrant remittances. In one of the most influential efforts to test the NELM risk hypothesis, Lucas and Stark (1985) find evidence that sons remit more to households with large herds, consistent with a strategy to maintain favor in inheritance. They also find evidence that remittances provide income insurance to migrant-sending households; in a drought year, remittances were higher to households with assets most sensitive to drought. Hoddinott (1994) also found that sons' remittances are positively related to their parent's inheritable assets. Neither study tested for differences in remittances by male and female migrants, and both used data on internal, not international, migrants.

There is some economic evidence that migration and remittance effects on schooling and health expenditures may be influenced by gender. The "brain drain" is an increasingly important topic in international migration research, because international migration often selects positively on education (e.g., see Özden and Schiff, 2005). Nevertheless, migration and remittances also may influence the incentives to invest in schooling. If the economic returns to schooling are higher in migrant labor markets than at the origin, then a strictly positive probability of migration may stimulate investments in human capital formation (Stark and Wang, 2002). In addition, remittances may provide sending households with liquidity to invest in education. Kandel and Massey (2002) interviewed both males and females at various levels of education to ascertain their aspirations of migrating to the U.S. and how these aspirations affected schooling investments. They found that individuals were motivated to migrate by cultural expectations about life course trajectories. Many young men were expected to migrate as part of their experience, while women were not. However, family migration networks increased women's propensity to migrate. For both males and females, advancement in schooling became less important as the aspiration to migrate abroad increased. This echoes the finding by Mora and Taylor (2005) and others that international migration does not select positively on schooling in some settings.

Migration also may disrupt household labor allocation and social norms, with implications for children's health. Kanaiaupun and Donato (1999) found that in the short run migration increases infant mortality, but in the long run mortality risks decrease as the village as a whole experiences an increase in economic resources from migration. Donato, Kanaiaupuni and Stainback (2001) found that increases in income have a positive effect on boys' health relative to girls', but in migrant households the gap between boys' and girls' health narrows.

There may be savings as well as remittance differences between male and female migrants. Grassmuck and Pessar (1991) found that men viewed migration as a temporary move from the Dominican Republic and began to save money for return and for remittances. But women, hoping to avoid returning, spent their income abroad and failed to remit. Pedraza (1991) found that male migrants saved money, while women attempted to deplete funds to foreclose the option of returning to the home country and relinquishing new-found freedoms enjoyed abroad. These studies contradict some of the findings of remittance studies; i.e., that women have a higher propensity to remit than men.

When migration and remittances enable households to overcome liquidity and risk constraints, they may influence income indirectly, in various ways. Income insurance and liquidity offered by migrants may stimulate productive investments, creating an income multiplier within the sending household similar to that created by public transfers (e.g., see Sadoulet, de Janvry and Davis, 2001). Household expenditures stimulated by migration also may generate local demand for goods and services, creating income and investment multipliers outside the household.

General-equilibrium Considerations

General-equilibrium effects of migration and remittances on rural economies have been estimated using economy-wide modeling techniques. A few studies have used economywide modeling techniques to examine the impacts of international migration and remittances on national (Taylor, et al., 1996) and rural (Taylor and Adelman, 1996; Taylor, 1996; Adelman, Taylor, and Vogel, 1988) economies. They find evidence that migrant remittances have a multiplier effect on migrant-sending economies. For example, Adelman, et al. (1988) estimated a village "remittance multiplier" from international migration equal to 1.78; that is, \$1 of international migrant remittances generated \$1.78 in additional village income, or 78 cents worth of second-round effects. The additional income was created by expenditures from remittance-receiving households, which generated demand for locally-produced goods and services, bolstering the incomes of other households in the village. There is also evidence that migration competes with local production for scarce family resources, raising rural incomes but in some cases producing, in the short run, a "Dutch disease" effect on migrant-sending economies. In the long run, however, remittance-induced investments appear to create positive effects of migrations on the income of communities (Taylor and Adelman, 1996) and whole rural sectors (e.g., see Taylor and Yúnez-Naude's (2005) study of short- and long-run impacts of international migration on the rural economies of El Salvador, Guatemala, Honduras and Nicaragua). The economywide effects of migration depend critically on how migrants and remittances are distributed across households, on households' access to markets, on expenditure patterns in both migrant and nonmigrant households, and on production constraints. All of these may be influenced by the gender composition of nonmigrant as well as migrant households. No economywide studies of the impacts of international migration on sending areas incorporate gender in their analysis.

Via these diverse pathways, access to migration opportunities by some households may influence a variety of variables of interest in complex ways, including poverty, inequality, health, education, productivity, and activity choice. The influences of migration thus may be found in households with migrants as well as in those with which migrant households interact in sending economies. All of these influences may be shaped by the gender of the migrants, of the remittance recipients, of the other members of the migrant-sending households, or of the other households in migrant-sending areas.

5. Gender and Migration Networks

Migrant networks convey information and provide assistance to prospective migrants, and these reduce the costs and risks while increasing the benefits of future migration. Network ties can decrease migration costs by providing would-be migrants with critical information about border crossings and employment. Past migrants also may assist in financing the costs of future migrants and provide job market information and contacts. As a result, they can positively influence the probability of migration and also the economic returns from migration (Winters, de Janvry, and Sadoulet 1999). Networks are thus a form of capital, which together with human and physical capital creates disparities in the costs and benefits of migration across households and individuals.

Networks have become central to most models of international migration behavior. In the social sciences, international migration is widely recognized as a network-driven process (e.g., see Massey et al., 1987 and 1993). There are compelling reasons to expect that the effects of networks are gender-specific. If networks' value stems from their provision of job information, and if males and females are concentrated in different sectors of the destination economy, then networks with male migrants may have little effect on female migration, and vice versa. The gender composition of networks can affect not only international migration incentives but also settlement patterns (Curran and Saguy, 2001; Hondagneu-Dotelo, 1994; Lindstrom, 1997; Pedraz, 1991; Pessar, 1999).

The gender composition of networks has empirically been shown to be an important variable shaping international migration. Davis and Winters (2001) find that male and female networks are significant in explaining migration by both genders, but female's location decisions are influenced more heavily by female networks. Curran and Rivero-Fuentes (2003), using cross-sectional data from the Mexico Migration Project, find that male migrant networks are more important determinants of international migration for men than for women. Controlling for other variables, the estimated probability of migration is 2.5 times higher for young adult men with male migrant networks than for those without; however, the presence of male migrants abroad does not affect women's migration. On the other hand, female networks increase the odds of female migration by 3.8 times. Female networks diminish the probability of men's migration by 30% compared to men without female networks. Richter and Taylor (2005) find similar results in their analysis of longitudinal data from the 2003 Mexico National Rural Household Survey.

When motivations for international migration differ between men and women, women may seek out information and assistance only from female migrants (Davis and Winters 2000). Kandel and Massey (2002) conclude that there is a "rite of passage" factor influencing

international migration by young males, but young women's migration is more influenced by kinship ties. The information conferred by each type of network affects the costs and benefits of international migration differently by gender. For instance, in his work on migration in rural Thailand, de Jong (2000) finds that low income, landlessness, and crop loss were important determinants of migration by men, while expectations, gender roles, networks, and norms were more important for women.

Hondagneu-Sotelo (1994) argues that women must rely on "women's networks" composed of female family members and friends because social norms prevent women from migrating independently or with males, unless they are spouses. Social norms may place constraints on female migration while increasing the value of migration networks for women relative to men. For instance, it may not be culturally permissible for women to live outside of the familial unit or cross the border without relatives' assistance.

Both the quality and type of information provided by female and male networks may differ. Menjivar (2000) found that Central American female migrants are more likely to have extensive social networks than their male counterparts. This finding is supported by Curran and Rivero-Fuentes (2003). The latter find that female migrant networks within Mexico are more useful to both men and women than are male internal migrant networks. Male and female migrant networks offer different resources and information crucial for the success of migration by each gender. Despite the finding by some studies that females provide a more extensive support system, Hagan (1998) and Livingston (2006) showed that, over time, men had more employment opportunities than women because of their network ties.

Other studies have also found that female migration networks are more comprehensive (Curran et al., 2003), and this may reflect findings by Grasmuck and Pessar (1999) and Pedraza (1991) that women migrants are more likely to settle. Women's networks reach outside immigrant enclaves and take advantage of social services required to make ends meet. One reason for this may be that females tend to have divergent interests and plans regarding settlement in the United States, with men more interested in returning to Mexico (Grasmuck and Pessar, 1991; Massey and Espinosa, 1997; Goldring, 1996; Hondagneu-Sotelo, 1994; Malkin, 1998). Hondagneu-Sotelo (1994) points out that Mexican immigrant men usually find themselves in a subordinate position in the United States compared to their situation in Mexico, in terms of social status or patriarchal privilege, despite possible improvements in their standard of living. In contrast, women are more likely to experience either a relative gain in status in the United States or not as great of a status loss. Working outside the home for wages can improve women's ability to negotiate "patriarchal bargains" (Hondagneu-Sotelo and Messner 1994; Kandiyoti 1988). For women, going back to Mexico might involve the reassertion of stronger patriarchal authority and a return to the pre-migration gender division of labor, in a setting where household work is taxing and implies a loss of the autonomy that female migrants gain working abroad. The permanent settlement motivation for migration could explain why some studies have found that females benefit more from mature migrant networks. Curran et al. (2003), in their study of internal migration from rural Thailand, found that female migrant social capital has a greater impact when it is mature, that is, when it is comprised of females who have lived at the destination for a long period. This is not the case for male migrant social capital. If members of the female migration network return often to the home village, the effect of the network on female migration is diminished. The importance of the maturity of migration networks is also highlighted by Kanaiaupuni (2000).

Comprehensive female migrant networks may have a self-feeding affect if female migrants decide not to return to their origin location. Ellis, Conway and Bailey (1996) find the migration has the potential to “modify gender relations and alter future migration decision-making as women gain experience in the labour market and exposure to new social and cultural environments.” Curran and Saguey (2001) expand on Portes and Sensenbrenner’s (1993) hypothesis that migration networks transmit not only information but also culture and values. Curran and Saguey define two functions of networks for females: obligation and relative deprivation. Family members remaining at the origin can use networks to find their family members who have migrated and enforce village norms of remitting. This is the obligation function. If women’s networks are stronger than those of men, remittances should be larger from female migrants. The authors hypothesize that relative deprivation effects of networks are stronger for females than for males, because women have few possibilities for upward mobility within the village. Learning, via networks, that female friends have new-found freedoms at the destination may spur women to migrate.

Some researchers have hypothesized that networks modify gender relations as well as future migration decisions. Ellis, Conway and Bailey (1996) hypothesize that migration may modify gender relations as “women gain experience in the labour market and exposure to new social and cultural environments.” From a household perspective, networks may be endogenous; households may strategically invest in establishing networks that influence their future economic returns from migration. Gender considerations may influence household investments in network formation, because female networks may generate different economic returns than male networks. If the information and assistance value of family networks is gender-specific, then a family’s optimal choice is to invest in the gender-network that maximizes future net benefits—e.g., keeping the only son at home to work on the farm, while sending abroad the oldest daughter who can constitute a network to facilitate migration by her younger female siblings in the future. The role of gender in endogenous network formation has not been a subject of quantitative research to our knowledge. Most research takes networks as predetermined and, with few exceptions, ignores the endogeneity of network formation.

6. Conclusions

Economists and other social scientists have begun to address some pieces of the puzzle of how gender shapes international migration and its impacts. These include gender differences in remittance behavior, in the effects of human capital and household variables on migration probabilities, in family migration networks, in the impacts of policy shocks on international migration by males and females, and in labor market outcomes at destinations. When gender is introduced into empirical models, it generally is found to be an important variable shaping migration and its outcomes.

The Need for a Coherent Framework

Nevertheless, the existing research on gender in international migration lacks any kind of coherent theoretical framework, and the empirical record is thin and often difficult to interpret. Rarely has gender made an appearance in theoretical models of international migration in economics. As a result, when gender is included in empirical models, it is usually relegated to being a control variable rather than a focus of hypothesis tests. Empirical studies focusing on

differences in international migration determinants, remittances, and impacts between the sexes are few, and often they lack grounding in economic theory or the use of appropriate instruments to enable one to reliably identify gender effects. Critical pieces of the gender-and-international-migration puzzle largely have been ignored. These include differences between the genders with regard to the opportunity costs of migration; the influences of migration and remittances on household investments, production and technology choices, and expenditures; and the linkages that transmit migration influences through migrant-sending economies. Some of the most thorny research challenges are magnified when gender is brought into the analysis. For example, women often are not observed in the workforce prior to migration, and many benefits produced by women in households have unobserved “shadow values” instead of market prices. Development economics research using non-separable household models have made some inroads into understanding economic behavior when markets are not available. These need to be brought more squarely into international migration research, particularly if one wishes to understand differences in the opportunity costs of international migration between men and women.

Nearly all researchers agree that networks are a key variable influencing international migration, and there is now some empirical evidence suggesting that the effects of networks are gender-specific. There is a need to provide these empirical studies with a mooring in network and information theory, with an emphasis on gender. With only a few exceptions, researchers take networks as predetermined and exogenous; little if any attention is given to how networks are formed, how the endogeneity of networks might bias empirical findings, or what methods might be used to avoid such bias and better identify relationships of interest. Do households take gender into account when establishing migration networks abroad? Once established, how does the gender composition of a household’s network influence the future gender composition of migration? Do international migrant networks outside the household influence male and female migration similarly, or does the gender composition of these networks shape the future gender composition of migration in ways that might explain differences across origins and destinations? Where formal recruitment plays a role in international labor migration, how do recruitment networks select on gender, why, and what are the implications for origins, destinations, and the migrants themselves?

A similar problem of empirical analysis getting ahead of theory is evident in research on remittance behavior by men and women. There is some evidence that women remit different amounts than men, and some variables appear to affect remittances by the two genders differently. However, here, as in the case of remittance behavior in general, theory has lagged. To carry out gendered research on remittance behavior, data are needed on both wages and remittances by migrants as well as on sending-household characteristics that influence these remittances. The high cost of “tracer surveys” of migrants is an obvious impediment to such research.

The impacts of international migration and remittances on migrant-sending households have been a focus of so-called “new economics of labor migration” research over the past two decades. Theoretical and empirical models of migration’s impacts need to incorporate gender to address critical questions, including: Do remittances by men affect production and household expenditures differently than remittances by women? If so, why? Does the gender of remittance recipients matter? The gender composition of the sending household? Women’s access to micro credit? There is a pressing need to recast international migration-and-development research in a

gender framework. This requires a gendered household modeling approach, tests of the effects of the gender of remitters and receivers on household expenditures, and most likely a departure from unitary household models.

The impacts of international migration do not end in the households that send migrants and receive remittances. Expenditure linkages transmit impacts to other households in the migrant-sending economy. Economy-wide impacts of migration and remittances have been addressed using micro-survey data and both aggregate and disaggregated general-equilibrium modeling techniques. A gender focus needs to be brought into this research, as well, in order to understand ways in which gender may shape the transmission of impacts through sending economies. The economy-wide effects of international migration are likely to be different when one gender migrates and remits while the other stays at home.

The starting point for bringing gender into economic research on international migration is to design theoretical models that highlight gender and provide a foundation for rigorous empirical analysis. At a minimum, a “g-subscript” should be attached to every key variable in international migration models. Beyond this, new directions need to be explored. Grounding the analysis of how gender shapes migration and its impacts in the household (and possibly larger social units) is critical. Over the past two decades, economic research on migration has directed its attention outside the household, to consider market imperfections under which separability breaks down and the set of potential impacts of migration proliferate. Gender has been absent, for the most part, from this interesting literature. Future research also needs to turn its attention inside the household, to understand the ways in which gender may affect migration decisions and impacts, particularly when benefits and costs of international migration are gender specific. This review has discussed some implications of gender in “joint” and “split” household models of international migration, but the truth is that little is known about the gender dynamics underlying international migration decisions. Recent advances in intra-household economic research, including some that have a gender focus, may be a useful starting point for doing this.

Data and Survey Design

Theory guides data collection, and a key implication of this review is that “gendering” economic research on international migration also means bringing a gender focus into surveys to support this research. This includes obtaining a gender breakdown of information on migration, remittances, and other variables that may influence the opportunity costs, returns, and impacts of international migration for prospective migrant-sending households. Presently, few data sets offer anywhere near the detail required to do this. There are many trade-offs inherent in designing household surveys, and any additional question that is added to a survey instrument comes at a high cost. However, the cost of ignoring gender is likely to be higher.

It is particularly costly to add questions to a national population census, given the large number of households being surveyed. Fortunately, most population censuses already provide information on gender and birthplace of household members. This, together with the ability to generalize to whole country populations, makes census data useful for some kinds of international migration research that have been discussed in this review.

The greatest opportunity to acquire better data for gender and international migration research is through modifications in national income and expenditure surveys and new surveys designed specifically to generate data on migration, in both sending and receiving countries. In many cases, simply adding a question or two to an existing survey can afford an opportunity to create valuable data to support gender and international migration research at low cost. Any survey whose main motives include creating data for research on migration, at a minimum, should collect all migration, migrant network, and remittance information by gender.⁵

Some existing income and expenditure surveys, including some LSMS surveys, ask respondents how many family members were living abroad in the year prior to the survey. This question should be asked separately for men and women, in order to obtain measures of the household's international migration network by gender. Information on new migration (occurring during the year covered by the survey) also should be gathered by gender. This would make it possible to model new migration by men and women as a function of gender-specific migration networks. Obtaining international migration by gender, in our view, is the number one priority for modifying existing surveys to support gender and international migration research.

Increasingly, remittances are included in large-scale surveys, because often they are an important component of total income in LDCs. When this is done, rarely is there sufficient information from the survey to treat remittances as anything other than an exogenous income transfer. There is now considerable evidence that remittances are endogenous. Obtaining gender-specific information on international migration as well as on international migrant remittances may allow one to take the first step towards properly treating remittances as endogenous income transfers. As we have seen, there is reason to believe that the gender of the migrant who sends remittances matters—not only to the amount of remittances that are sent but also to the potential impacts of the remittances on the receiving household. A breakdown of international migrant remittances by the gender of the sender would facilitate the integration of gender into the analysis of remittances. If one has a gender breakdown of international migration but not remittances, it might still be possible to study gender differences in remittances using regression methods; however, much information will be lost.

We have also seen that gender may influence the impacts of migration and remittances within migrant-sending households. All good household surveys collect information on the gender of non-migrating household members. Few record the gender of the survey respondent. This is important to test for a gender bias in survey responses. Almost none ask the gender of the household members who receive the remittances. This may be critical for understanding the ways in which remittances may influence household expenditures on consumption, production activities, and investments. Linking individuals with the production and other income activities in which they participate is indispensable if there is to be any hope of identifying opportunity costs of international migration for men and women. Information on wages and days in wage work should be gathered for each household member; there is likely to be a close affinity

⁵ Even when the intended use of the data is not for migration research, it is rare that economic behavior by households can be modeled reliably without taking into account the portfolio of activities, including migration, in which families may participate; for an example involving the estimation of returns from schooling, see Taylor and Yúnez-Naude (2000).

between wages and opportunity costs of migration if local labor markets function reasonably well.

If the survey is sufficiently detailed to quantify family labor inputs in household production activities, as in agricultural household models, this also should be done for each household member rather than in aggregate. Not only might this enable researchers to include gender-specific family labor in household production functions; it also is likely to produce a more reliable estimate of total family labor in these activities.

In destination surveys of immigrant households, researchers should do their best to obtain disaggregated information on remittances abroad by individual household members. This, together with socioeconomic and income data by household member, would greatly facilitate research on some aspects of remittance behavior by men and women living outside their countries of origin. Ideally, one would also want to include in such surveys questions about individuals' households of origin. This could facilitate analyses of the ways in which (origin) household characteristics influence motivations to remit by migrants abroad, as a complement to those currently being conducted with data from sending-area surveys.

Final Thoughts

In short, for research as well as the design of gender-focused development policies, empirical analysis needs to be grounded in a coherent "gendered" theory of international migration that can serve as a guide for new data collection, estimation, and interpretation of empirical results. To date, the lack of a structured and coherent gender focus has compromised our understanding of how even basic characteristics, such as human capital, affect international migration decisions and impacts for men and women. What little we do know makes it clear that gender cannot be ignored or represented simply as a dummy variable in economic studies of international migration and its impacts.

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