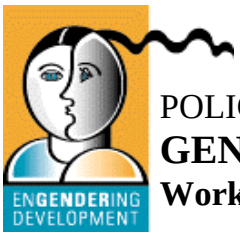

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Gender, Time Use, and Change: Impacts of Agricultural Export Employment in Ecuador

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Evidence from the cut flower industry in Ecuador shows that the increased demand for women workers has affected the household allocation of paid and unpaid labor. Though women have increased their time in paid work, their total labor time remains fairly constant, while men increase their share of unpaid labor.

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ABSTRACT:

This paper uses quasi-experimental data from Ecuador to understand the impacts of women's employment on household paid and unpaid labor allocation. The "treatment" area is in the area of the cut flower industry, which has a high demand for female labor. The "control" area is in a culturally similar, but economically more traditional valley. This approach addresses the problem of endogeneity that arises when measuring the impacts of contemporaneous household labor supply decisions. The analysis shows that with the advent of market labor opportunities for women, women's total time in labor remains constant while men's time in unpaid labor increases.

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1. Policy Issue

Economic reforms in Latin America have led to a boom in the growth of non-traditional agriculture exports, and along with it, a large increase in the demand for rural labor, especially female labor.[1] The expansion in off-farm employment has provided a badly needed income source for rural families, but it has also had a profound impact on the economic and social fabric of rural communities. Agricultural industries and non-traditional products have grown in direct response to trade and macroeconomic reforms recommended by The World Bank and other institutions, and their success stories in Latin America are frequently cited as examples for other countries to follow.[2] The Ecuadorian cut flower industry is a classic example of a growing agricultural export industry in Latin America and one that has a large demand for female labor.

The paper tests two main questions about how household time allocation has changed as a result of the flower industry. The first is whether women who work in the flower industry are working harder as a result of combining market labor with unpaid labor in the home. The second question is whether there is some shifting of responsibility for the unpaid labor, traditionally done by women, to male members of the household. Such a change in participation in housework would imply a shift in gender roles. Several recent studies pose these questions using data from more industrialized countries, and there is an increasing literature on time use in developing countries.[3] In the UK, Jenkins and O'Leary (1997) find significant change in the

[1] See Colyer (1996); Quiroz et al. (1996); Barham et al. (1992); and Thrupp (1995).
[2] World Bank Country Assistance Strategies (CAS) typically promote non-traditional agriculture for its high-growth potential; see for example the Uganda CAS, *The Challenge of Growth and Poverty Reduction* (1996).
[3] For developing countries, see Alderman and Chishti (1990), Skoufias (1993), Ilahi (1999), Khandker (1988), Datt and Ravallion (1994), and Fafchamps and Quisumbing (1998).

composition of work for men and women as a result of the increased participation of married women in the labor force. Manchester and Stapleton (1991) report similar findings for the US.[4]

Most work on time use in developing countries has focused on the separate impacts for men and women, with little emphasis placed on the division of labor in the home and how it may change over time. An exception is a recent paper by Fafchamps and Quisumbing (1998) which looks at the static determinants of intra-household division of labor in Pakistan. They find that gender, family status, and human capital variables are all significant determinants.

People often assume that gender roles are fixed in developing countries. However, while it is true that roles in many developing societies are more narrowly defined for women, pressures from modernization are provoking swift changes. As in more developed countries, married women's participation in paid labor has risen rapidly around the world, especially in export niches like that of Ecuadoran flowers. In Ecuador, the flower industry is only ten years old. Before it developed, women in these same rural areas had little if any paid employment. Employment in flowers has been one of the first types of paid off-farm employment offered to women and the only employment offered to women in such numbers.[5] This kind of change in women's market participation is likely to induce some changes in household time allocation.

The challenge is how to measure the dynamic effect of household labor supply decisions on the reallocation of responsibilities within the home when time series data is not available and when, from a static modeling perspective, time allocation decisions are made simultaneously.

[4] See also Bittman (1999) for a comparison of trends in Finland and Australia and van der Lippe and Siegers (1994) for the Netherlands. Bittman (1999) cautions, however, that although gender differentials in housework in more developed countries are declining, men devote half the time that women do to unpaid work. Bittman asserts that a complete re-negotiation of the division of domestic labor is not realistic in the short term and that public policies are needed to redress the gender imbalances. Similarly, in the Ecuador context, one would not expect men's time in housework to increase much, but even small increases would indicate changes in attitudes.

[5] Firm managers and many others say that women work more efficiently in the detail-oriented, careful work required of the flower tasks. Others assert that women are hired because they are willing to work for lower pay than men. It

One solution would be to model male and female decisions as separate, and then women's income (or market participation) can be treated as exogenous to men's decisions to carry out housework. This is the working assumption in many non-cooperative models,[6] and it was a common assumption in early models of labor supply. For example, it was common to include husband's income as an exogenous determinant of female labor supply since it was assumed, and was probably true for some time, that the husband's participation was independent of the woman's participation. However, for the purposes of this paper, a separable model would negate the hypothesized interrelation of women's market work and male housework.

The appropriate framework for this analysis is a model where time use decisions in all activities are simultaneous and inter-linked across household members. Estimating such a system of decisions directly, however, would require more data than is available. In this paper, the effect of women's work on housework allocations is captured indirectly in two ways. First, time allocation outcomes are compared in the two different "states of nature", one for areas in which flower production is present (the treatment group) and the other in areas where it is not (the control). Second, reduced-form determinants of time use are estimated with a treatment group dummy variable included as an instrument for women's labor market participation.

2. The Conceptual Framework

Building on the framework proposed by Fafchamps and Quisumbing, household decisions are modeled as the optimization of the weighted sum of individual utilities. Following the work of Browning and Chiappori (1998), I treat the utility weights as functions of "distribution

is most likely some combination of factors: productivity, labor supply, and the historical association of women with post-harvest agricultural work.

[6] As described by Katz (1997).

factors". The data was specially designed to include indicators that may influence the relative decision-making power of the individuals. Let household welfare be designated by:

$$U = \sum_{i=1}^{N} \mu^{i}(A, H_i; \delta) U^{i}(C^{i}, T^{i} - L^{i} - D^{i}) \quad (1)$$

where U^i is the utility of individual i defined over goods C^i and leisure (comprising rest and recreation), $R^i = T^i - L^i - D^i$, where T^i is the total time endowment, L^i represents paid labor and D^i represents domestic labor. The individual utility weights, $\mu_i(\cdot)$, are functions of household social norms represented by the vector A**,** individual characteristics represented by vector H_i, and the state of nature δ, whether the household is located in the flower-producing areas or not.[7] The goods consumed by each individual include j private goods and m household public goods, $C^i = \Sigma_{ij} C_{ij} + \Sigma_m Z_m$. The household budget constraint can be written as:

$$\sum_k p^k C^k - \sum_i w^i L^i = W \quad (2)$$

where W is unearned income, p^k is a vector of prices for all k goods purchased for all members, and w^i is the earnings of individual i. Domestic labor is defined as a necessary service that has to be done by someone, so we also need the constraint that

$$\sum_i D^i \geq D_{\min} \quad (3)$$

[7] For simplicity of presentation, I do not include home production since the focus is on the underlying structure of paid labor versus domestic labor supply decisions. Home production could be added, but it would lead to complications as pointed out by Apps and Rees (1997) and further discussed by Chiappori (1997). To avoid the pitfalls with leaving it out that Chiappori notes—that work in the home may be accidentally treated as leisure—all hours of work whether in the home or elsewhere are counted as either paid or domestic (unpaid) labor. This is possible since we have detailed information on time use by activity.

where D_{min} is the minimum amount of time that needs to be allocated to domestic work. Maximizing household welfare (1) subject to (2) and (3) plus non-negativity constraints on individual labor supply, $L^i \geq 0$, results in a series of labor and domestic service supply functions:

$$L^i = f(p_k, w_1, ..., w_n, A, H_1, ...H_N, W, \delta) \quad (4)$$

$$D^i = f(p_k, w_1, ..., w_n, A, H_1, ...H_N, W, \delta) \quad (5)$$

for $i = 1,.., N$ members of the household. As Fafchamps and Quisumbing point out, estimation of (4) and (5) is complicated by the fact that households are not homogeneously structured. Estimating the share of each individual's contribution to the total household labor or domestic work is less problematic, where the share is written as $S_a^i \equiv L_a^i / \sum_i L_a^i$ and a is paid labor or domestic work. As determinants of S^i, Fafchamps and Quisumbing include differences across individuals (social roles and human capital), but they exclude household level variables. As reasoning, they give the example of household land ownership being a determinant of total labor use, but not of individual labor. I would argue however that household-level variables can be important determinants of how tasks are divided in a household. For example, the ratio of adult females to adult males is a household level structural variable that could have an impact on division of household labor by gender. The more females there are, the less likely men will do some part of those tasks.

In this paper, the determinants of shares per activity are estimated separately by gender since the aim is to understand how male and female behaviors differ, not from each other, but from members of the same gender. The main question is not whether one gender or the other is more likely to do the work and how that assignment may be linked to human capital differences

as is addressed by Fafchamps and Quisumbing. Instead, the parameters affecting time allocation for men and women are assumed to differ, particularly for time allocation in housework.[8]

3. Data Description

The quasi-experimental survey was carried out in two distinct regions of northern Ecuador, Cotocachi and Cayambe.[9] These two regions are about 200 kilometers apart and are similar ecologically with each containing peri-urban centers in a main valley and disperse rural populations in the surrounding hillsides. The data were collected in May and June 1999 as part of a larger study of the effects of flower development. In total, 562 households were surveyed resulting in 2567 individual observations, including all members of the family above the age of 10. The survey is modeled after the World Bank's Living Standards Measurement Survey.

The "quasi" nature of the experiment refers to the fact that it was not a pure experiment where all variables were strictly controlled. The survey instrument was detailed enough to capture many differences between the treatment and control groups. However, since the experiment was applied in a real economy, there are likely to be some unobservable differences. This is not a "quasi" experiment in the way Deaton (1997) and others have used the term meaning that the treatment may be endogenously determined by factors that are themselves correlated with the outcome one is trying to measure. A classic case of this is when a treatment group is selected among the poor and one is trying to evaluate if the program helped to alleviate poverty in that group.

In the case of this paper, this kind of endogeneity problem would arise if the location of flower production were correlated with the qualities of the workforce that might also influence their time allocation decisions. According to the flower producers, however, the characteristics

[8] This assumption can be easily tested.

of the workforce are irrelevant to their location choice. Their location choice is strictly guided by the unique combination of micro-climatic characteristics in Cayambe as well as its proximity to a regional airport.[10] The choice of firms to locate to the Cayambe area is exogenous to the outcomes in question—decisions about time allocation—and therefore provides a relatively clean quasi-experiment.

Table 1 shows some descriptive statistics from the treatment and control areas, Cayambe and Cotocachi respectively. Despite the micro-climatic differences, the two areas have similar basic climatic features, similar proportions of Andean Quichua-speaking peoples, and similar histories of land tenure. The descriptive statistics can only give a limited comparison of the two areas since we expect to see differences as a result of the flower industry. The main differences, that are no doubt a result of the flower industry, are the age profiles and the proportion of migrants to the area; the population of Cayambe is generally younger and has a higher proportion of migrants. Most of the other basic characteristics of the areas are very similar: they include education levels, marriage patterns, household size, number of female heads of household, numbers and age profiles of children, religious affiliations, and other organizational affiliations.

An alternative to the quasi-experimental sample design would have been to identify appropriate instruments for income, but this is risky given the difficulty in finding truly representative instruments.[11] In contrast, the experimental survey design is straightforward and acts as a different kind of instrument.[12] The availability of employment is like a dummy variable that affects the labor supply decision, but not the household outcome variables in question.

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[9] Pitt and Khandker (1996) used a similar sample design to look at the impacts of micro-credit program participation in Bangladesh.

[10] From conversations with cut flower producers, Quito, Ecuador, May 1998.

[11] Two recent studies by Haddad and Hoddinott (1994 and 1995) use two-stage least squares and fixed effects to estimate the impacts of female income shares on household expenditures and boy-girl anthropometric outcomes, respectively. The instruments they use to identify female income share are the share women have in the household business and the women's relative level of education.

Separating the sample by those who have access to work and those who do not partially solves the endogeneity problem. The fact that not everyone works even when flower employment is available presents another reason to stratify the sample.

Splitting the sample to look at workers and non-workers allows us to handle selectivity bias. For example, households that have women in the work force may also be more inclined to share housework across gender because of an unobservable openness of the men in the family to doing so. Households in which the men are more willing to share housework may also be more willing to have the women work outside the home. Measured impacts of participation in cut flowers on the distribution of housework would be overestimated if this kind of selectivity bias were not taken into account. Therefore by having a representative group of "non-workers" in the treatment sample, we can first estimate the determinants of whether one participates in the activity or not and then estimate the determinants of the time shares.

The data include detailed modules on expenditures, economic activity (including agricultural activity and small businesses), health, education, fertility, credit and savings, and a detailed accounting of time use. Two types of time use data were collected for their different strengths.[13] The 24-hour data is considered by many to be more accurate because it is more detailed and it is easier for a respondent to remember what was done the day before. But 24-hour data is more likely to miss unusual or irregular activities. Since men's contribution to housework may be an example of an irregular activity or one that is not done daily, we also asked for general time dedicated to housework, rest, recreation and work over the prior week. Weekly data of this nature has the disadvantage of being less precise and more subject to recall error, but it has the advantage of being less burdensome to the interviewee. The 24-hour recall

[12] See Moffitt (1991) and Morduch (1998) discussions of the relations between experimental design and instruments.

data were collected only for the male and female heads of household. The weekly data were collected for all household members interviewed.

4. Time Use Outcomes: How do allocations differ in treatment and control areas?

Time Use from 24 Hour Recall Data

Time use in the major daily activities for the past 24 hours is shown in Table 2. To answer the first question about whether women work longer hours in a combination of paid and unpaid labor in the treatment area, the answer is no. The total time worked by women in the treatment group is slightly less than that worked by women in the control group, although the differences are not significant. Compared to men, women in both the treatment and control groups work significantly more total time when including housework.[14] And there is not much difference between treatment and control: the ratio of men's time in total work to women's is only slightly higher in the treatment group (78%) than it is in the control group (75%). Men work around 8 hours per day, and women work around 11 hours per day. This imbalance is a common finding in developing countries.[15] Developed country totals for men's and women's work when including housework are much closer together (Jenkins and O'Leary, Manchester and Stapleton). These differences suggest an important difference for how work is distributed by gender in a developed country context.

Not surprisingly, women in the treatment group work more in paid work (226 minutes) than women in the control group (170 minutes), but compared to men, they work less time in paid work in both groups. Given the relatively short history of women's participation in paid work, it is not surprising that women work less than men. Women in more developed countries

[13] See Juster and Stafford (1991) and Robinson and Gershuny (1994) for a full discussion of time use measurement issues.
[14] All reported differences are statistically significant differences unless reported otherwise.
[15] World Bank (forthcoming 2000), Ilahi (1999).

have also been found to work less than men, though the gap is decreasing quickly over time. Men in the treatment group work significantly more time (345 minutes) than men in the control group (286 minutes), showing that flower employment also provides employment opportunities for men. Men and women in the control group work more time in farming, with men working more so than women in both groups (though the male-female difference is not statistically significant). This suggests some displacement out of farming in the treatment group, especially since the combination of time in farming and paid work is about the same in both groups for men (about 400 minutes).

Women spend much less time in recreational activities than men do. This is true of both the control and treatment groups, and the magnitude of difference between men and women is similar in both groups. There is more of a difference between control and treatment when looking at the ratio of time spent by married men to women; in the control group, the ratio is 1.64 while in the treatment group, the ratio is 1.52. Underlying the difference in the ratios, married women's time is higher and men's is lower in the treatment group. This is slight evidence of progress in the treatment group.

Women do most of the housework in both the control and treatment groups as shown in Table 2. Treatment women as a whole, including all ages and relations, do on average 324 minutes of housework per day (5.38 hours) and men do on average 59 minutes per day of housework. Similarly in the control group, women do 354 minutes (5.9 hours) and men do 52 minutes. Men do slightly more in the treatment group than in the control group, and women do slightly less. However, much larger differences across gender in housework arise when looking at differences by marital status and labor market participation.

Table 3 shows the average minutes per day spent in housework by gender, marital status, and labor market participation. The table shows three categories: married male household heads, single female household heads, and wives (i.e. married women living in two-adult households). For all categories, there is a large difference depending on whether the person works or not. The numbers of people in each of the sub-categories who do not work are too small to have statistical meaning, but they are shown in the table to demonstrate the differences.

Among married men who work, Table 3 shows large differences between the treatment and control groups. Men who work in the control group do an average of 30 minutes per day of housework while men who work (in any job) in the treatment group do an average of 57 minutes per day. In the control group, men with working wives worked 32 minutes in housework, and in the treatment group, men with working wives worked 60 minutes. Both sets of married men do more housework when their wife works, but the magnitude of housework done by treatment men in both categories is significantly higher than that of the control men.

The middle column of Table 3 shows how the different working members of the treatment group differ by whether or not they work in the flower sector. Married male household heads who work in flowers do more housework than married male household heads who work in other sectors, 69 compared to 47 minutes, and this difference grows even more when adding the factor of their wives' participation. Married and working male household heads do the most housework of any group of men when they work in flowers and their wives do too, 77 minutes. When men work in flowers and their wives work in another sector or not at all, their time in housework goes down to 36 minutes. When married male household heads work in another sector, but their wives work in flowers, their housework time is up to 69 minutes. Overall, these data suggest that participation of either one or both of the spouses in flower employment

increases men's time in housework significantly more so than work in other sectors of the economy.

What is it about the flower sector that would induce these higher levels of unpaid work by men? One possible explanation is wage differences. As Table 4 shows, men are paid substantially more than women on average (and at the median) in both the treatment and control areas, and this is also true of the subgroup of flower industry workers in the treatment group. However, the differences between men and women are much smaller among workers in the flower industry; the average wages for men and women who work in flowers were 5623 and 5523 sucres, respectively. Averages for men and women in other sectors in the treatment group were 4374 and 2271 sucres, respectively. And more compelling evidence is shown when looking at the subgroup of married couples who work in the flower industry. For them, women earn *more* than men do, and the difference favoring women is even higher when the group is narrowed to married household heads and their spouses. As their wives' paid labor becomes more valuable, the men shift some of their own relatively less valuable time into housework.

Among those who work, married women in the control group do a lot more housework on average at 358 minutes than those in the treatment group at 292 minutes. And as shown in the case for married men, the impact of the flower sector itself is quite strong: among married treatment women who work, those who work in flowers spend much less time in housework (230 minutes) than women in other sectors (385 minutes). In fact, the average minutes spent on housework by the treatment women working in other sectors is more than that of women in the control group. The flower impact is also seen in the amount of housework done by flower-sector-working wives when their husbands work in flowers also (222 minutes); it is significantly lower when compared to how much they do when their husband works in other sectors (253

minutes). These statistics are symmetrical to the findings for men and can also be explained by the relatively higher wages for women in the flower industry.

Does the flower sector have any impact on the time in housework of female household heads? Table 3 shows that the control and treatment groups have similar overall averages to each other for those who work in any sector. But, the averages for female household heads follow a similar path to that above for married women when looking at the difference between flower and other sector workers in the treatment group. The female household head workers that do not work in flowers do an average of 388 minutes of housework, while those that work in flowers do an average of 200 minutes of housework.

Time Use from Weekly Data

Time use patterns in the weekly data are similar to those found in the 24-hour data as shown in Tables 4 and 5. Married men do almost two hours more of housework per week in the treatment group than married men do in the control group. Single men in the control group do more housework on average than single men in the treatment group, so the average housework for men as a whole is slightly lower in the treatment than in the control. This is probably due to the fewer job opportunities in the control group. Control group single men's hours in paid work are much lower on average than single men's hours in the treatment group. Within the treatment group, married men who work in flowers themselves or have a wife working in the industry spend more time in housework than those who do not work in flowers. Wives in the treatment group spend less time in housework, and even less if they work in flowers.

5. Determinants of Time Use by Gender

In this section, we look at how factors such as human capital, location, household characteristics and other classically exogenous factors explain time use in each of the activities

separately. The treatment group dummy is included and acts as an instrument for the wide-scale participation in the labor force by women. Almost all of the determinants are assumed to differ by gender in sign and magnitudes, so separate models for men and women are estimated. The weekly time use data set was used because of its larger sample size.

The first approach was to use the Heckman self-selection model, estimated simultaneously with maximum likelihood. One dependent variable is the shares of time spent by the individual in the activity (compared to that spent by other household members), and the second dependent variable is a dummy for whether the individual participates in the activity. This model was chosen as a way to correct for potential bias that may occur if the sample of actual participants in the activity is not random. For example, if we were to measure the determinants of male housework using only those men who actually do housework, the estimates would be biased if we use the same factors that determine which men choose to do housework.

Since the self-selection model is highly sensitive to specification error and the assumption of normally distributed errors, separate Tobit and Censored Least Absolute Deviation (CLAD) models were also estimated. The Tobit allows for all the variables to be tested as possible determinants of shares of participation, whereas in the Heckman model, some were excluded for identification purposes. For some of the variables, it is not theoretically clear whether they would be determinants of shares or of participation or of both. In the Heckman specifications, almost all the variables that were expected to have some impact are included in the selection equation, and a smaller set is used to explain the shares of participation.

The CLAD model has the advantage of not requiring any assumptions about the distribution of the errors—whether they are normal or homoskedastic.[16] Consistent estimates for the β vector are obtained by minimizing the sum:

$$\sum_{i=1}^{n} \left| y_i - \max\left(0, x_i \beta\right) \right| \qquad (6)$$

The disadvantage of using this estimator compared to the Tobit is in precision; the estimation method uses a smaller sample, and in a test by Deaton (1997), the standard errors were found to be one and one half times larger than those from Tobit. In larger samples, such as 1000 according to Deaton, the bias-variance tradeoff becomes more favorable.

Summary statistics and variable definitions are shown in Tables 6a and 6b.[17] The expected effects are assumed to be similar for participation and shares, though slight differences are described in the discussion of the results below. The results from the different specifications are presented together by activity and gender in Tables 7-12, and they are discussed in turn by activity type: housework and paid work.

Housework

Three variations of the Heckman model of housework are shown each in Table 8 for men and Table 9 for women. Two versions each of the Tobit and CLAD models are shown for both men and women in Table 10. Across the different models, the estimated impacts are remarkably similar in both magnitudes and sign. First, I discuss the differences among the models and their

[16] See Deaton (1997) for a detailed explanation of this model proposed by Powell (1984) and for the estimation method proposed by Buchinsky (1994). The method consists of iterative median regressions (where the observations for which the predicted values are less than zero are discarded until all predicted values are positive) and standard errors are based on bootstrap estimates.

[17] [The dummy for being a migrant to the area was found to be insignificant in most of the regressions, but this will be shown explicitly in the subsequent version of the paper along with any other recommended changes.]

separate implications, and then I discuss the results of the individual determinants, comparing them across the models.

In two out of three of the Heckman estimations for men's housework models, the estimated correlation between the two equations of participation and housework shares, ρ-*hat*, is significantly different from zero. The key difference between the models where ρ-*hat* was significant and where it is not is the inclusion of the number of children in the household in the participation equation. It was excluded at first due to its high correlation with household size which is also included, but the independent variation of these variables in the opposite direction is apparently strong enough to have separate and opposite impacts (discussed more below). Similarly, for women's housework, ρ-*hat* was significant, but it is less apparent why because it is significant even when number of children is excluded. The presence of children in the home appears to be a key determinant of which men carry out housework and overall for both men and women, joint estimation of participation and shares seems warranted.

However, as was stated, the Heckman model is sensitive to specification error, and the main question about the specifications is how to differentiate between determinants of participation and determinants of shares. For example, age may be positively related to both: an older woman may be more likely to do housework and also likely to do more housework than other members. However, in order to have identifying variables, I chose social characteristics, such as marital status, religion, attitudes about gender, and reported levels of conflict in the home, as stronger determinants of whether someone participates in an activity. But this distinction is subtle; perhaps those variables also determine the amount of work done. The inclusion of these social characteristics in separate Tobit and CLAD estimations shows that several are directly significant to the shares of work, at least to the extent that those versions of

the model are correct. Fortunately—despite the difficulty in determining which model is best—the results for the individual factors are consistent across models.

The human capital variables, age, age-squared, and education were expected to have different effects for men and women on housework shares and participation.[18] Men were expected to be more likely to do housework if they were children or senior citizens. Women were expected to do more as they got older and then less as they aged. For women, these expectations are borne out by the estimations, but for men, age is insignificant in almost all of the estimations. For women, education has the expected negative effect on participation in two out of three of the Heckman participation equations, but it was not significant in any of the models of housework shares. For men, education is insignificant, but this was expected since higher education could imply a greater openness on the part of men to share work in the home, but also a higher opportunity cost in terms of expected wage outside the home.

The social characteristics include: (1) marital status (dummies for married, formerly married; single is the excluded category); (2) whether the person considers themselves to be very religious; (3) whether they think women's role is to stay home and care for the family; and (4) whether a woman reported verbal abuse by her spouse in the household.[19] For men and women, being married or formerly married (widowed/divorced/separated) was expected to lead to higher participation and shares of housework since they are also presumed to have more responsibility for the household, and this is the case in most of the estimations. A religious person was thought to be someone who would hold more traditional views of women's role in the family, who would be less willing to do housework if a man, and more inclined if a woman. For men, being religious is insignificant in all of the Heckman participation equations, but it is positive and

[18] Human capital variables are included as proxies for the predicted wage.

significant in the two Tobit and CLAD models where it was included. Instead of having a "traditional attitude" effect, being religious translates into being more willing to contribute to the household. For women, being religious is a significant and positive determinant of housework participation in two of the Heckman models. This could be explained by either a traditional attitude or by a greater willingness to contribute.

The other two social indicators are the belief that women should stay in the home and the presence of conflict in the home. Both indicators play significant roles in the determination of men's time and participation in housework. As expected, if a man holds the belief that women's primary role is to stay home, he is less likely to participate in housework as shown in all three Heckman equations, and he does less housework according to the one Tobit result. Similarly, men in households where abuse is reported are less likely to do housework and do a smaller share of it. For women expressing the belief that their role is to stay home, there is no significant effect on participation or on shares of housework. For women who live in homes with verbal abuse, there are unexpected results. It was thought that in an abusive home, women would be afraid to challenge the traditional role and thus would do more housework. But the opposite seems to be true: in all three of the participation equations and in the one Tobit, an abusive home leads to a lower probability of participating and less housework. The negative result could mean that conflict serves as a disincentive to any kind of productive contributions to the home, or it could mean that the wrong directional impact is being measured. Perhaps instead, conflict is a product of women doing less housework.[20]

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[19] This question was asked to married women over 18 years old, and in a few cases there was more than one person per family reporting abuse. The variable is a dummy variable equal to one if any abuse was reported.

[20] This raises the concern that some of the social characteristics may be endogenous. Gender attitudes may be formed by the changing distribution of household chores, and conflict, or even the break up of marriage, could be the result of changes in time use or in the changes in employment opportunities more generally. Smith and Blundell (1986) suggest a test for exogeneity that is applicable in theory, but with these data, proved inconclusive.

The household characteristics that were thought to be important were the ratio of females to males, household size, number of children, and assets owned by the family.[21] The first hypothesis was based on the thinking that housework is considered the domain of women, and that if one woman goes out to work, the most likely person to take over the housework would be another woman. Therefore with a higher ratio of women to men in the family, men will do less housework and be less likely to participate in housework. This indicator turns out to be negative and significant in all of the equations for both men and women as expected.

Household size is included as a control in the share equations since a larger family itself implies that shares will be smaller. It is included in the participation equation with less of a strong prior belief as to its direction, because a larger family implies that not everyone has to participate in all activities, but it could also mean that there is more work to be done. Economies of scale and benefits of specialization would translate into a negative effect on participation. In the estimation results, household size is indeed negative and significant in most of the participation equations and in all of the share equations for men and women.

The number of children was included, despite its correlation with the household size variable, because child-care is considered to be more labor intensive, and perhaps even more important to determining women's participation in work outside the home. As mentioned above, the results show that the number of children has an important, positive impact on men's time in the home and it does for women's as well. The strength of this effect is notable given the multicollinearity introduced with household size, yet they have strongly significant opposite effects on time and participation in housework.

[21] Individual assets would have been preferable, but the data proved to be too poor to be useful at the individual level. Most assets were reported at the household level.

Assets were included under the assumption that wealthier families would be less pressured by economic circumstances to have men take on housework responsibilities, and this is shown by the results. Men's shares of housework and their likelihood of participating in housework are negatively and significantly affected by higher levels of household assets. Women's shares and participation are not affected, which is interesting in light of recent arguments in the intra-household bargaining literature positing assets as an important bargaining tool for women. This does not provide evidence one way or the other on that argument, however, given that the asset data is at the household level.

The location dummies for whether the person lives in urban areas of the sample or in the treatment areas are generally significant in the expected directions. The urban dummy is positive and significant in most of the equations for men which was expected since the urban areas are more modern and presumably more subject to men sharing this work. Strangely, however, the results in the Heckman participation equations are negative and significant, the opposite of what was expected and not readily explainable. It was also thought that urban women would do less housework. This is shown by some of the estimates, but the urban areas do not appear to influence women's housework participation or shares very strongly. These weak results could indicate that the underlying expectations for urban areas are already captured by the other explanatory variables (such as age, the treatment area, education, etc.).

The Heckman models for men suggest that being in the treatment group determines whether men participate in housework but not the share of work they do. The treatment dummy is positive and strongly significant in all of the participation specifications. This result strengthens the findings in the preceding section since the treatment impact is now measured relative to all other possible impacts. Independently of other determinants, men in the treatment

area are more likely to do housework. For women, the treatment dummy is not significant except for in two participation equations where the sign is positive, the opposite of what was expected. It was thought that they would do less housework as was thought for the urban dummy, but apparently the presence of flower employment opportunities has had more of an impact on men than on women.

Paid Work

As with housework, three variations of the Heckman model of paid work are shown each in Table 11 for men and Table 12 for women. Two versions each of the Tobit and CLAD models are shown for both men and women in Table 13. Again, as with the housework estimates, the estimated impacts are similar in both magnitudes and sign. And as with the housework models, the different models have different strengths depending on assumptions about the specification and the distribution of the errors. In the Heckman models, the estimated correlation between the errors of the participation and shares equation is significant for men in two out of three cases and for women in all cases.

For both men and women, the human capital variables behave as expected for participation and shares of time in paid work. Age is positive, age-squared is negative, and education is positive in almost all of equations for both men and women, with the main exception of the men's participation equations where education is not significant. This makes sense since men traditionally participate in the paid labor force in some capacity regardless of educational status.

The only social characteristics that matter for men's participation and shares of paid work are their marital status, but for women, the social indicators matter more. The gender attitude variable and being religious are each significant in one of the models of men's share of housework, but overall the social effects are not consistently significant. The social variables

tend to be more significant for women's paid work, but not in ways that make sense or are very consistent. Marital status has a mix of negative, positive, and insignificant effects. Being religious is shown to be negatively and significantly related to participation and share of paid work in one equation each, but positive and significant in another. Living in a home with conflict is generally insignificant as a determinant of women's paid work shares and participation.

Somewhat surprisingly, women who think that they should dedicate themselves to taking care of the home are more likely to be working and to be working larger shares. One interpretation for this unexpected result is that the women who go to work feel some guilt for not fulfilling their caring role in the home. Obviously some percentage of women sincerely believe that women should stay in the home and only work because of economic need, but the strong positive association of this statement with working women may also show a reaction to the competing demands on their time.

The other variables that matter as determinants for participation and time spent in paid work for men and women are household size, the number of children, assets, and the urban dummy. For both men and women, household size has the expected negative effect indicative of economies of scale, and the number of children has consistently positive effects. The urban dummy has a negative, significant effect throughout for men and women, which seems strange since there is more employment in the urban areas. But since we are measuring shares and participation, urban populations may need to work less relative to others in the family if more people are working. For men, assets have negative and significant effects three out of five times, but for women, assets are insignificant (but significant and positive in one equation). Women's participation and share of paid work is significantly and positively affected by the ratio of

females to males in the family (except in one equation). The presence of more females allows for the spreading of housework across females, and thus permits greater female entry into the paid work.

Strangely, the treatment dummy is not a significant determinant of participation or shares of paid work for either men or women. This could be explained (as above) by the presence of more opportunities for all which makes the individual burden less. But for those families that did not have enough total labor available, the impact of being in the treatment group should increase the share and the participation rate. These contradictory effects may be the reason for the lack of a clear result.

6. Conclusions

This paper has many surprising results about how time use patterns have been affected by the presence of the flower industry and other social, household, and individual factors. The most compelling evidence of the industry's impact is on married men's increased participation in housework. Married men in the treatment group spend double the time in housework, and this is clearly related to women's increased participation in the labor force as shown first in the analysis of the different time use outcomes in the control and treatment groups and then in the regression analysis. In the analysis of outcomes in the two sample areas, we saw that employment in the flower industry itself—rather than simply in the treatment area—was linked to even higher levels of men's time in housework. This seems to be related to lower relative wage differences between men and women in the flower industry, though this is not tested directly. We also saw in the analysis that women, especially married women, in the treatment group do less housework than women do in the control group.

Other determinants of time use are shown to have different effects for men and women. Household characteristics play a similar role for both, but social characteristics seem to play the strongest role for men than for women in housework. Age and education had no impact on men's participation or time in housework, but social variables such as marital status, the attitude toward women's role in society, and the presence of conflict in the home had generally predictable and significant impacts. Household characteristics, particularly the ratio of female to male members and the number of children were important determinants of both men's and women's housework. The social variables were generally not important to time in paid work for men or women, while human capital and household composition variables were important.

The paper reveals large differences in time use by gender that are independent of the effect of the flower sector. Men work three-fourths of the time that women do when including housework, and correspondingly, women have much less leisure time than men. This is not an unusual finding in a developing country context, but it demonstrates a fundamental inequity. An important aspect of this finding is that women are not working more time per day in the flower area, dispelling a frequent criticism of agricultural export development which maintains that women are unduly burdened by the work in the industry. Women work much more than men, but this is apparently a result of their culturally-assigned housework responsibilities and not a result of the availability of employment for women. There may be other reasons to criticize the flower industry (such as in its environmental impacts), but the gender impacts are arguably positive on balance given that the employment for women itself leads to cultural change. By extension, the trade liberalization policies that led to the growth in this employment should be recognized as an important component in the expansion of opportunities for women.

And finally, while it is well known that female employment is crucial to women's empowerment, this paper shows that those impacts can be rigorously measured through the use of specially designed survey data.

References

Alderman, H. and S. Chishti. 1991. ‘‘Simultaneous Determination of Household and Market-Oriented Activities of Women in Rural Pakistan’’ *Research in Population Economics* 7: 245-265, Jai Press, Greenwich, CT.

Apps, P. and R. Rees. 1997. “Collective Labor Supply and Household Production” *Journal of Political Economy* 105(1): 178-190.

Barham, B., M. Clark, E. Katz, and R. Shurman. 1992. “Non-traditional Agricultural Exports in Latin America” *Latin American Research Review,* Vol. 27, No. 2, pp. 43-82.

Bittman, M. 1999. “Parenthood Without Penalty: Time Use and Public Policy in Australia and Finland” *Feminist Economics* 5(3): 27-42.

Browning M. and P. A. Chiappori. 1998. “Efficient Intra-Household Allocations: A General Characterization and Empirical Tests” *Econometrica* 66 (6): 1241-1278.

Buchinsky, Moshe. 1994. “Changes in the US Wage Structure 1963-1987: Application of Quantile Regression” *Econometrica,* 62: 405-58.

Chiappori, P. A. 1997. “Introducing Household Production in Collective Models of Labor Supply” *Journal of Political Economy* 105 (1): 191-209.

Colyer, D. 1996. “Desarollo del Sector Agricola Ecuatoriano desde 1988” in M. Whitaker, ed. *Evaluación de las Reformas a las Políticas Agricolas en el Ecuador, Volumen II: Estudios Detallados* (mimeo) June.

Datt, G. and M. Ravallion. 1994. “Transfer Benefits from Public-Works Employment: Evidence for Rural India” *The Economic Journal,* 104 (November): 1346-69.

Deaton, A. 1997. *The Analysis of Household Surveys: A Microeconometric Approach to Development Policy.* Washington, DC: The World Bank.

Fafchamps, M. and A. Quisumbing. 1998. “Social Roles, Human Capital, and the Intrahousehold Division of Labor: Evidence from Pakistan,” mimeo, April.

Haddad, L. and J. Hoddinott. 1994. “Women’s Income and and Boy-Girl Anthropometric Status in the Cote d’Ivoire” *World Development* 22 (4): 543-553.

Hoddinott, J. and L. Haddad. 1995. “Does Female Income Share Influence Household Expenditure?” *Oxford Bulletin of Economics and Statistics.*57 (1): 77-96.

Hoddinott, J., L. Haddad, and H. Alderman (eds). 1997. *Intrahousehold Resource Allocation in Developing Countries: Methods, Models, and Policies*. Baltimore, MD: Johns Hopkins University Press.

Ilahi, N. 1999. “Gender and the Allocation of Time and Tasks: What Have We Learnt from the Empirical Literature?” background paper for The World Bank Policy Research Report on Gender.

Jenkins, S. P. and N. C. O’Leary. 1997. “Gender Differentials in Domestic Work, Market Work, and Total Work Time: UK Time Budget Survey Evidence for 1974/5 and 1987” *Scottish Journal of Political Economy,* 2(44): 153-164, May.

Jenkins, S. P. and N. C. O'Leary. 1995. "Modelling Domestic Work Time" *Journal of Population Economics*, 8: 265-279.

Juster, T. F. and F. P. Stafford. 1991. ''The Allocation of Time: Empirical Findings, Behavioral Models, and Problems of Measurement,'' *Journal of Economic Literature*, 29(2): 471-522, June.

Kabeer, N. 1997. "Women's Work in Urban Bangladesh: Is There an Economic Rationale?" *Development and Change* 28 (2): 261-302.

Katz, E. 1997. "The Intra-Household Economics of Voice and Exit" *Feminist Economics*, 3(3): 25-46.

Khandker, S. R. 1988. ''Determinants of Women's Time Allocation in Rural Bangladesh,'' *Economic Development and Cultural Change*, 37(1): 111-126, October.

Manchester J. and D. Stapleton. 1991. "On Measuring the Progress of Women's Quest for Economic Equality" *Journal of Human Resources* 26 (3): 562-579.

Moffitt, R. 1991. "Program Evaluation with Nonexperimental Data" *Evaluation Review* 15(3): 291-314.

Pitt, M. and S. Khandker. 1996. "Household and Intrahousehold Impact of the Grameen Bank and Similar Targeted Credit Programs in Bangladesh" *World Bank Discussion Paper* 320.

Powell, James L. 1984. "Least Absolute Deviations Estimation for the Censored Regression Model" *Journal of Econometrics* 25: 303-25.

Quiroz, J. A. and R. A. Chumacero. 1996. "Reformas Macroeconomicas y el Sector Agricola, Ecuador: 1990-1995" in M. Whitaker, ed. *Evaluación de las Reformas a las Políticas Agricolas en el Ecuador, Volumen II: Estudios Detallados*.

Robinson, J. and J. Gershuny. 1994. "Measuring Hours of Paid Work: Time-diary vs. Estimate Questions" *ILO Bulletin of Labor Statistics* 1994-1: XI-XVII.

Skoufias, E. 1993. ''Labor Market Opportunities and Intrafamily Time Allocation in Rural Households in South Asia,'' *Journal of Development Economics*, 40: 277-310.

Strober, M. and A. Miling Kaneko Chan. 1998. "Husbands, Wife, and Housework: Graduates of Stanford and Tokyo Universities" mimeo.

Thomas, D. 1990. "Intrahousehold Resource Allocation: An Inferential Approach" *Journal of Human Resources*, 25 (4): 635-664.

Thrupp, L. A. 1995. *Bittersweet Harvests for Global Supermarkets: Challenges in Latin America's Export Boom* World Resources Institute.

van der Lippe, T. and J. Siegers. 1994. "Division of Household and Paid Labor between Partners: Effects of Relative Wage Rates and Social Norms" *Kyklos*, 47 (1): 109-36.

World Bank. 2000. *Policy Research Report on Gender* (forthcoming).

World Bank. 1996. *Uganda: The Challenge of Growth and Poverty Reduction*.

Table 1 – Comparing Treatment and Control Groups

Comparing Populations *(using sample data)*	**Treatment**	**Control**
Sample population	1916	625
	(75%)	(25%)
Age Groups	%	%
<=13 years	35.7	33.4
14-19 years	13.6	11.8
20-25 years	15.6	8.8
26-35 years	16.1	11.7
36-45 years	7.7	9.6
45-55 years	5.1	8.2
56-65 years	3.5	6.9
66> years	2.8	9.6
Education	%	%
None	8.7	10.6
Nursery	0.6	0.0
Pre-Primary	3.3	2.5
Basic Education	0.3	0.0
Primary	52.9	54.7
Secundary	29.2	25.6
Superior University	4.6	6.0
Superior Not University	0.4	0.4
Graduate	0.0	0.2
Marital Status	%	%
Free Union	13.6	6.6
Married	42.0	48.8
Single	36.5	33.2
Separated	3.4	2.4
Divorced	1.1	1.7
Widowed	3.4	7.3
Female Heads of Household	23%	25%
Average Household Size	5.8	5.3
Median Household Size	5.0	5.0
Households with children younger than 15 years old	36%	33%
Households with children younger than 6 years old	18%	12%
Born in the place of the interview	59%	90%
Organizational Affiliations	%	%
Professional	2.3	5.9
Community	20.7	27.0
Unions/Worker Associations	2.7	1.7
Sports	18.4	7.8
Political	1.0	1.7
Women's	1.9	0.9
Musical	1.6	0.7
Religious	6.9	4.5
Religion	%	%
None	2.4	0.5
Catholic	92.4	99.0
Evangelical	3.8	0.2
Other	1.3	0.2
Do you consider yourself to be	%	%
Religious	55.9	57.1
Not very religious	43.8	42.6

Table 2 – Average minutes per day spent in main activities by gender and marital status—24 hour data

Treatment	Men	Women	Married Men	Married Women	Single Men[3]	Single Women[4]
Farm work	57.63 [2]	51.79 [2]	60.85 [2]	53.22 [2]	26.61	48.52
Paid work	339.48 [1,2]	236.96 [1,2]	343.45 [1,2]	235.77 [1,2]	301.25	239.68
Community work	12.52	4.38	12.81	5.24	9.64	2.40
Housework	59.09 [1]	324.39 [1]	60.81 [1,2]	328.33 [1,2]	42.57 [1]	315.36 [1]
Total Work*	488.48 [1]	632.65 [1]	497.89 [1,2]	637.83 [1]	397.75 [1]	620.80 [1]
Recreation	114.70 [1]	66.96 [1]	108.36 [1]	71.09 [1]	175.89 [1]	57.52 [1]
Personal Care	332.78 [1,2]	255.20 [1,2]	328.40 [1]	249.43 [1,2]	375.00 [1]	268.17 [1]
Total Time	941.43	945.16	943.68	948.48	919.71	937.57
Observations	*298*	*411*	*270*	*286*	*28*	*125*

Control	Men	Women	Married Men	Married Women	Single Men[3]	Single Women[4]
Farm work	108.69 [2]	78.76 [2]	111.05 [2]	80.68 [2]	87.27	74.05
Paid work	261.80 [1,2]	177.39 [1,2]	269.00 [1,2]	175.02 [1,2]	196.36	181.07
Community work	12.97	11.38	14.4	14.56	0.00	3.57
Housework	53.74 [1]	355.15 [1]	36.60 [1,2]	372.11 [1,2]	209.55	313.57
Total Work*	453.69 [1]	637.72 [1]	445.90 [1,2]	658.15 [1]	524.55	587.62
Recreation	122.70 [1]	73.59 [1]	111.3 [1]	68.01 [1]	226.36	87.26
Personal Care	305.59 [1,2]	206.77 [1,2]	319.45 [1]	192.73 [1,2]	179.55	241.19
Total Time	908.96	910.52	908.96	909.13	930.45	913.93
Observations	*111*	*145*	*100*	*103*	*11*	*42*

Men/Women Ratio	Control			Treatment		
	All	Married	Single	All	Married	Single
Farm work	1.38	1.38	1.18	1.11	1.14	0.55
Paid work	1.48	1.54	1.08	1.43	1.46	1.26
Community work	1.14	0.99	0.00	2.86	2.44	4.02
Housework	0.15	0.10	0.67	0.18	0.19	0.13
Total Work*	0.71	0.68	0.89	0.77	0.78	0.64
Recreation	1.67	1.64	2.59	1.71	1.52	3.06
Personal Care	1.48	1.66	0.74	1.30	1.32	1.40
Total Time	1.00	1.00	1.02	1.00	0.99	0.98

* Sum includes time in other activities related to fetching water, home sales, and home repairs.
[1] Significantly different from that of the opposite gender at 95% confidence.
[2] Significantly different from that of the opposite area–treatment or control at 95% confidence.
[3] The category of Single Men does not have enough observations for tests of significance.
[4] Tests of significance were done for differences between Single Women in the treatment and control groups, but none are significant.

Table 3 - Average minutes per day spent in household tasks by gender, marital status and labor market participation—24 hour data

	TREATMENT							CONTROL			
	(A) Works anywhere				(B) Works in Flowers			(C) Works anywhere			
	Obs	Mean	SD		Obs	Mean	SD	Obs	Mean	SD	
MHH, married*											
Works	256	57.41	85.72	1	120	68.79	87.86	2,3	94	30.85	77.48	1,2
& Wife works	219	60.36	88.76	1	96	76.88	92.90	2	80	33.06	83.11	1,2
& Wife doesn't work	37	40.00	63.01		24	36.46	54.12	4	14	18.21	27.71	
(B) only: --in flowers					*9*	*23.33*	*38.32*					
--at all					*15*	*44.33*	*61.61*					
Doesn't work	11	156.36	200.86		136	47.38	82.81	3	5	152.00	65.44	
& Wife works	3	260.00	233.02		36	68.83	89.41	4	1	155.00	.	
& Wife doesn't work	8	117.50	189.19		100	39.65	79.36		4	151.25	75.54	
(B) only: --in flowers					*78*	*40.38*	*83.27*					
--at all					*22*	*37.05*	*65.22*					
FHH, single												
Works	86	276.48	209.51		51	199.84	164.98	2,3	33	274.70	155.78	2
Doesn't work	8	327.50	196.69		35	388.14	219.23	3	3	421.67	202.63	
Wives of MHH*												
Works	234	292.32	198.88	1	140	229.72	149.34	2,3	84	358.15	182.01	1,2
& Husband works	228	288.32	198.60	1	104	221.55	141.34	2	78	359.38	183.17	1,2
& Hus doesn't work**	6	444.17	155.29		36	253.33	170.32	4	2	310.00	169.71	
Doesn't work	37	543.65	218.56		94	385.55	227.07	3	16	455.63	171.98	
& Husband works	29	539.31	218.97		9	371.89	188.78		12	506.67	137.35	
& Husb doesn't work	8	559.38	231.32		85	387.00	230.50		4	302.50	192.42	
(B) only: --in flowers					*79*	*382.66*	*235.38*					
--at all					*6*	*444.16*	*155.29*					

[1] Significant difference between Treatment-Works Anywhere (T) and Control (C) at 95% confidence.
[2] Significant difference between Treatment-Works in Flowers (TF) and Control (C) at 95% confidence.
[3] Significant difference between those working in flowers and those working elsewhere among the treatment group (95%).
[4] Significant difference between those working in flowers and those working elsewhere among the treatment group (95%).
* The total number of married MHHs does not exactly match the number of wives of MHHs due to missing responses (there are 271 wives compared to 267 husbands).
** When looking at the sample of treatment women who work in flowers (column B), there are no husbands who do not work at all.

Table 4 - Wages by gender, marital and headship status, and by work type

	Average Wage		Median Wage	
Control	**Men**	**Women**	**Men**	**Women**
All	5816	2173	2497	824
Married	7949	1970	2885	500
Married & HH heads	7437	2143	2845	700
Treatment	**Men**	**Women**	**Men**	**Women**
All	4947	4137	4160	3932
Married	5618	4593	4585	4327
Married & HH heads	5586	4672	4427	4311
All who work in flowers	5623	5523	4817	4619
Married who work in flowers	5899	6161	4910	4933
Married HH heads who work in flowers*	5726	6345	4793	4917
All who work in other sectors	4374	2271	2908	531
Married who work in other sectors	5337	2310	3721	158
Married HH heads who work in other sectors *	5456	2307	3681	128

* This is a loose definition of household head that includes the nominal head and the spouse of the head. The other category of "married" includes family members such as the children of the nominal head and their spouses (son-in-laws, daughters-in-law) and other relatives who happen to be married, but who are not the main husband and wife "heads".

Table 5 – Average hours per week spent in main activities by gender and marital status—Weekly data

Treatment	Men	Women	Married Men	Married Women	Single Men	Single Women
Paid work	39.1 [1]	33.4 [1,2]	50.7 [1]	36.2 [1]	34.7 [2]	38.3
Housework	9.0 [1]	25.7 [1]	8.4 [1,2]	31.0 [1]	10.1 [1]	22.3 [1]
Recreation	16.5 [1]	14.9 [1]	14.4	13.6	18.5 [1]	13.9 [1,2]
Sleep	56.6 [2]	56.8 [2]	55.4 [2]	56.1 [2]	56.1 [2]	56.1 [2]
Control	Men	Women	Married Men	Married Women	Single Men	Single Women
Paid work	37.2 [1]	28.5 [1,2]	53.9 [1]	31.4 [1]	23.8 [1]	33.6 [1]
Housework	9.7 [1]	27.3 [1]	6.5 [1,2]	34.2 [1]	22.5	23.9
Recreation	16.0	15.0	14.1	14.2	17.7	15.4 [1,2]
Sleep	58.5 [2]	58.7 [2]	57.4 [2]	58.0 [2]	58.8 [2]	58.1 [2]

	Control			Treatment		
Men/Women Ratio	All	Married	Single	All	Married	Single
Paid work	1.31	1.72	0.71	1.17	1.4	0.91
Housework	0.36	0.19	0.94	0.35	0.27	0.45
Recreation	1.07	0.99	1.15	1.11	1.06	1.33
Sleep	1.00	0.99	1.01	1.00	0.99	1.00

* Sum includes time in other activities related to fetching water, home sales, and home repairs.
[1] Significantly different from that of the opposite gender at 95% confidence.
[2] Significantly different from that of the opposite area–treatment or control-at 95% confidence.

Table 6 - Average hours per week spent in household tasks by gender, marital status and labor market participation—Weekly data

	TREATMENT						CONTROL		
	Works anywhere			Works in Flowers			Works anywhere		
	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD
MHH, married									
Works	267	8.16	9.20 [1]	127	9.01	9.66 [2,3]	94	5.96	10.25 [1,2]
& Wife works	229	8.54	9.35 [1]	102	9.74	10.30 [2]	80	6.24	10.95 [1,2]
& Wife doesn't work	38	5.85	7.90	25	6.07	5.68	14	4.38	4.50
Doesn't work	11	14.19	16.05	140	7.38	8.71 [3]	5	15.00	11.59
& Wife works	3	24.50	12.62	37	10.42	9.29 [4]	1	12	.
& Wife doesn't work	8	10.33	16.12	103	6.29	8.27 [4]	4	15.75	13.25
FHH, single									
Works	89	25.48	18.14	51	19.96	14.50 [2]	33	26.68	14.42 [2]
Doesn't work	8	40.38	39.37	46	34.20	24.04	4	35.75	6.18
Wives of MHH									
Works	243	29.62	19.39 [1]	144	25.74	16.00 [2,3]	82	33.54	16.66 [1,2]
& Husband works	237	29.48	19.47 [1]	107	24.23	30.10 [2]	80	33.48	16.87 [1,2]
& Husb doesn't work	6	34.83	16.40	37	30.10	18.81 [4]	2	36.00	1.41
Doesn't work	39	40.90	21.65	99	35.25	22.37 [3]	17	44.24	23.70
& Husband works	31	40.61	21.39	9	31.00	16.97	13	44.54	22.51
& Husb doesn't work	8	42.00	24.09	90	35.68	22.88	4	43.25	31.11

[1] Significant difference between Treatment-Works Anywhere (T) and Control (C) at 95% confidence.
[2] Significant difference between Treatment-Works in Flowers (TF) and Control (C) at 95% confidence.
[3] Significant difference between those working in flowers and those working elsewhere among the treatment group (95%).
[4] Significant difference between those working in flowers and those working elsewhere among the treatment group (95%).

Table 7a: Summary Statistics and Variable Definitions for Men (>=10 years old)

Variable	Definition	Obs	Mean	Std D	Min	Max
	MEN					
Nhwsh2w	Share of weekly housework done by individual among only those adults (>=10) that do some housework	490	0.22	0.19	0.0106	1
Hwsh2w	Share of weekly housework done by individual among all adults (>=10)	829	0.13	0.19	0	1
Hwwk	Dummy = 1 if person did housework over past week	829	0.59	0.49	0	1
Npdsh2w	Share of weekly paid work done by individual among only those adults (>=10) that do some housework	639	0.42	0.25	0.0088	1
Pdsh2w	Share of weekly paid work done by individual among all adults (>=10)	829	0.32	0.28	0	1
Pdwk	Dummy = 1 if person did paid work over past week	829	0.77	0.42	0	1
Nrecsh2w	Share of weekly recreation done by individual among only those adults (>=10) that do some housework	751	0.34	0.22	0.0149	1
Recsh2w	Share of weekly recreation done by individual among all adults (>=10)	829	0.31	0.23	0	1
Recwk	Dummy = 1 if person did recreation over past week	829	0.91	0.29	0	1
Age	Age of individual	829	31.04	17.46	10	93
Age2	Age of individual squared	829	1267.85	1455.99	100	8649
Educ	Education grade achieved	829	7.11	3.75	0	20
Married	Dummy if person is married	829	0.53	0.50	0	1
Widdiv	Dummy if person is widowed/divorced/separated	829	0.03	0.18	0	1
Relgs	Dummy if person is religious	829	0.47	0.50	0	1
Genattd2	Dummy if person believes women should only do housework and child care	811	0.62	0.49	0	1
Abuse0	Dummy if there was verbal abuse reported by a woman in the household	829	0.42	0.49	0	1
Urban	Dummy if person lives in urban sector	829	0.69	0.46	0	1
Numchil	Number of children	829	1.85	1.64	0	9
Ratiofm	Ratio of adult females to adult males in the household	829	1.27	0.80	0	5
Hhsize	Number of household members	829	5.53	2.47	1	17
Assets	Value of household assets	829	62.27	141.99	0	2136.95
Treat	Dummy if household is in the treatment group (with flower employment available)	829	0.74	0.44	0	1

Table 7b: Summary Statistics and Variable Definitions for Women (>=10 years old)

Variable	Definition	Obs	Mean	Std D	Min	Max
	WOMEN					
Nhwsh2w	Share of weekly housework done by individual among only those adults (>=10) that do some housework	953	0.47	0.29	0.0106	1
Hwsh2w	Share of weekly housework done by individual among all adults (>=10)	1038	0.43	0.30	0	1
Hwwk	Dummy = 1 if person did housework over past week	1038	0.92	0.27	0	1
Npdsh2w	Share of weekly paid work done by individual among only those adults (>=10) that do some housework	710	0.38	0.26	0.0106	1
Pdsh2w	Share of weekly paid work done by individual among all adults (>=10)	1038	0.26	0.28	0	1
Pdwk	Dummy = 1 if person did paid work over past week	1038	0.68	0.47	0	1
Nrecsh2w	Share of weekly recreation done by individual among only those adults (>=10) that do some housework	891	0.31	0.22	0.0138	1
Recsh2w	Share of weekly recreation done by individual among all adults (>=10)	1038	0.27	0.23	0	1
Recwk	Dummy = 1 if person did recreation over past week	1038	0.86	0.35	0	1
Age	Age of individual	1038	31.63	17.75	10	98
Age2	Age of individual squared	1038	1314.89	1523.91	100	9604
Educ	Education grade achieved	1038	6.37	4.08	0	18
Married	Dummy if person is married	1038	0.43	0.50	0	1
Widdiv	Dummy if person is widowed/divorced/separated	1038	0.11	0.31	0	1
Relgs	Dummy if person is religious	1038	0.50	0.50	0	1
Genattd2	Dummy if person believes women should only do housework and child care	1024	0.54	0.50	0	1
Abuse0	Dummy if there was verbal abuse reported by a woman in the household	1038	0.38	0.49	0	1
Urban	Dummy if person lives in urban sector	1038	0.69	0.46	0	1
Numchil	Number of children	1038	1.89	1.71	0	9
Ratiofm	Ratio of adult females to adult males in the household	1038	1.70	0.99	0	5
Hhsize	Number of household members	1038	5.52	2.63	1	17
Assets	Value of household assets	1038	63.87	174.27	0	2133.61
Treat	Dummy if household is in the treatment group (with flower employment available)	1038	0.74	0.44	0	1

Table 8: Heckman MLE Estimates of Men's Participation and Share of Time in Housework*

	Model 1			*Model 2*			*Model 3*		
Dep. Var:	**Nhwsh2w**			**Hwsh2w**			**Hwsh2w**		
	Coef.	**Std E**	**z**	**Coef.**	**Std E**	**z**	**Coef.**	**Std E**	**z**
Age	-0.003	0.002	-1.335	0.00	0.00	-0.52	0.00	0.00	-1.40
Age2	0.000	0.000	**1.761**	0.00	0.00	0.83	0.00	0.00	**1.83**
Educ	0.000	0.002	0.164	0.00	0.00	0.48	0.00	0.00	0.23
Married				-0.02	0.02	-0.69			
Widdiv				0.21	0.05	**4.61**			
Relgs									
Genattd2									
Abuse0									
Numchil									
Ratiofm	-0.043	0.011	**-3.959**	-0.04	0.01	**-3.30**	-0.04	0.01	**-3.81**
Hhsize	-0.035	0.004	**-9.827**	-0.03	0.00	**-9.27**	-0.03	0.00	**-9.63**
Assets[2]									
Urban	-0.036	0.021	**-1.733**	-0.04	0.02	**-2.13**	-0.04	0.02	**-2.01**
Treat	-0.004	0.023	-0.186	-0.01	0.02	-0.26	-0.01	0.02	-0.47
_cons	0.542	0.054	**9.978**	0.51	0.05	**10.22**	0.56	0.05	**10.93**
Dep. Var:	**Hwwk**			**Hwwk**			**Hwwk**		
	Coef.	**Std E**	**z**	**Coef.**	**Std E**	**z**	**Coef.**	**Std E**	**z**
Age	-0.018	0.015	-1.181	-0.01	0.01	-0.83	-0.01	0.02	-0.65
Age2	0.000	0.000	0.652	0.00	0.00	0.56	0.00	0.00	0.33
Educ	-0.020	0.015	-1.355	-0.02	0.01	-1.22	-0.02	0.01	-1.25
Married	0.622	0.147	**4.219**	0.46	0.15	**2.97**	0.43	0.15	**2.79**
Widdiv	0.763	0.323	**2.365**	0.36	0.30	1.20	0.63	0.30	**2.09**
Relgs	0.085	0.101	0.850	0.15	0.10	1.47	0.15	0.10	1.51
Genattd2	-0.348	0.103	**-3.377**	-0.28	0.10	**-2.71**	-0.28	0.10	**-2.75**
Abuse0	-0.188	0.099	**-1.901**	-0.18	0.10	**-1.84**	-0.18	0.10	**-1.84**
Numchil				0.19	0.05	**3.63**	0.18	0.05	**3.62**
Ratiofm	-0.133	0.063	**-2.132**	-0.12	0.06	**-1.94**	-0.11	0.06	**-1.81**
Hhsize	-0.024	0.021	-1.123	-0.13	0.03	**-3.76**	-0.13	0.03	**-3.73**
Assets	-0.001	0.000	**-2.234**						
Urban	0.497	0.112	**4.440**	0.53	0.11	**4.67**	0.52	0.11	**4.60**
Treat	0.614	0.109	**5.653**	0.62	0.11	**5.65**	0.61	0.11	**5.63**
_cons	0.270	0.286	0.943	0.29	0.28	1.02	0.25	0.29	0.87
Rho	-0.10	0.34	-0.30	-0.36	0.16	**-2.28**	-0.38	0.16	**-2.45**
LR test of two eqns		chi2(1) =	1.06		chi2(1) =	3.29		chi2(1) =	3.67
Wald test		chi2(7) =	174.77		chi2(9) =	212.31		chi2(7) =	167.49
Log likelihood			-306.01			-288.15			-302.79
No. obs.			811			811			811
Uncensored obs.			330			481			330

* Statistics in bold are significant at the 95% level.
[1] Including "Assets" in the several versions of the Heckman model made it unsolvable.

Table 9: Heckman MLE Estimates of Women's Participation and Share of Time in Housework*

	Model 1			*Model 2*			*Model 3*		
Dep. Var:	**Nhwsh2w**			**Nhwsh2w**			**Nhwsh2w**		
	Coef.	**Std E**	**z**	**Coef.**	**Std E**	**t**	**Coef.**	**Std E**	**t**
Age	0.015	0.002	**8.030**	0.01	0.00	**4.30**	0.02	0.00	**8.65**
Age2	0.000	0.000	**-6.238**	0.00	0.00	**-3.70**	0.00	0.00	**-6.41**
Educ	-0.002	0.002	-0.721	0.00	0.00	-0.94	0.00	0.00	0.30
Married				0.11	0.02	**5.43**			
Widdiv				0.11	0.03	**3.84**			
Relgs									
Genattd2									
Abuse0									
Numchil							0.06	0.01	**8.78**
Ratiofm	-0.059	0.008	**-7.263**	-0.04	0.01	**-5.30**	-0.05	0.01	**-5.81**
Hhsize	-0.045	0.003	**-14.513**	-0.05	0.00	**-15.01**	-0.08	0.00	**-16.48**
Assets	0.000	0.000	-1.280						
Urban	-0.030	0.018	**-1.686**	-0.03	0.02	-1.59	-0.02	0.02	-1.01
Treat	-0.014	0.017	-0.815	-0.02	0.02	-1.26	-0.01	0.02	-0.77
_cons	0.591	0.043	**13.713**	0.63	0.04	**14.90**	0.59	0.04	**14.24**
Dep. Var:	**Hwwk**			**Hwwk**			**Hwwk**		
	Coef.	**Std E**	**z**	**Coef.**	**Std E**	**z**	**Coef.**	**Std E**	**z**
Age	0.057	0.017	**3.365**	0.08	0.02	**4.54**	0.06	0.02	**3.47**
Age2	-0.001	0.000	**-4.115**	0.00	0.00	**-4.93**	0.00	0.00	**-4.20**
Educ	-0.049	0.020	**-2.458**	-0.03	0.02	-1.55	-0.04	0.02	**-2.00**
Married	1.037	0.201	**5.171**	0.62	0.21	**2.93**	0.98	0.20	**4.80**
Widdiv	0.675	0.259	**2.605**	0.15	0.29	0.51	0.51	0.27	**1.87**
Relgs	0.173	0.143	1.206	0.24	0.14	**1.73**	0.26	0.14	**1.83**
Genattd2	0.085	0.131	0.654	0.05	0.13	0.36	0.06	0.13	0.45
Abuse0	-0.275	0.142	**-1.936**	-0.29	0.14	**-2.08**	-0.29	0.14	**-2.03**
Numchil				0.35	0.06	**5.51**	0.17	0.07	**2.54**
Ratiofm	-0.201	0.063	**-3.180**	-0.14	0.06	**-2.36**	-0.14	0.06	**-2.36**
Hhsize	-0.008	0.026	-0.303	-0.20	0.04	**-4.79**	-0.11	0.04	**-2.46**
Assets	0.000	0.000	-0.433						
Urban	-0.271	0.174	-1.558	-0.17	0.17	-0.99	-0.19	0.17	-1.12
Treat	0.281	0.146	**1.918**	0.27	0.15	**1.84**	0.23	0.15	1.59
_cons	1.059	0.363	**2.913**	0.94	0.36	**2.63**	1.08	0.36	**3.00**
Rho	-0.89	0.16	**-5.53**	-1.02	0.162	**-6.29**	-0.93	0.17	**-5.59**
LR test of two eqns		chi2(1)=	18.23		chi2(1) =	21.45		chi2(1) =	16.57
Wald test		chi2(8)=	520.17			562.91			637.96
Log likelihood			-127.58			-98.95			-78.12
No. obs.			1024			942			1024
Uncensored obs.			82			82			82

* Statistics in bold are significant at the 95% level.

Table 10: More Estimates of Men's and Women's Share of Time in Housework*

	MEN							
	TOBIT 1		*TOBIT 2*		*CLAD 1*		*CLAD 2*	
Hwsh2w	**Coef.**	**t-stat**	**Coef.**	**t-stat**	**Coef.**	**t-stat**	**Coef.**	**t-stat**
Age	0.00	-0.66	0.00	-0.52	-0.01	**-2.12**	-0.01	**-2.84**
Age2	0.00	0.66	0.00	0.62	0.00	**1.75**	0.00	**2.42**
Educ	0.00	-0.46	0.00	-0.14	0.00	-0.34	0.00	-0.18
Married	0.05	**1.58**	0.04	1.33	0.06	**2.72**	0.07	**3.72**
Widdiv	0.22	**3.97**	0.21	**3.89**	0.14	1.19	0.16	**1.79**
Genattd2	-0.04	**-1.81**			0.00	-0.25		
Relgs	0.04	**1.80**			0.05	**2.81**		
Abuse0	-0.03	**-1.65**			-0.03	**-1.71**		
Numchil	0.05	**4.78**	0.05	**4.99**	0.03	**3.82**	0.03	**4.13**
Ratiofm	-0.05	**-3.65**	-0.04	**-3.29**	-0.03	**-3.57**	-0.03	**-2.95**
Hhsize	-0.05	**-7.72**	-0.05	**-8.36**	-0.05	**-6.73**	-0.05	**-8.34**
Assets	0.00	**-2.44**	0.00	**-2.48**				
Urban	0.08	**3.59**	0.09	**4.05**	0.09	**4.16**	0.09	**5.01**
Treat	0.12	**5.48**	0.12	**5.54**	0.12	**6.39**	0.11	**5.34**
_cons	0.21	**3.82**	0.18	**3.29**	0.24	**5.01**	0.25	**5.91**
No. obs		811		829		568		568
<=0		*330*		*339*				
>0		*481*		*490*				
Log likelihood		-210.42		-221.12				
Pseudo R2		0.34		0.32		0.12		0.11

	WOMEN							
	TOBIT 1		*TOBIT 2*		*CLAD 1*		*CLAD 2*	
Hwsh2w	**Coef.**	**t-stat**	**Coef.**	**t-stat**	**Coef.**	**t-stat**	**Coef.**	**t-stat**
Age	0.02	**8.39**	0.02	**9.33**	0.02	**7.27**	0.02	**8.38**
age2	0.00	**-7.73**	0.00	**-8.48**	0.00	**-5.99**	0.00	**-7.63**
Educ	0.00	-0.64	0.00	-0.75	0.00	-0.88	0.00	-0.99
Married	0.14	**6.81**	0.13	**6.53**	0.15	**6.29**	0.13	**4.94**
Widdiv	0.11	**3.49**	0.11	**3.58**	0.12	**1.96**	0.12	**2.48**
Genattd2	0.02	1.46			0.03	1.45		
Relgs	0.00	-0.11			-0.01	-0.63		
Abuse0	-0.04	**-2.29**			-0.02	-1.19		
Numchil	0.07	**9.43**	0.07	**9.70**	0.07	**8.49**	0.07	**8.57**
Ratiofm	-0.05	**-6.41**	-0.05	**-6.39**	-0.05	**-5.92**	-0.06	**-5.02**
Hhsize	-0.08	**-15.90**	-0.08	**-16.92**	-0.09	**-13.28**	-0.09	**-18.00**
Assets	0.00	-0.83	0.00	-0.68	0.00	-1.21	0.00	-0.84
Urban	-0.03	**-1.65**	-0.03	**-1.94**	0.00	-0.27	-0.03	-1.52
Treat	-0.01	-0.36	0.00	0.16	-0.01	-0.57	-0.01	-0.68
_cons	0.49	**11.42**	0.47	**11.38**	0.46	**9.03**	0.50	**10.77**
No. obs		1024.00		1038.00		967.00		973.00
<=0		*82*		*85*				
>0		*942*		*953*				
Log likelihood		-30.94		-35.75				
Pseudo R2		0.92		0.91		0.32		0.33

* Statistics in bold are significant at the 95% level.

Table 11: Heckman MLE Estimates of Men's Participation and Share of Time in Paid Work*

	Model 1			*Model 2*			*Model 3*		
Dep. Var:	**Npdsh2w**			**Npdsh2w**			**Npdsh2w**		
	Coef.	**Std E**	**z**	**Coef.**	**Std E**	**z**	**Coef.**	**Std E**	**z**
Age	0.02	0.00	**4.68**	0.01	0.00	**2.89**	0.01	0.00	**4.41**
Age2	0.00	0.00	**-4.09**	0.00	0.00	**-2.82**	0.00	0.00	**-3.59**
Educ	0.01	0.00	**1.97**	0.01	0.00	**2.04**	0.01	0.00	**2.88**
Married				0.08	0.03	**3.11**			
Widdiv				0.16	0.05	**3.09**			
Relgs									
Genattd2									
Abuse0									
Numchil							0.08	0.01	**10.21**
Ratiofm	-0.02	0.01	**-1.87**	-0.02	0.01	**-1.95**	-0.02	0.01	-1.50
Hhsize	-0.04	0.00	**-10.32**	-0.04	0.00	**-9.84**	-0.08	0.01	**-15.05**
Assets[2]									
Urban	0.02	0.02	0.92	0.02	0.02	1.04	0.04	0.02	**1.98**
Treat	-0.03	0.02	-1.47	-0.03	0.02	**-1.78**	-0.02	0.02	-1.36
_cons	0.36	0.07	**5.45**	0.40	0.07	**5.80**	0.39	0.07	**5.73**
Dep. Var:	**Pdwk**			**Pdwk**			**Pdwk**		
	Coef.	**Std E**	**z**	**Coef.**	**Std E**	**z**	**Coef.**	**Std E**	**z**
Age	0.17	0.02	**8.11**	0.18	0.02	**8.57**	0.17	0.02	**8.34**
Age2	0.00	0.00	**-8.55**	0.00	0.00	**-8.91**	0.00	0.00	**-8.78**
Educ	0.01	0.02	0.42	0.01	0.02	0.71	0.01	0.02	0.60
Married	0.67	0.18	**3.71**	0.44	0.20	**2.22**	0.56	0.19	**2.91**
Widdiv	0.97	0.38	**2.58**	0.68	0.39	**1.76**	0.76	0.38	**2.00**
Relgs	-0.06	0.13	-0.49	-0.02	0.13	-0.14	-0.04	0.13	-0.30
Genattd2	0.16	0.12	1.30	0.20	0.12	1.59	0.20	0.13	1.54
Abuse0	0.11	0.12	0.90	0.13	0.12	1.04	0.13	0.13	1.01
Numchil				0.13	0.07	**1.76**	0.03	0.07	0.46
Ratiofm	0.12	0.08	1.58	0.13	0.08	**1.69**	0.12	0.08	1.57
Hhsize	-0.03	0.03	-0.98	-0.10	0.05	**-2.04**	-0.04	0.04	-0.99
Assets	0.00	0.00	-0.38						
Urban	-0.75	0.15	**-4.93**	-0.73	0.15	**-4.73**	-0.75	0.15	**-4.90**
Treat	-0.05	0.14	-0.39	-0.04	0.14	-0.27	-0.07	0.14	-0.47
_cons	-1.66	0.35	**-4.72**	-1.79	0.35	**-5.05**	-1.76	0.36	**-4.95**
Rho	-0.43	0.15	**-2.79**	-0.44	0.18	**-2.40**	-0.27	0.19	-1.42
LR test of two eqns		chi2(1) =	4.55		chi2(1) =	2.26		chi2(1) =	1.24
Wald test		chi2(7) =	235.22		chi2(9) =	245.74		chi2(8) =	374.59
Log likelihood			-197.58			-188.39			-148.26
No. obs.			627			627			627
Uncensored obs.			184			184			184

* Statistics in bold are significant at the 95% level.
[1] Including "Assets" in several versions the Heckman model made it unsolvable.

Table 12: Heckman MLE Estimates of Women's Participation and Share of Time in Paid Work*

	Model 1			*Model 2*			*Model 3*		
Dep. Var:		**Npdsh2w**			**Npdsh2w**			**Npdsh2w**	
	Coef.	**Std E**	**z**	**Coef.**	**Std E**	**t**	**Coef.**	**Std E**	**t**
Age	0.03	0.00	**9.89**	0.01	0.00	**1.96**	0.02	0.00	**8.52**
Age2	0.00	0.00	**-9.71**	0.00	0.00	**-1.88**	0.00	0.00	**-7.90**
Educ	0.00	0.00	**1.68**	0.00	0.00	0.35	0.01	0.00	**3.40**
Married				-0.10	0.02	**-4.72**			
Widdiv				0.08	0.03	**2.57**			
Relgs									
Genattd2									
Abuse0									
Numchil							0.09	0.01	**9.52**
Ratiofm	0.00	0.01	-0.14	-0.05	0.01	**-5.00**	0.02	0.01	**1.67**
Hhsize	-0.05	0.00	**-12.52**	-0.04	0.00	**-12.15**	-0.09	0.01	**-15.76**
Assets									
Urban	-0.06	0.02	**-2.74**	0.03	0.02	1.59	-0.04	0.02	**-1.69**
Treat	0.03	0.02	1.22	0.05	0.02	**2.80**	0.03	0.02	**1.71**
_cons	0.05	0.06	0.88	0.57	0.07	**7.74**	0.13	0.06	**2.17**
Dep. Var:		**Pdwk**			**Pdwk**			**Pdwk**	
	Coef.	**Std E**	**z**	**Coef.**	**Std E**	**z**	**Coef.**	**Std E**	**z**
Age	0.12	0.01	**9.74**	0.13	0.01	**9.52**	0.12	0.01	**9.25**
Age2	0.00	0.00	**-9.69**	0.00	0.00	**-9.69**	0.00	0.00	**-9.28**
Educ	0.03	0.01	**2.18**	0.04	0.01	**2.88**	0.03	0.01	**2.05**
Married	0.02	0.09	0.20	0.09	0.13	0.75	0.10	0.11	0.89
Widdiv	0.04	0.13	0.33	0.12	0.20	0.62	0.14	0.16	0.84
Relgs	-0.06	0.07	-0.96	-0.20	0.10	**-2.03**	-0.11	0.08	-1.44
Genattd2	0.17	0.07	**2.44**	0.42	0.10	**4.27**	0.15	0.08	**2.02**
Abuse0	0.14	0.07	**2.03**	-0.10	0.10	-0.98	0.08	0.08	1.10
Numchil				0.14	0.06	**2.35**	0.13	0.04	**2.95**
Ratiofm	0.08	0.05	**1.72**	0.16	0.05	**3.08**	0.14	0.05	**2.80**
Hhsize	-0.10	0.02	**-5.19**	-0.12	0.04	**-3.30**	-0.15	0.03	**-5.03**
Assets	0.00	0.00	**2.46**						
Urban	-0.54	0.10	**-5.40**	-0.51	0.12	**-4.36**	-0.49	0.11	**-4.63**
Treat	-0.10	0.10	-1.02	-0.19	0.11	**-1.76**	-0.12	0.10	-1.18
_cons	-0.92	0.24	**-3.90**	-1.29	0.26	**-4.88**	-0.92	0.25	**-3.76**
Rho	2.05	0.19	**10.99**	-0.38	0.18	**-2.10**	1.61	0.16	**10.36**
LR test of two eqns		Chi2(1) =	74.54		chi2(1) =	2.47		chi2(1) =	41.78
Wald test		Chi2(7) =	294.93		chi2(9) =	333.96		chi2(8) =	419.96
Log likelihood			-397.72			-408.38			-360.02
No. obs.			1024			1024			1024
Uncensored obs.			323			323			323

* Statistics in bold are significant at the 95% level.

Table 13: More Estimates of Men's and Women's Share of Time in Paid Work*

MEN

	TOBIT 1		*TOBIT 2*		*CLAD 1*		*CLAD 2*	
Hwsh2w	**Coef.**	**t-stat**	**Coef.**	**t-stat**	**Coef.**	**t-stat**	**Coef.**	**t-stat**
Age	0.04	**11.63**	0.04	**11.70**	0.03	**9.16**	0.03	**13.23**
Age2	0.00	**-11.48**	0.00	**-11.48**	0.00	**-8.84**	0.00	**-12.88**
Educ	0.01	**3.65**	0.01	**3.54**	0.01	**3.15**	0.01	**3.65**
Married	0.09	**2.88**	0.10	**3.44**	0.08	**2.50**	0.09	**3.20**
Widdiv	0.17	**2.82**	0.18	**3.06**	0.14	1.49	0.15	**1.80**
Genattd2	0.02	0.85			0.05	**2.37**		
Relgs	0.04	**2.19**			0.02	0.78		
Abuse0	0.01	0.27			0.00	-0.19		
Numchil	0.07	**6.67**	0.06	**6.15**	0.06	**6.71**	0.06	**5.41**
Ratiofm	0.00	0.26	0.00	0.01	0.00	0.08	-0.01	-0.74
Hhsize	-0.07	**-10.10**	-0.07	**-9.89**	-0.07	**-10.79**	-0.07	**-10.74**
Assets	0.00	**-1.64**	0.00	-1.32	0.00	**-1.72**	0.00	**-1.92**
Urban	-0.06	**-2.64**	-0.07	**-3.11**	-0.04	**-2.29**	-0.05	**-2.67**
Treat	-0.02	-1.05	-0.02	-0.80	-0.04	-1.54	-0.01	-0.60
_cons	-0.18	**-3.08**	-0.14	**-2.48**	-0.08	-1.27	-0.09	**-1.73**
No. obs		811		829		713		731
<=0		184		190				
>0		627		639				
Log likelihood		-170.51		-182.72				
Pseudo R2		0.59		0.57		0.28		0.27

WOMEN

	TOBIT 1		*TOBIT 2*		*CLAD 1*		*CLAD 2*	
Hwsh2w	**Coef.**	**t-stat**	**Coef.**	**t-stat**	**Coef.**	**t-stat**	**Coef.**	**t-stat**
Age	0.04	**12.23**	0.04	**12.59**	0.07	**11.62**	0.07	**19.65**
age2	0.00	**-12.41**	0.00	**-12.68**	0.00	**-11.57**	0.00	**-19.51**
Educ	0.01	**4.02**	0.01	**3.76**	0.01	**2.46**	0.00	0.73
Married	-0.06	**-2.15**	-0.05	**-1.99**	-0.13	**-3.72**	-0.10	**-3.35**
Widdiv	0.07	**1.75**	0.10	**2.35**	0.16	**2.95**	0.16	**2.63**
Genattd2	-0.03	-1.22			0.09	**3.71**		
Relgs	0.09	**3.82**			-0.04	**-1.85**		
Abuse0	-0.04	**-1.88**			-0.02	-0.79		
Numchil	0.07	**6.90**	0.07	**6.53**	0.10	**6.17**	0.09	**7.02**
Ratiofm	0.01	0.74	0.01	0.94	0.03	**1.99**	0.04	**3.64**
Hhsize	-0.08	**-11.09**	-0.08	**-11.31**	-0.11	**-10.42**	-0.11	**-13.29**
Assets	0.00	-0.29	0.00	-0.27	0.00	-1.42	0.00	-0.84
Urban	-0.08	**-2.98**	-0.11	**-4.29**	-0.03	-1.37	-0.04	-1.30
Treat	0.00	0.14	0.02	0.81	0.01	0.47	0.01	0.22
_cons	-0.15	**-2.43**	-0.13	**-2.11**	-0.38	**-5.14**	-0.38	**-5.24**
No. obs		1024		1038		747		752
<=0		323		328				
>0		701		710				
Log likelihood		-402.84		-420.94				
Pseudo R2		0.32		0.30		0.24		0.24

* Statistics in bold are significant at the 95% level.