

Deciding who works where:
An Analysis of the Distribution of Work within Native
and Immigrant Families in Australia

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Abstract. The paper examines whether there exists an asymmetry in the distribution of market work and household production within families in Australia, and to what extent differences in earnings capacities of spouses can account for the division of labor. Using a Blinder-Oaxaca Tobit-type decomposition, we find that the difference in earnings capacities of Australian couples could explain around 30 and 20 percent of the observed disparities in spousal time allocation in market and domestic work, respectively. Most of the work gaps are accounted for by the differences in labor supply behaviors of partners.

We further observe that the differences in wages are more relevant for immigrant families originating from non-English speaking countries. Convergence of gender wages would produce the greatest effect to this particular subgroup in terms of reducing gender specialization. Given that immigrant women from non-English speaking background have high levels of formal qualifications, our results could assert the significance of improving the returns to human capital attributes of these immigrant women in alleviating the asymmetry in work distribution.

JEL-Classification: J22, D13, J16

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1 Introduction

Over the past couple of decades, productive activities of households both within and outside the formal market have received renewed interest from a heterogeneous array of disciplines. The recognition of home production is with good reason. Estimates have shown that it is far from being a trivial fraction of the aggregate output accounting for about 40-60 percent of gross national product in most Western countries (Bonke 1992). In addition, the total amount of time devoted to work at home is about equal to the time spent in the market (Robinson and Godbey 1997). As a household is essentially a collection of individuals, valuation of household output are complemented with studies looking at the division of labor among its members and more commonly between spouses. While gender disparities in total amount of work have been less marked (Coltrane 2000; Burda *et al* 2007), the skewness in sectoral time allocation of couples has been a well acknowledged pattern, with men assuming a greater proportion of paid labor and women undertaking most of the domestic work.

Such specialization is similarly evident in Australia. The male-female differential in paid work is about 20 hours a week while the gap in domestic work including time spent on child care is approximately (minus) 20 hours¹. A loose comparison qualifying for the fact that time use data are not precisely comparable across countries shows that these mean differences are higher than those observed for the United States, where the gaps are about 13 and -12 hours for paid and unpaid work, respectively, and resemble those of Western European countries². On average, married women in Australia perform almost twice as much household work as married men. As mentioned, such has been an established pattern that interest has been directed towards investigation of where the imbalance might arise from. This paper adds to the understanding of household time allocation by analyzing the determinants of both market and household labor supply of couples in Australia.

Several explanations have been put forward in addressing the questions of why

¹ HILDA 2002-2006. Sample criteria and distribution of work are detailed in Section 3.

² Based on estimates of Burda *et al* (2007) of differences in labor supply reported for representative survey day

husbands and wives segregate themselves into various tasks and why they allocate time differently. Theories of exchange, relative efficiency and bargaining posit that individual resources play a key role in intra-household time allocation. That is, the partner with more resources – which may consequently reflect greater potential earnings – will participate more in the formal labor market. Sociological insights, on the other hand, suggest that norms which assign exclusive roles by gender may override the importance of labor market-relevant characteristics in the decision-making of households. Thus, the extent to which spousal disparity in earnings capacities accounts for the asymmetry in work distribution remains an empirical question.

Using a Blinder-Oaxaca type Tobit-decomposition, this paper decomposes the labor supply differential between husbands and wives into two sources – one, due to differences in spouses' potential earnings which are predicted from observable characteristics such as educational attainment, age, health condition and others; and another, due to differences in weights assigned by husbands and wives to these measured characteristics in their determining their labor supply. The differences in weights are often presumed to quantify the influence of gender-assigned roles in households and have been referred to as *gender effects*.

Specialization is not an issue *per se*. As Becker (1981) argues, the division of labor reflects a rational decision of the household aimed at maximizing the aggregate family utility. However, if valuations attached to paid and unpaid work differ, with the latter usually assigned with lower exchange value, the distribution of work may become a welfare concern. A disproportionately high share in domestic production and less in market work may lead to a bargaining disadvantage within a relationship and poorer opportunities in the event of marital breakdown.

Washbrook (2006) also asserts that investigating the extent of the role of wages in time allocation is crucial because it suggests how the evolution of relative human capital and convergence of returns to these skills might affect couples' labor supply decisions. Using data on the evolution of educational attainment in Australia, Kidd and Shannon (2002) predict a continued progress in the relative level of female human capital and improvement of their relative pay. Would such a narrowing

gender pay gap in turn translate to a more equal work distribution within the household?

We are not aware of any studies that attempt to decompose the spousal differential in market and non-market work in Australian households. This paper tries to fill that gap. Following the procedure of Washbrook (2006), we predict a gross hourly full-time wage for each individual based on his or her human capital characteristics. This technique simultaneously addresses the problems of missing wages for non-participants and the endogeneity of observed wages due to the correlation of wages with labor supply. Because of the censored nature of hours of work, we perform Tobit estimations on labor supply and use these estimates to perform a Blinder-Oaxaca type decomposition. This will give us an indication of the importance of human capital attributes vis-a-vis gender-specific effects.

In addition, the study analyzes native and immigrants separately. Immigrant families make up a substantial part of the Australian population and like in other immigration countries, married female immigrants have lower labor force participation. While there are several studies that examine labor participation of married immigrants, there has not been many that look at their non-market activity. One reason for this could be the scarcity of data as immigrants are often under-represented in Time Use Surveys. Conducting a natives-immigrants comparison may reveal interesting differences between these populations. Ethnic groups could vary in their views about male and female roles in the family, household composition and how they rear their children. Reimers (1985) surmises that such differences may lead to systematic differences in the labor supply of wives. Moreover, the wage ratio for immigrant couples may differ from that of native families due to differences in human capital and returns to these characteristics. This may in turn result to immigrant families allocating their time differently from natives.

The remainder of the paper is structured as follows: Section 2 provides a summary of major theoretical approaches and empirical evidence on intra-household time allocation. Section 3 explains our sample selection criteria, provides descriptive statistics and presents the empirical strategy. Section 4 discusses the results of our estimations. Finally, Section 5 summarizes and concludes.

2 Literature and Theoretical Framework

Since intra-household time allocation has become an academic pursuit, various behavioral models have been offered to explain what influences households in distributing tasks. Mincer (1962), Becker (1965), Gronau (1977) and others developed models referred to as *household production models* where a household maximizes its welfare subject to budget and time constraints, where welfare is derived from leisure and from consuming commodities produced using a combination of market goods and time inputs of members. Their framework highlighted responses of individuals to market goods prices, time prices, income and technologies that influence the production of home goods (Juster and Stafford 1991). In this respect, the division of labor between spouses is based on their relative productivities in paid and unpaid work, with productivity being effectively measured by the wages they could obtain in the market.³ The spouse with lower opportunity costs in terms of forgone market earnings will spend more time in paid work and less on home production.

Another body of research proposes that bargaining power influences household decision-making. Bargaining theories yield the same prediction as that of relative efficiency approach wherein the spouse with higher wage or non-labor income exhibits more power over the allocation of resources including time. In case of cooperative bargaining, this power is based on the threat point which is interpreted as the utility an individual gets by getting divorced and where this utility is a positive function of the individual's market wage (McElroy and Horney 1981; Manser and Brown 1980). In the model of Lundberg and Pollak (1993), the threat point is not divorce but a non-cooperative equilibrium where spouses remain in the relationship but voluntarily retract to "separate spheres" that reflect traditional gender roles.

Comparative advantage and bargaining theories, in other words, posit that spouses decide over time allocation in order to maximize household welfare without consideration of gender. However, empirical evidence suggests that these models cannot fully explain the asymmetry in the division of labor. Sociologists, and more recently economists, acknowledge that norms and socially recognized gender roles exhibit

³ This approach is apparently predicated on the assumption that spouses have the same productivity at home.

substantial influence on family decisions. In an attempt to explain this irregularity, Akerlof and Kranton (2000) incorporate *identity* – a socially determined sense of oneself – in the utility function and assert that the unequal division of labor is a result of the individual trying to maximize payoffs by affirming their identities in the society. Given social expectations, a husband loses identity when he does housework or when his wife earns more than half of the household income. Equality of utility is only restored when the wife performs more housework than the husband. Therefore, an identity model of household time-allocation predicts an asymmetry in the division of labor between husbands and wives.

Using Spanish data, Fernandez and Sevilla-Sanz (2006) find support for the identity hypothesis of Akerlof and Kranton (2000). They observe that wives who earn more than their husbands still undertake more than 50 percent of housework in order to enact gender identities. In order to provide evidence on how important gender specific effects are to housework allocation of Spanish two-earner couples, Alvarez and Miles (2003) perform a Oaxaca (1973) decomposition based on estimates of spouses' housework in a bivariate framework. Their analysis show that by equalizing both characteristics and what they term as *gender weight*, the probability of egalitarian behavior in housework allocation increases by 58 percent and claims that more than 90 percent of this increase is due to the adjustment for gender effects. Washbrook (2006) applies a Tobit-type Oaxaca (1973) decomposition to both paid and unpaid work of husbands and wives using UK Time Use Survey data. She finds that gender differences in earnings ability can account for about 40 percent of the market work gap and only 16 percent of the domestic work differential. She asserts that large gender fixed effects result in women performing far more domestic work than men with similar wage rates.

For the case of Australia, Bittman *et al* (2003) provide evidence on the effects of income on housework using the 1992 Time Use Survey data. Their results show that women decrease their housework as their income share increases but only up to the point where the spouses contribute equally to household income. When women provide more than half of the household income, women tend to do more housework as if to compensate for the households' deviation from the normative

standard of men being the breadwinners. Therefore, they conclude that while income and characteristics explain the allocation of housework between spouses, at some point gender would trump money.

With respect to distinguishing immigrant families from native households, van Klaveren *et al* (2006) provide evidence on the variations in time allocation behavior of native Dutch households and immigrant families, and furthermore among different immigrant groups.

3 Data and Empirical Strategy

3.1 Data Description

The study uses unit record data from the Housing, Income and Labour Dynamics in Australia (HILDA) Survey⁴ for the period 2002 to 2006.⁵ The HILDA Survey includes a time use module which summarizes the amount of time respondents spend on an activity in a *typical week*. Other time allocation studies use Time Use Surveys (TUS) which collect data via the time diary method where respondents are asked to record every episode of time use on a specified day or series of days. Both the recall method of annual surveys and the time diary method have their own merits and limitations. Time diaries tend to be preferred because it is believed that some activities are difficult to recall and that there is a potential overestimation in annual surveys because respondents tend to pick a day when an activity is prominent and treat that as an average day (Juster and Stafford 1991). On the other hand, recall data has lower sampling variability for activities like repairs and home improvement. Since time diaries are only administered on a day or a few days, such episodic activities which require a large amount of time, could produce a distribution that has too many cases of zero value and too many with very large values. In addition,

⁴ The HILDA Project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and is managed by the Melbourne Institute of Applied Economic and Social Research (MIAESR). The findings and views reported in this paper are those of the author and should not be attributed to either FaHCSIA or the MIAESR.

⁵ The data was extracted using the Stata® add-on package PanelWhiz v1.0 (October 2006) written by John P. Haisken-DeNew (john@PanelWhiz.eu). The PanelWhiz-generated DO file and plugins used in retrieving the data are available upon request. Any data or computational errors of the author. Haisken-DeNew and Hahn (2006) describe PanelWhiz in detail.

annual surveys are based on bigger samples and are far more representative of the population including, for our purpose, immigrant households. Finally, data on our variables of interest such as wages and other incomes are more accurately measured in stylized surveys.

For the empirical analysis, we restrict our sample to married individuals who are of working age (15 to 65). We exclude those individuals who do not live together with their respective spouses for the apparent reason that they cannot pass on work or share them with their partners. On the other hand, we include all individuals whether or not they participate in the formal labor market in order to not undermine the sexual division of labor. In later analysis, we will present results for two-earner couples. After excluding observations with missing values for crucial variables, we have a sample of 2,744 unique couples or 7,633 couple-year observations, of which 85 percent are *native families* (both the husband and the wife are born in Australia) and 15 percent are *immigrant families* (both the husband and the wife are immigrants). While it is equally interesting to examine the bargaining mechanism within interethnic marriages, we will pretermite its discussion in this particular paper.

Tables A2.1 and A2.2 present the summary statistics of some socio-economic variables relevant to our analysis for the full sample and also for subgroups. The average age gap between spouses is two years, with men being 45 years old and women about 43 years old. While the share of men who have a bachelor's degree or higher is not different from that of women's, a slighter greater proportion of the male sample have finished Year 12 or have obtained a certain kind of qualification. The average employment rate of men in our sample is about 86 percent, which is 20 percentage points higher than that of women's. A third of the females are out of the labor force and almost half of those who are employed tend to work on a part-time basis.

Immigrants in our sample, on average, tend to be older than native Australians, with immigrants coming from Main English Speaking countries⁶ being the oldest of all groups. A large proportion of immigrants from non-MES countries have higher

⁶ The Main-English Speaking (MES) countries are United Kingdom, New Zealand, Canada, USA and South Africa (HILDA User Manual Release 6 2008).

educational degrees, 40 percent and 37 percent of men and women, respectively. These are remarkably higher than those of Australian-born (26 percent for both genders) and than those of migrants with English-speaking background (37 and 34 percent). However, despite having higher level of formal qualifications, immigrants from non-MES countries have lower employment participation rates particularly the females. The difference in employment rates of spouses is about about 20 percentage points irrespective of ethnicity.

Now we turn our attention to Tables A3.1 and A3.2 which present the division of labor between spouses. We find that, in general, the average number of hours that men and women spend on *total work*, i.e. combined market and domestic work⁷, are not statistically different as previously observed in other studies (see, for instance, Burda *et al* 2007). The only exception are couples in non-MES households where wives do slightly more work in total than their husbands. We find evidence for the conventional specialization: a statistically significant gap of about 20 hours husband-wife hours of paid employment and also about -20 hours gap in hours of domestic work. Husbands tend to be more willing to share household work that involves outdoor tasks such as repairs, gardening or car maintenance. These activities are usually perceived as “male tasks” so even within household production there seems to be an evidence of segregation of work. Husbands also tend to participate more in activities that deal with caring for children.⁸ The male-female wage differential is positive and statistically significant, hence there is an indication that the distribution of work may be partly due to earnings.

Immigrants from non-English speaking countries have the least number of hours spent on paid employment. While the gender gap in domestic work is nearly the same for this group as with others, the differential in market labor hours is lowest because of significantly less market work hours of non-MES men compared to other males. Immigrants with English-speaking roots receive higher hourly wages particularly

⁷ In this analysis, we use the term *domestic work* interchangeably with *unpaid work* and *household production*. We include in our definition of domestic work activities categorized in the HILDA Survey as housework, household errands and outdoor tasks. Appendix A1 provides a set of definitions of these activities.

⁸ Some studies would not consider childcare as household work since this activity potentially offers utility to the person. We nevertheless include it in our analysis of domestic work as it is still an important unpaid activity.

the men and they perform the least amount of domestic work. This could imply that higher earnings could substitute purchased goods and services for own effort in household production. Even if in general, the direction of the wage gap supports the greater attachment of males to the formal labor market, a higher wage gap does not necessarily translate to greater specialization in all subgroups.

3.2 Predicting Earnings Capacity

Since the paper aims to measure the extent of association between time allocation and the individuals' absolute and relative earnings capacities, it is worth discussing how we define and obtain the wage variables. We follow the technique employed by Washbrook (2006) and predict the gross hourly wage rate that an individual would receive if the person could work full-time. Wages are predicted based on the individual's level of human capital and personal characteristics and the returns to these factors in the labor market. This technique simultaneously addresses a couple of issues. Firstly, since we want to include individuals who do not participate in the labor market in the analysis, the procedure addresses the problem of missing wages for non-participants. Secondly, we also could alleviate the potential endogeneity of observed wages brought about by their correlation with labor supply. In a conventional labor supply model, an individual is assumed to be offered a constant gross wage and the individual decides how many hours to supply. However, evidence suggests that this may not necessarily be the case (Simpson 1986; Ermisch and Wright 1993) .

As Washbrook (2006) argues, predicting full-time wages for all individuals in the sample by applying the estimated coefficients obtained from running a Mincer-type equation on full-time workers would likely overestimate the potential wages of part-time workers and non-participants. This is partially because full-time employees may have higher levels of market human capital due to longer work experience and training even though they may have the same formal qualifications as part-time workers. In addition, workers who self-select into full-time employment may possess unobservable characteristics that result in higher wages. Rodgers (2004) finds that part-time wage penalties in Australia can be explained by selection into type of

employment and levels of human capital.

Wage equations are estimated separately for full-time workers and for those who work part-time or who are not part of the labor market, and also separately for husbands and wives. We predict the earnings capacities of full-time employees using the estimated coefficients obtained from the wage regression for full-time workers. For part-time and non-participants, that the wages these individuals could receive had they been working full-time are lower than a current full-time worker because of the reasons discussed earlier. The underlying assumption is that the potential wage of these individuals is a draw from the 25th percentile of the conditional full-time wage distribution. Quantile regression models are applied to estimate the coefficients at this point of the distribution and to obtain the predicted wage.

3.3 Labor Supply Estimations

We consider a Tobit model for labor supply in order to take into account the nature of our dependent variable *hours of work*, of which the distribution is “censored” from below at zero due to non-participation in either the formal market or domestic work. Technically, hours worked could be described as a response variable that takes on the value zero with positive probability but is a continuous random variable over strictly positive values (Wooldridge 2002). We write the Tobit model as follows:

$$Y_{git}^* = Z'_{it}\theta_{Y,git} + \varepsilon_{Y,git} \quad (1)$$

where $Y = M, H$, market and domestic labor supply, respectively

$g = h, w$, husband and wife, respectively

$i = 1, \dots, N$, household

$t = 1, \dots, T \quad \varepsilon_{Y,git} \sim (0, \sigma_{Y,git}^2)$

and where

$$\begin{aligned} Y_{git} &= Y_{git}^* = Z'_{git}\theta_{Y,git} + \varepsilon_{Y,git} && \text{if } Y_{git}^* > 0 \\ &= 0 && \text{otherwise} \end{aligned} \quad (2)$$

We also specify

$$Z'_{git}\theta_{Y,git} = W'_{git}\delta_{Y,git} + X'_{git}\beta_{Y,git} \quad (3)$$

where W_{git} is a vector of absolute and relative wage rates of individual git as predicted from observable characteristics in the manner outlined above, and X_{git} is a vector of controls including age groups, number of children and household non-labor income (where applies).

The expected value of hours of work given the observable characteristics is comprised of the probability of Y_{git} being uncensored and the expectation of Y_{git} given a positive level:

$$\begin{aligned} E[Y_{git}|Z_{git}] &= P(Y_{git} > 0|Z_{git})E[Y_{git}|Y_{git} > 0, Z_{git}] \\ &= \Phi\left(\frac{Z_{git}\theta_{Y,g}}{\sigma_{Y,g}}\right) Z_{git}\theta_{Y,g} + \sigma_{Y,g}\phi\left(\frac{Z_{git}\theta_{Y,g}}{\sigma_{Y,g}}\right) \end{aligned} \quad (4)$$

where $\phi(\cdot)$ and $\Phi(\cdot)$ are standard normal density and cumulative normal density functions respectively, and $\sigma_{Y,g}$ is the standard error of $\varepsilon_{Y,gi}$.

3.4 Decomposition Analysis

To be able to know the extent of how earnings capacities influence the time allocation behavior of husbands and wives, we isolate the part of the differences in hours of market or domestic work that can be explained by the differential in potential wages and other covariates from the part that are attributable to coefficients, in the same vein as the decomposition method proposed by Blinder (1973) and Oaxaca (1973). Since the dependent variable is censored and hence, the marginal effects depend on the estimated variance of the error term, the Blinder-Oaxaca linear model decomposition is not appropriate.⁹ We follow the authors' method for Tobit models for the decomposition of the mean difference of labor supply between husbands (h) and wives (w)¹⁰

$$\begin{aligned} \Delta_{hw}^{Tobit} &= [E_{\theta_h, \sigma_h}(Y_{hit}|Z_{hit})] - [E_{\theta_h, \sigma_w}(Y_{wit}|Z_{wit})] \\ &\quad + [E_{\theta_h, \sigma_w}(Y_{wit}|Z_{wit})] - [E_{\theta_w, \sigma_w}(Y_{wit}|Z_{wit})] \end{aligned} \quad (5)$$

The first term on the right of Equation (5) represents the differential in hours worked between husbands and wives due to the differences in characteristics of the

⁹See Bauer and Sinning (2005) for a detailed technical discussion of the decomposition for Tobit models vis-a-vis the standard linear decomposition method.

¹⁰We utilize the Stata add-on program *nldecompose.ado* (v.2008) written by Sinning, Bauer and Hahn for the decomposition analysis.

two groups, while the second term gives the differential attributable to the differences in coefficients. The latter term could be interpreted as the gap in hours worked due to different labor supply behaviors of husbands and wives. In the existing literature (e.g. Alvarez and Miles 2003), this has been referred to as the “gender effect”.

Note that the above specification takes the labor supply behavior of husbands as reference given by the use of σ_h in the counterfactual parts of the decomposition. This implies the prediction of how much of the hours gap would remain if wives, given their earnings capacity and personal characteristics, would behave similarly as their husbands.

4 Estimation Results

4.1 Labor Supply Estimations

An excerpt of the estimation results of the wage regressions that are used to predict potential earnings are presented in the Appendix - Table A4. The effects of the covariates are in the expected direction. Among others, we find that higher wages are strongly associated with higher levels of formal schooling both for males and females. Women’s wages are negatively correlated with having school-aged children however, men’s wages in general seem statistically insensitive to the presence of children. Overall, there is no significant difference in the wages of Australian-born and immigrants with English-speaking background while the rest of the immigrants receive lower wages. Men who reside in urban areas tend to receive a wage premium even after controlling for levels of human capital and types of industry.

Table 1 presents the findings for the full sample of households on how the allocation of time of husbands and wives reacts to changes in potential earnings.¹¹ Figures 1 and 2 summarize the relationships implied by the estimated coefficients for the benchmark individual aged between 35 and 44, with no child and with a relative wage equal to 1.

¹¹ The estimations presented in this paper use a Tobit-model for labor supply for reasons mentioned in the previous section. We nevertheless also implemented Ordinary Least Squares estimations for verification. The results from these regressions are similar to what we obtain using the Tobit technique including the results for the decomposition analysis. Results using OLS are available upon request from the author.

We find a strong association between the market labor supply of married men and their earnings capacity. An increase in the absolute potential wage of the husband increases the hours he spends in the formal labor market. This indicates some degree of substitution of earnings for non-market activities, which are now relatively more costly. However, past a particular threshold, higher wage rates are associated with lower levels of hours worked suggesting a backward-bending market labor supply. In the higher end of the wage spectrum, increased purchasing power enables men to spend more time on leisure or participate more in the household production. On the other hand, while the wife's market labor supply is also positively influenced by her potential earnings, the relationship is not significant. For the relevant range of hourly wages in our sample, married men spend more time in the market than married women at each level of the absolute wage.

The results further indicate that the total time devoted to domestic work by the husband is unaffected by changes in his earnings capacity. Taken together with the estimates for market labor supply, this suggests a behavior not uncharacteristic of married men – a stronger attachment to the formal labor sector than to household production. This also implies that while at the lower part of the wage distribution, an increase in the absolute wage increases his hours of *total work* – work more in the market, no change in domestic work hours– at sufficiently high wage levels, an increase in his wage translates to more leisure because of the reduction in market labor hours. In contrast, the wife's domestic labor supply exhibits a positive and concave relationship with respect to her earnings potential. The positive association is rather surprising as one would normally expect a substitution away from non-market activities brought about by higher opportunity costs. Nevertheless, the concavity profile could bring reason to this behavior. For a wife in the low wage region, an increase in her wage would still not be able to compensate for the utility loss if she is to reduce her household production. For a female higher earner, a higher wage level that is associated with fewer domestic work hours suggests that greater earnings allows for a substitution of purchased goods and services for domestic production. In this respect, it could be argued that higher earners regardless of gender are less strained in terms of total work and enjoy higher levels of leisure.

The coefficient for relative wage represents the degree of intra-household bargaining power of the individual in terms of earnings capacity and how this affects the time allocation of the individual. It is worth noting that the market labor supply of husbands is inelastic with respect to wives' earnings potential. Again, this suggests a strong labor market attachment of married men with their supply decisions insensitive of how much their wives could earn. Wives, on the other hand, cut back on their market hours when they gain relative market wage advantage. Both spouses would use their bargaining power to reduce their participation in domestic work. Taking together the negative coefficients of relative wages in both paid and unpaid labor supply of women, it could be inferred that to some extent women bargain for an increase in leisure as they gain earnings advantage over their husbands.

Having young children (aged less than 15) is unequivocally associated with lower market work hours and significantly higher domestic work for wives. The presence of pre-school age children tilts the time allocation towards home work even more as they apparently would demand more supervision. The presence of young children also increases the hours of household work of husbands although the response is not as strong as that of women's which supports the conventional view that childrearing is largely a woman's domain.

The coefficients on age groups propose a relatively perceptible pattern of time allocation along the life-cycle. Younger cohorts of married individuals stay in the formal labor market for longer hours and those closer to retirement withdrew substantially from paid work. Vice versa, younger individuals tend to devote significantly less number of hours to domestic work than middle aged workers. The slightly older cohorts (45-54) also have lower hours of housework possibly because they no longer have dependent children at home and could afford to purchase labor-saving goods and services. Nearing retirement would then see somewhat greater hours of housework as people withdrawing from the labor market try to get busy at home. The substitution of domestic work for paid work is not perfect and in general, older people tend to spend lower total hours of work and enjoy more leisure.

Tables 2 and 3 present the marginal impacts of changes in earnings capacity on labor supply of native Australians and immigrants. Immigrant families are then

further classified into two groups: couples who originally came from main English-speaking countries and those from other regions.

Supplies of market labor of Australian-born and immigrant husbands are positively and highly significantly associated with higher absolute wages but more so for immigrant men. The estimates for all the groups imply backward-bending market labor supply curves. Immigrant wives also tend to react more strongly to changes in wage rates than Australian-born females. However, these relationships are not statistically significant. In a *qualitative sense*, there seems to be no evidence of differences in the market labor behaviors of native and immigrant couples in terms of responses to absolute wages. With respect to relative earnings, only wives in native partnerships seem to consider their spouses' earnings potential and use their bargaining advantage to reduce their hours in the formal labor market.

The strong bargaining over hours of domestic work observed in the full-sample estimations is apparently driven by the behavior of couples from non-English-speaking countries. For couples in this group, either spouse significantly reduces his or her time spent on domestic activities when he or she gains an earnings advantage. Non-market activities of immigrants with English-speaking backgrounds are unaffected by spouses' wage potentials.

For all couples of different ethnicity, the strong influence of having young children on time allocation is consistent and its impact is stronger for mothers across all subgroups.

4.2 Decomposition Results

The results of our decomposition analysis are summarized in Table 4. The estimates presented here use the male labor market behavioral response as the reference.¹² The counterfactual scenario is that, in the absence of inherent differences in gender behavior, wives with given characteristics – absolute and relative wages, age group, and number and age of children – will supply the same amount of work as husbands

¹² We find that the decomposition of domestic work gap varies more with the choice of reference equation, which is similar to what Washbrook (2006) observed for UK households. Decomposition results using the female behavioral response as benchmark are available upon request from the author.

with the same attributes were supplying.

As in the descriptive statistics, the raw differential in market work for the full sample is about 20 hours with men displaying a greater attachment to the labor market. However, if females would have the same earnings capacities, would be of the same age and would have the same number of children of certain ages, the gap in paid work would be reduced by about 6 hours. That is, about a third of the work gap could be explained by differences in gender attributes. Although potential wages and characteristics play an important role in the couples' time allocation with respect to market work, much of the differential tends to be accounted for by the difference in their behavior towards market work, or more technically, to the sensitivity of their market labor supply functions to these covariates. In terms of domestic work, the decomposition of the gap reveals a weaker impact of the effects of characteristics and earnings capacities. Overall, about 80 percent of the gap are due to the difference in gender behavior towards domestic work. We could infer that gender effects figure more strongly in the distribution of domestic work than in market work.

Our results for the full sample provide evidence that the difference in earnings capacities could explain a proportion of the observed differential in spousal time allocation although most of the work gaps are shown to be accounted for by the differences in labor supply behaviors of partners. Social norms or gender preferences seem to influence households towards sustaining gender specialization in sectors of work but more especially in domestic work. Given the magnitudes of impact of wages on market and domestic labor of partners, the trend towards convergence of wages would appear to equalize shares in market work of spouses more than the distribution of household production. We could venture then that the leveling of earnings potentials could mean that women would cut back on their leisure since the increase in earnings due to increased wages are not fully translated to substituting market-provided goods and services for work at home.

We note, however, that there appears to be heterogeneity among subgroups and the overall results laid out above apply more to the native families. For immigrant families, earnings capacities seem to matter more in explaining the differences in

the couple's market labor hours, accounting for 42 percent of the gap for immigrants from non-English speaking backgrounds and nearly half for families from English-speaking countries. This suggests that if there is an equalization in immigrant spouses' levels of human capital or in the returns to their qualifications, the skewness in the distribution of market labor will be greatly improved more than the potential equalization of market work for natives. With respect to domestic work, equalizing earnings potential is most important for immigrants of non-English speaking background. Abstracting from Tables 3 and 4, an improvement in the wages of non-MES immigrant women relative to their husbands' leads to a bargaining power over household work and leads to a more egalitarian distribution of work at home. Since from the descriptive statistics, non-MES immigrant women have particularly high formal qualifications which do not fall far behind their husbands' attributes, our results could imply that improving the returns to human capital attributes of these women would significantly alleviate work distribution.

4.3 Sensitivity Analysis

The presence of children

The amount of work required for household production increases with the presence of dependent children and it is reasonable to expect some shifting of hours from market work to home activities. Because of cultural norms and biological reasons, the increase in domestic work is expected to affect the time allocation of mothers more strongly. Our earlier results show support to this belief. In this section, we check if the couples' responses to changes in wages also vary whether or not they have young kids. For a given change in the wage, having children to take care of is expected to limit the choice of hours an individual supplies to the labor market unless there is full substitution of market-provided childcare.

In Table 5, we see a striking contrast in the behaviors of childless couples and couples with young children. For childless couples, absolute wages are positively and strongly associated with hours of paid work regardless of gender, although the estimated coefficient is higher for men. Both spouses exhibit backward-bending labor supply curves illustrating the switching relative magnitudes of substitution

and income effects over the wage distribution. The similarity of these partners' responses makes it appear as if they were behaving as single individuals. Men without children do not adjust their hours of domestic work with changes in wages. On the other hand, childless women have lower domestic work associated with higher wages implying shifting of hours towards the market.

For men with young kids, there is still a significant positive relationship between absolute wages and supply of labor to the formal market. However, the effect is less strong than for childless men. Mothers even tend to decrease their time in the labor market with higher wage rates as the additional earnings afford them to shift their time to more household production.

The absolute gender work gaps for childless households are remarkably lower than the work gaps for couples with young kids. The market work differential for childless couples is about 11 hours per week which is much lower than the hours gap of about 27 for couples with young kids, and domestic work gap is only about a third of that of households with kids. This indicates that partners without children behave more similarly to each other and even though men spend more time in the market and women in household production, there gender specialization in work is less stark.

Much of the difference in time allocation of couples with children cannot be explained by the differences in earnings capacities or in the ages of spouses. Overall, our findings suggest that gender effects are more relevant in households with kids as mothers tend to adjust their time allocation more than their husbands would do.

Dual-earner households

In order to reduce unobserved heterogeneity, most studies only include households where both spouses are employed although doing so weakens the relevance of the division of labor (Washbrook 2006). Restricting the sample to two-earner families allows to compare spouses in similar conditions and, as Hersch and Stratton (1994) argues, "to minimize housework inconsistencies that may arise from the tendency of any task to fill the amount of time available."

Two-earner households makes up 60 percent of our original sample; the rest con-

sists of families either with only one breadwinner or both spouses not participating in the formal labor market. Since we leave out individuals reporting zero hours of work, we estimate our model using OLS. Results of our estimations are summarized in Table 7. The responsiveness of males' market labor supply to absolute wages is considerably lower compared to our estimates for the full sample. The time spent by females either in the formal market or household production is insensitive to their absolute wage levels. This could imply to some degree that, with higher earnings, women substitute purchased goods and services, cut back on domestic work and afford more leisure. Surprisingly, we find a significant relationship between domestic work and absolute wages for the subsample of employed males. This reveals a concave domestic labor supply-absolute wage profile. Men in the higher end of wage distribution also tends to substitute higher earnings for less work at home.

Again, the presence of young children significantly affects the time allocation of women – categorical withdrawal of hours from the formal market and increase in time spent for household production. Men also tend to complement their spouses in childrearing and devote more time at home. However, their market labor supply in general remains unaffected by the presence of children and from this, we could infer that married men tend give up leisure hours when they have young kids.

Table 8 presents the results of the decomposition analysis for two-income households. There appears to be gender specialization in the distribution of work even when both spouses participate in the formal labor market. Gender effects seem to matter more for domestic work as wages and personal attributes could only explain about five percent of the gender gap in domestic work. This means that if women – given their characteristics and earnings potential – will behave like men the gap in domestic work will virtually disappear. Gender effects seem to perpetuate more strongly in the domestic work distribution of dual-earner families.

Non-labor income

Some studies on resource-pooling within the household use or include in addition non-earned income as an indicator of bargaining power. Like labor income, families may not necessarily pool income from other sources and control of which may

influence the decision over family resources including work time and leisure. Moreover, Schultz (1990) comments that “if non-earned income influences family demand behavior differently, depending on who in the family controls the income, then the preferences for that demand must differ across individuals.” In our case, spouses may differ in their propensities to purchase goods and services that substitute for household production and alter time allocation on domestic work.

We examine whether the level of non-labor income influences the labor supply behavior of couples, and how it affects the distribution of work between spouses. Unlike unearned income, non-labor incomes are not contaminated by price effects (Lancaster and Ray 2002). Therefore we could expect a more straightforward substitution of work for leisure. A measure of non-labor income is obtained by combining the individual’s income from investments over the financial year with private pension and private transfers, if any.

Table 9 shows the effects of non-labor income on labor supply. We find that, for both spouses, a higher level of non-labor income is negatively associated with the amount of time spent on market work, although the impact on women’s market work is stronger. Participation of males in household production seems insensitive to the level of unearned income. Together with their behavior in the formal market, it implies that men gain extra time for leisure given a looser budget constraint.

We obtain a positive association between women’s domestic work and unearned income although the relationship is not highly significant. Van der Lippe and Siegers (1994) note that an increase in non-labor income leads to an increase in the demand for home production. In the case of a positive correlation, an increase in the market goods necessary for home production tends to be complemented by an increase in time inputs. We also observe that the estimates for the impacts of wages, age group and children are similar to our original results. That is, the relationships we found earlier seem stable with respect to the inclusion of unearned income although this could also be due to the fact that unearned income is usually a small component of an individual’s total income.

The inclusion of non-labor income does not alter the results for the decomposition of the gender gap in market labor. On the other hand, factoring unearned income

allows for observed characteristics to better explain the gap in domestic work.

5 Conclusions

The paper analyzes the distribution of work within Australian households and examines where such patterns of time allocation arise from. We investigate the supply of market and domestic labor hours of spouses. Our results confirm a strong positive association between husbands' earnings capacities and their participation in the formal labor market. Their share in household production in terms of time inputs, on the other hand, appears insensitive to changes in their absolute wage. Women's market work, in general, are less responsive to changes in the market price of time. We observe that low earners, in general, react to increasing wages by increasing their hours of total work – more market work for men and more household production for women – thus, putting a strain to their leisure. On the other hand, high earning individuals translate the increase in wages to more leisure as they cutback on paid work and substitute purchased goods and services for domestic production.

From our results, we could venture that the difference in earnings capacities could explain a proportion of the observed differential in spousal time allocation but most of the work gaps are accounted for by the differences in labor supply behaviors of partners. Social norms or gender preferences seem to influence households toward sustaining gender specialization in sectors of work but more especially in domestic work.

Differences in wages tend to be more relevant for immigrant families originating from non-English speaking countries in terms of explaining the division of labor. Convergence of gender wages would produce the greatest effect to this particular subgroup. Given that immigrant women from non-English speaking background have high formal qualifications, we could assert the significance of ameliorating the returns to human capital attributes of immigrant women in narrowing the gender wage gap and in alleviating the asymmetry in work distribution.

Furthermore, we confirm that having children especially of young age unambiguously increases the amount of time required for home production and significantly alters the time allocation decisions of couples. Mothers adjust their time allocation

more than fathers do implying that childrearing remains largely a women's domain. Finally, we note that gender specialization persists even when both spouses take part in the formal labor market.

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Tables and Figures

Table 1

DETERMINANTS OF HOUSEHOLD ALLOCATION OF TIME
Marginal Effects, Full Sample

	MARKET WORK		DOMESTIC WORK	
	Husbands	Wives	Husbands	Wives
Absolute wage	4.948*** (0.327)	0.672 (0.535)	-0.155 (0.206)	1.160** (0.547)
Absolute wage ²	-0.070*** (0.005)	0.035** (0.013)	0.002 (0.004)	-0.042*** (0.014)
Ln(Relative wage)	-3.173 (1.952)	-5.179*** (1.791)	-3.474*** (1.293)	-6.596*** (1.997)
Age 15 to 24	6.273** (2.519)	2.883 (2.233)	-5.574*** (1.186)	-9.477*** (2.257)
Age 25 to 34	3.260*** (1.058)	0.620 (1.007)	-1.951** (0.787)	-3.897*** (1.339)
Age 45 to 54	-4.086*** (1.098)	-3.492*** (0.970)	-1.586* (0.873)	-2.458** (1.210)
Age 55 to 64	-18.384*** (1.452)	-12.650*** (1.089)	-1.591* (0.868)	-0.466 (1.511)
#children age 0 to 4	-0.188 (0.646)	-11.252*** (0.674)	7.401*** (0.586)	25.126*** (1.035)
#children age 5 to 14	0.269 (0.534)	-2.380*** (0.445)	3.469*** (0.413)	6.346*** (0.623)
#children age 15 to 24	1.052 (0.808)	0.004 (0.544)	-0.056 (0.640)	0.180 (0.706)
#children age 25up	-1.988 (2.172)	-1.904 (1.864)	1.025 (1.377)	3.032* (1.791)
N	7633	7633	7633	7633

NOTES. – Standard errors, which are reported in parentheses, are adjusted to take into account repeated observations and the sampling design of the HILDA Survey. *** (**, *) significant at 1% (5%, 10%)

Table 2

DETERMINANTS OF TIME SPENT ON MARKET WORK
Marginal Effects, By Group

	AUSTRALIAN-BORN		IMMIGRANTS		MES		NON-MES	
	Husbands	Wives	Husbands	Wives	Husbands	Wives	Husbands	Wives
Absolute wage	4.375*** (0.351)	0.044 (0.574)	7.293*** (0.769)	2.341 (1.454)	6.290*** (1.889)	2.229 (2.785)	7.129*** (1.019)	2.458 (2.125)
Absolute wage ²	-0.062***	0.048***	-0.110***	0.002	-0.095***	-0.006	-0.103***	-0.003
Ln(Relative wage)	(0.006)	(0.015)	(0.013)	(0.036)	(0.032)	(0.073)	(0.019)	(0.052)
	-2.094	-5.190***	-3.163	-3.226	-6.118	-4.435	-6.203	1.771
	(2.010)	(1.897)	(4.877)	(4.880)	(7.467)	(10.169)	(6.593)	(6.322)
Age 15 to 24	7.024*** (2.353)	4.742** (1.888)	8.616 (6.280)	-3.149 (4.959)	5.259 (11.306)	-10.668 (9.494)	8.822 (6.624)	-2.069 (4.867)
Age 25 to 34	3.290*** (1.021)	1.248 (1.060)	3.143 (3.644)	-2.984 (2.868)	-0.615 (5.435)	2.396 (6.334)	6.332 (4.881)	-5.189* (3.125)
Age 45 to 54	-5.003***	-2.955***	-1.186	-5.403**	-3.971	-6.424	-0.815	-6.881**
Age 55 to 64	(1.229)	(1.055)	(2.438)	(2.365)	(3.651)	(3.920)	(3.250)	(2.963)
	-18.882***	-13.166***	-15.673***	-10.860***	-15.469***	-17.780***	-14.695***	-9.967**
	(1.608)	(1.114)	(3.402)	(2.805)	(5.486)	(3.863)	(4.407)	(3.932)
#children age 0 to 4	0.470 (0.620)	-11.560*** (0.695)	-3.382 (2.135)	-8.426*** (2.069)	2.936 (2.716)	-11.644*** (3.539)	-4.714* (2.582)	-6.861*** (2.354)
#children age 5 to 14	-0.009 (0.570)	-2.199*** (0.477)	2.070 (1.347)	-3.747*** (1.230)	2.999** (1.379)	-4.187* (2.505)	3.002 (1.929)	-3.369** (1.528)
#children age 15 to 24	2.273*** (0.734)	0.331 (0.545)	-2.757 (2.235)	-1.251 (1.516)	5.050* (2.943)	0.923 (3.462)	-2.741 (2.443)	-0.411 (1.708)
#children age 25up	1.108 (2.314)	-1.182 (1.832)	-5.878* (3.325)	-3.883 (3.646)	-2.040 (5.844)	-9.794* (5.458)	-5.170 (3.792)	-2.493 (3.439)
N	6523	6523	1110	1110	321	321	657	657

NOTES. – See Notes to Table 1.

Table 3

DETERMINANTS OF TIME SPENT ON DOMESTIC WORK

Marginal Effects, By Group

	AUSTRALIAN-BORN		IMMIGRANTS		MES		NON-MES	
	Husbands	Wives	Husbands	Wives	Husbands	Wives	Husbands	Wives
Absolute wage	-0.305 (0.226)	1.625*** (0.563)	0.303 (0.507)	-0.726 (1.497)	-0.303 (0.713)	-3.050 (2.228)	0.390 (0.668)	0.157 (2.267)
Absolute wage ²	0.004 (0.004)	-0.056*** (0.014)	-0.004 (0.009)	0.012 (0.038)	0.005 (0.013)	0.060 (0.051)	-0.001 (0.012)	-0.004 (0.057)
Ln(Relative wage)	-2.233 (1.435)	-5.025** (2.095)	-6.611** (2.756)	-12.058** (5.237)	-2.169 (3.957)	-3.859 (8.030)	-10.538*** (3.699)	-19.459*** (7.353)
Age 15 to 24	-5.402*** (1.370)	-10.671*** (2.106)	-5.649** (2.569)	-1.767 (6.674)	0.126 (4.009)	-6.202 (6.227)	-7.820*** (2.697)	-0.915 (8.233)
Age 25 to 34	-2.057*** (0.798)	-4.097*** (1.378)	-2.099 (2.453)	-2.888 (3.975)	-7.813*** (2.695)	-9.843 (6.869)	-1.710 (3.089)	-2.286 (5.259)
Age 45 to 54	-1.702* (1.008)	-2.216* (1.272)	-0.613 (1.458)	-3.644 (3.267)	1.269 (3.173)	-6.610 (5.411)	-1.685 (1.807)	-1.145 (4.435)
Age 55 to 64	-2.008** (0.918)	-0.608 (1.590)	0.279 (2.092)	-0.280 (3.962)	-0.122 (3.268)	-0.261 (6.865)	-0.070 (2.682)	-1.344 (5.516)
#children age 0 to 4	7.919*** (0.594)	26.706*** (1.055)	5.199*** (1.642)	15.373*** (2.817)	5.866*** (1.964)	24.129*** (4.015)	4.897** (2.091)	11.312*** (3.359)
#children age 5 to 14	3.715*** (0.449)	6.264*** (0.643)	2.002** (0.851)	7.441*** (1.961)	2.401** (1.174)	9.202*** (3.462)	1.996* (1.150)	6.460*** (2.469)
#children age 15 to 24	0.459 (0.715)	-0.007 (0.685)	-2.080* (1.193)	1.125 (2.142)	-1.003 (1.346)	-0.838 (2.407)	-2.036 (1.363)	0.059 (2.521)
#children age 25up	-0.438 (1.663)	0.712 (1.861)	2.554 (2.239)	7.200** (3.007)	-0.421 (4.229)	3.006 (4.922)	2.662 (2.489)	7.212** (3.048)
N	6523	6523	1110	1110	321	321	657	657

NOTES. – See Notes to Table 1.

Table 4

DECOMPOSITION OF MARKET AND DOMESTIC WORK GAPS

	MARKET WORK				DOMESTIC WORK					
	FULL SAMPLE	AUS- BORN		IMMIGRANTS Others		FULL SAMPLE	AUS- BORN		IMMIGRANTS Others	
				MES	Others			MES	MES	Others
Raw differential ($\hat{\Delta}$)	19.90***	20.82***	19.75***	14.26***	-20.26***	-20.51***	-18.72***	-19.78***		
s.e.	0.382	0.384	2.240	1.413	0.606	0.574	1.782	1.527		
Explained part	6.20***	5.78***	8.75***	6.04***	-3.95***	-3.66***	-3.51**	-5.41***		
s.e.	0.570	0.632	3.180	2.335	0.451	0.469	1.786	1.368		
in % of $\hat{\Delta}$	31	28	44	42	19	18	19	27		
Unexplained part	13.71***	15.03***	11.00***	8.21***	-16.31***	-16.85***	-7.22***	-14.37***		
s.e.	0.655	0.752	3.810	2.314	0.728	0.694	2.597	1.848		
in % of $\hat{\Delta}$	69	72	56	58	81	82	81	73		

NOTE. – Bootstrapped standard errors (50 replications). *** (**, *) significant at 1% (5%, 10%)

Table 5

COUPLES WITH AND WITHOUT CHILDREN:
DETERMINANTS OF HOUSEHOLD ALLOCATION OF TIME

	COUPLES WITH YOUNG KIDS [†]						COUPLES WITHOUT KIDS							
	MARKET WORK		DOMESTIC WORK		MARKET WORK		DOMESTIC WORK		MARKET WORK		DOMESTIC WORK			
	Husbands	Wives	Husbands	Wives	Husbands	Wives	Husbands	Wives	Husbands	Wives	Husbands	Wives		
Absolute wage	2.923*** (0.427)	-2.751*** (0.775)	0.093 (0.348)	4.187*** (1.115)	5.947*** (0.678)	3.821*** (0.816)	-0.117 (0.325)	-1.251** (0.528)	2.180 (2.524)	3.154 (2.332)	-11.329*** (3.531)	-15.842*** (2.961)	-1.223 (1.692)	2.640 (2.214)
Absolute wage ²	-0.041*** (0.006)	0.107*** (0.020)	-0.001 (0.006)	-0.110*** (0.029)	-0.082*** (0.013)	-0.032 (0.020)	0.001 (0.006)	0.016 (0.013)	Age 15 to 24	-6.454 (4.241)	12.030** (5.651)	7.120** (2.767)	-4.616*** (1.415)	-7.134*** (1.752)
Ln(Relative wage)	1.725 (1.196)	-6.961*** (0.972)	1.561 (1.253)	12.983*** (1.732)	7.283*** (2.317)	4.408* (2.359)	-3.339*** (1.154)	-4.428** (1.837)	Age 25 to 34	-6.630 (4.430)	-5.093** (2.263)	4.408* (2.134)	-3.339*** (1.240)	-4.428** (1.840)
Age 25 to 34	-3.641*** (1.322)	-0.630 (1.430)	-4.137*** (1.081)	-4.918 (2.263)	-12.426*** (2.265)	-11.222*** (2.134)	0.587 (1.240)	6.506*** (1.840)	Age 45 to 54	-13.395*** (3.058)	-4.918 (6.954)	-11.222*** (2.102)	0.587 (1.343)	6.506*** (1.909)
Age 45 to 54	-19.760*** (4.036)	-13.395*** (3.058)	-3.108 (2.176)	3971	3971	3971	2436	2436	Age 55 to 64	3971	3971	2436	2436	2436
Age 55 to 64	3971	3971	3971	3971	2436	2436	2436	2436	N	3971	3971	2436	2436	2436

NOTES – [†]Kids 15 years old or younger.

Table 6

COUPLES WITH AND WITHOUT CHILDREN:
DECOMPOSITION OF MARKET AND DOMESTIC WORK GAPS

	COUPLES WITH YOUNG KIDS		COUPLES WITHOUT KIDS	
	Market Work	Domestic Work	Market Work	Domestic Work
Raw differential ($\hat{\Delta}$)	27.41 ***	-29.36 ***	10.65 ***	-8.98 ***
s.e.	0.544	0.619	0.785	0.457
Explained part	6.62 ***	-6.40 ***	4.23 ***	-1.44 ***
s.e.	0.961	0.841	0.765	0.337
in % of $\hat{\Delta}$	24.15	22	40	16
Unexplained part	20.79 ***	-22.96 ***	6.42 ***	-7.55 ***
s.e.	1.241	1.069	0.803	0.502
in % of $\hat{\Delta}$	76	78	60	87

NOTE. – Bootstrapped standard errors (50 replications). *** (**, *) significant at 1% (5%, 10%)

Table 7

DUAL-EARNER HOUSEHOLDS:
DETERMINANTS OF HOUSEHOLD ALLOCATION OF TIME, OLS

	MARKET WORK		DOMESTIC WORK	
	Husbands	Wives	Husbands	Wives
Absolute wage	0.919*** (0.253)	0.088 (0.369)	0.606*** (0.226)	-0.405 (0.549)
Absolute wage ²	-0.013*** (0.004)	0.020** (0.009)	-0.010*** (0.004)	0.002 (0.013)
Ln(Relative wage)	2.805** (1.251)	9.125*** (1.532)	-2.552* (1.433)	-3.300 (2.113)
Age 15 to 24	-3.373 (2.900)	0.040 (3.092)	-4.460*** (1.505)	-10.428*** (1.766)
Age 25 to 34	0.981 (0.729)	0.366 (0.832)	-1.635* (0.902)	-3.975*** (1.422)
Age 45 to 54	-1.311* (0.745)	-1.847** (0.778)	-1.541** (0.750)	-1.276 (1.166)
Age 55 to 64	-3.505*** (1.162)	-5.539*** (2.006)	-2.424** (1.008)	-2.110 (1.669)
#children age 0 to 4	0.289 (0.508)	-7.998*** (0.678)	10.166*** (0.714)	27.332*** (1.149)
#children age 5 to 14	0.379 (0.366)	-2.875*** (0.360)	3.876*** (0.396)	6.884*** (0.607)
#children age 15 to 24	0.891** (0.402)	-0.866** (0.428)	0.057 (0.428)	1.042* (0.623)
#children age 25up	1.450 (1.420)	-2.110 (1.898)	-1.434 (1.074)	3.077* (1.640)
Constant	34.867*** (3.480)	32.882*** (3.972)	9.806*** (3.027)	31.731*** (5.685)
R-squared	0.051	0.262	0.183	0.372
N	4629	4629	4629	4629

NOTES. – See notes to Table 1.

Table 8

DUAL-EARNER HOUSEHOLDS:
DECOMPOSITION OF MARKET AND DOMESTIC WORK GAPS, OLS

	MARKET WORK	DOMESTIC WORK
Raw differential ($\hat{\Delta}$)	15.75 ***	-15.01 ***
s.e.	0.358	0.448
Explained part	3.02 ***	-0.71 ***
s.e.	0.442	0.390
in % of $\hat{\Delta}$	19	5
Unexplained part	12.73 ***	-14.30 ***
s.e.	0.538	0.573
in % of $\hat{\Delta}$	81	95

NOTES. – Bootstrapped standard errors (50 replications). *** (**, *) significant at 1% (5%, 10%)

Table 9 NON-LABOR INCOME AND TIME ALLOCATION, Full Sample, Marginal Effects

	ALL HOUSEHOLDS				HOUSEHOLDS WITH NLI>0			
	MARKET WORK		DOMESTIC WORK		MARKET WORK		DOMESTIC WORK	
	Husbands	Wives	Husbands	Wives	Husbands	Wives	Husbands	Wives
Absolute wage	4.946*** (0.325)	0.684 (0.532)	-0.155 (0.206)	1.158** (0.547)	4.255*** (0.402)	0.626 (0.674)	-0.021 (0.237)	0.077 (0.760)
Absolute wage ²	-0.070***	0.035***	0.002	-0.042***	-0.058***	0.034**	0.000	-0.019
Ln(Relative wage)	(0.005)	(0.013)	(0.004)	(0.014)	(0.006)	(0.016)	(0.004)	(0.019)
Non-labor income/100	-3.256* (1.942)	-5.370*** (1.793)	-3.490*** (1.294)	-6.507*** (1.997)	-4.160 (2.573)	-2.125 (2.320)	-2.991* (1.557)	-1.355 (2.669)
	-0.008** (0.004)	-0.014*** (0.003)	-0.001 (0.001)	0.006* (0.003)	-0.008** (0.004)	-0.017*** (0.004)	-0.001 (0.001)	0.004 (0.003)
Age 15 to 24	6.165** (2.519)	2.629 (2.221)	-5.588*** (1.187)	-9.377*** (2.258)	5.242 (4.052)	8.011*** (2.910)	-4.778* (2.780)	-14.814*** (2.322)
Age 25 to 34	3.147*** (1.063)	0.398 (1.008)	-1.969** (0.787)	-3.796*** (1.339)	2.820** (1.314)	-0.457 (1.399)	-2.853*** (0.926)	-2.534 (2.005)
Age 45 to 54	-3.981*** (1.099)	-3.374*** (0.970)	-1.569* (0.872)	-2.513** (1.209)	-5.313*** (1.177)	-3.124*** (1.202)	-0.581 (0.848)	-4.283*** (1.529)
Age 55 to 64	-17.756*** (1.475)	-12.300*** (1.083)	-1.482* (0.868)	-0.695 (1.523)	-19.322*** (1.813)	-14.923*** (1.299)	0.226 (1.102)	-1.231 (1.989)
#children age 0 to 4	-0.144 (0.649)	-11.159*** (0.673)	7.409*** (0.586)	25.080*** (1.036)	0.972 (0.838)	-11.938*** (0.927)	7.884*** (0.687)	26.710*** (1.729)
#children age 5 to 14	0.276 (0.534)	-2.362*** (0.445)	3.470*** (0.413)	6.340*** (0.624)	1.215** (0.574)	-1.992*** (0.599)	3.186*** (0.407)	6.196*** (0.872)
#children age 15 to 24	1.072 (0.797)	-0.022 (0.542)	-0.054 (0.639)	0.197 (0.705)	2.469** (1.009)	-0.154 (0.621)	-0.534 (0.515)	1.782** (0.752)
#children age 25up	-2.151 (2.172)	-2.061 (1.855)	1.000 (1.373)	3.107* (1.791)	0.907 (2.315)	0.418 (2.150)	-1.648 (1.022)	3.384** (1.676)
N	7633	7633	7633	7633	3777	3488	3777	3488

Table 10
NON-LABOR INCOME AND DECOMPOSITION OF WORK GAPS: FULL SAMPLE

	ALL HOUSEHOLDS		HOUSEHOLDS WITH NLI>0	
	Market Work	Domestic Work	Market Work	Domestic Work
Raw differential ($\hat{\Delta}$)	19.91 ***	-20.26 ***	18.68 ***	-20.89 ***
s.e.	0.388	0.448	0.619	0.636
Explained part	6.18 ***	-3.95 ***	4.65 ***	-3.48 ***
s.e.	0.562	0.459	0.749	0.507
in % of $\hat{\Delta}$	31	37	25	17
Unexplained part	13.74 ***	-16.31 ***	14.03 ***	-17.41 ***
s.e.	0.744	0.622	0.722	0.636
in % of $\hat{\Delta}$	69	63	75	83

NOTE. – Bootstrapped standard errors (50 replications). *** (**, *) significant at 1% (5%, 10%)

ABSOLUTE WAGE AND TIME ALLOCATION OF COUPLES

Figure 1: MARKET WORK

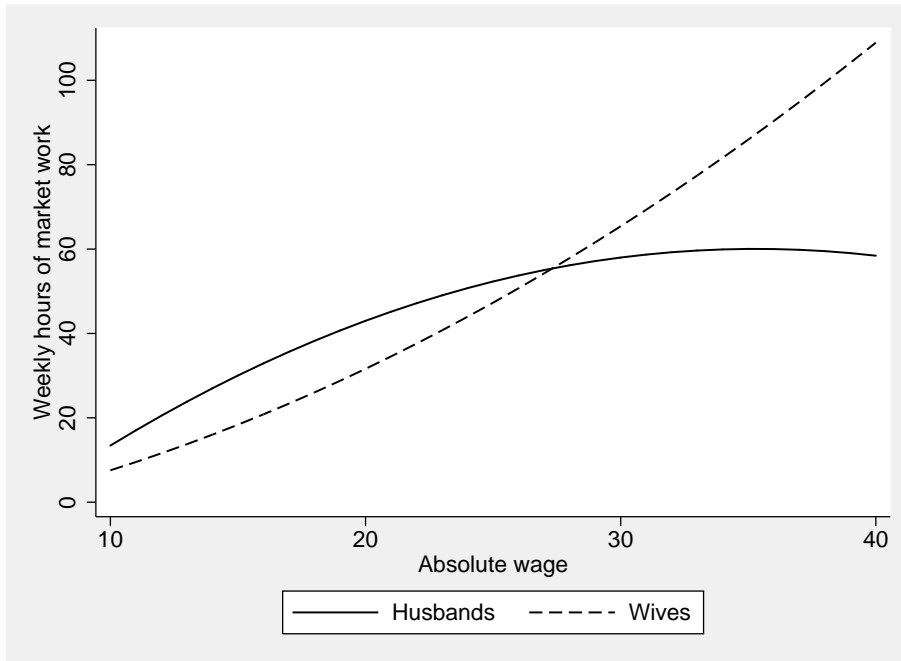
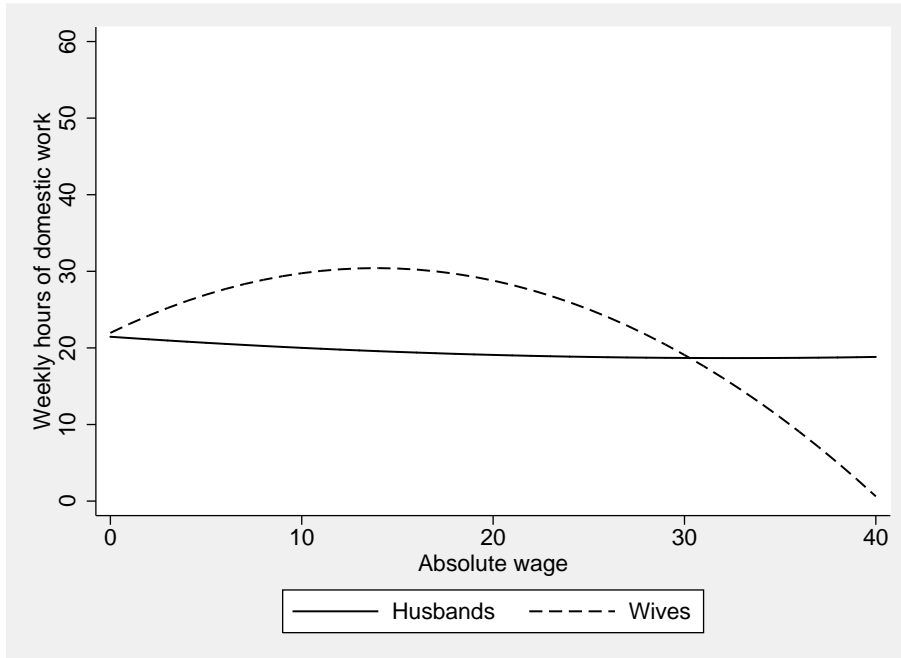


Figure 2: DOMESTIC WORK



NOTES.— For illustration, figures are based on an individual aged between 35 and 44, without a child and with relative wage equal to 1.

Appendix

Table A1

DEFINITION OF SELECT VARIABLES

Variable	Description
Market work	Number of hours an individual spends in a typical week on paid employment including travel time to and from work
Domestic work	Number of hours an individual spends in a typical week on unpaid activities at home including housework, errands, outdoor tasks and childcare
Housework	Activities such as preparing meals, washing dishes, cleaning house, etc [†]
Household errands	Activities such as shopping, banking, paying bills, keeping records (but do not include driving children to school and other activities) [†]
Outdoor tasks	Activities such as home maintenance (repairs, improvements, painting, etc) car maintenance or repairs and gardening [†]
Childcare	Playing with <i>own</i> children, helping them with personal care, teaching, coaching or actively supervising them, getting them to child care, school and other activities [†]
Absolute wage	The potential full-time wage an individual could receive based on his or her observable characteristics. Prediction techniques are elaborated in Section 3.
Ln (Relative wage)	The potential full-time wage of the individual relative to that of his or her spouse (in log).
MES-Immigrants	Immigrants coming from Main-English Speaking countries which refer to United Kingdom, New Zealand, Canada, USA and South Africa [‡]
Other Immigrants	Immigrants other than those coming from Main-English Speaking countries

NOTE.— [†]HILDASurvey Self-Completion Questionnaire, [‡]HILDA online documentation.

Table A2.1 DESCRIPTIVE STATISTICS
NATIVE AND IMMIGRANT HOUSEHOLDS

	ALL						AUSTRALIAN-BORN						IMMIGRANTS					
	HUSBANDS			WIVES			HUSBANDS			WIVES			HUSBANDS			WIVES		
	Mean	S.D.		Mean	S.D.		Mean	S.D.		Mean	S.D.		Mean	S.D.		Mean	S.D.	
Age	45.018	10.350		42.742	10.142		44.559	10.365		42.389	10.139		47.715	9.845		44.817	9.918	
YSM													20.865	12.045		20.205	12.53	
Education																		
Bachelor & up	0.272	0.445		0.268	0.443		0.256	0.436		0.256	0.436		0.367	0.482		0.337	0.473	
Year 12 to Diploma	0.512	0.500		0.391	0.488		0.521	0.500		0.389	0.488		0.462	0.499		0.404	0.491	
Below Year 12	0.216	0.411		0.341	0.474		0.224	0.417		0.355	0.478		0.171	0.377		0.259	0.439	
Employment																		
Employed	0.856	0.351		0.653	0.476		0.865	0.342		0.662	0.473		0.804	0.397		0.601	0.49	
Full-time	0.784	0.411		0.307	0.461		0.796	0.403		0.305	0.460		0.713	0.453		0.323	0.468	
Part-time	0.072	0.258		0.346	0.476		0.068	0.252		0.357	0.479		0.091	0.288		0.278	0.448	
Unemployed	0.017	0.130		0.021	0.144		0.015	0.121		0.020	0.139		0.032	0.175		0.031	0.172	
Not in the labor force	0.127	0.333		0.326	0.469		0.120	0.326		0.318	0.466		0.165	0.371		0.368	0.483	
No of Observations	7633			7633			6523			6523			1110			1110		

NOTE. – Source: HILDA Survey, 2002-2006

Table A.2.2 DESCRIPTIVE STATISTICS
BY IMMIGRANT GROUPS

	MES						OTHER IMMIGRANTS					
	HUSBANDS			WIVES			HUSBANDS			WIVES		
	Mean	S.D.		Mean	S.D.		Mean	S.D.		Mean	S.D.	
Age	49.442	9.973	47.66	10.077	46.997	9.681	43.323	9.589				
YSM	22.667	11.539	23.872	12.294	19.029	11.701	17.215	11.273				
Education												
Bachelor & up	0.268	0.444	0.259	0.439	0.405	0.491	0.373	0.484				
Year 12 to Diploma	0.517	0.500	0.396	0.490	0.434	0.496	0.396	0.489				
Below Year 12	0.215	0.411	0.346	0.476	0.161	0.368	0.231	0.422				
Employment												
Employed	0.841	0.366	0.632	0.483	0.775	0.418	0.557	0.497				
Full-time	0.757	0.430	0.321	0.468	0.683	0.466	0.326	0.469				
Part-time	0.084	0.278	0.312	0.464	0.091	0.288	0.231	0.422				
Unemployed	0.009	0.096	0.022	0.146	0.038	0.191	0.032	0.176				
Not in the labor force	0.150	0.357	0.346	0.476	0.187	0.390	0.411	0.492				
No of Observations	321		321		657		657					

NOTE. – Source: HILDA Survey, 2002-2006

Table A3.1 DISTRIBUTION OF WORK
NATIVE AND IMMIGRANT HOUSEHOLDS

	ALL				AUSTRALIAN-BORN				IMMIGRANTS			
	Husbands	Wives	Gap	H-share	Husbands	Wives	Gap	H-share	Husbands	Wives	Gap	H-share
Paid employment	41.87	21.65	20.22 ***	0.69	42.62	21.70	20.93 ***	0.69	37.41	21.34	16.07 ***	0.67
Domestic work	21.58	42.03	-20.46 ***	0.36	21.63	42.49	-20.86 ***	0.36	21.28	39.37	-18.09 ***	0.37
Housework	5.75	19.60	-13.85 ***	0.25	5.72	19.58	-13.85 ***	0.25	5.92	19.73	-13.81 ***	0.26
Errands	3.20	5.20	-2.01 ***	0.38	3.06	5.09	-2.04 ***	0.37	4.03	5.85	-1.82 ***	0.41
Outdoor tasks	6.03	3.27	2.77 ***	0.65	6.12	3.26	2.86 ***	0.66	5.53	3.30	2.23 ***	0.64
Childcare	6.60	13.97	-7.37 ***	0.39	6.73	14.56	-7.83 ***	0.39	5.81	10.49	-4.69 ***	0.42
Total work	63.44	63.68	-0.24	0.50	64.25	64.18	0.07	0.50	58.69	60.71	-2.02 *	0.49
Hourly wage	26.94	23.10	2.98 ***		26.59	23.11	2.37 ***		29.17	23.05	6.98 ***	
No of Observations	7633				6523				1110			

NOTE.— Unweighted sample. *** (**, *) significant at 1% (5%,10%). Domestic work is the sum of all household work including childcare. H-share refers to the share of husband's hours to total hours spent by the household on an activity. Source: HILDA Survey, Period covered 2002-2006

Table A3.2 DISTRIBUTION OF WORK
BY IMMIGRANT GROUPS

	MES				OTHER IMMIGRANTS			
	Husbands	Wives	Gap	H-share	Husbands	Wives	Gap	H-share
Paid employment	40.51	21.65	18.86 ***	0.68	35.03	20.66	14.37 ***	0.66
Domestic work	20.37	36.69	-16.32 ***	0.39	21.57	40.81	-19.24 ***	0.36
Housework	5.89	18.31	-12.42 ***	0.27	6.04	20.42	-14.37 ***	0.25
Errands	3.29	5.17	-1.88 ***	0.41	4.41	6.21	-1.80 ***	0.42
Outdoor tasks	6.49	3.42	3.07 ***	0.66	4.73	3.31	1.43 ***	0.63
Childcare	4.71	9.80	-5.09 ***	0.39	6.38	10.88	-4.49 ***	0.42
Total work	60.88	58.34	2.54	0.52	56.60	61.47	-4.87 ***	0.47
Hourly wage	34.51	22.24	14.35 **		24.30	21.37	2.39 ***	
No of Observations	321			657				

NOTE.— See Notes to Table A3.1

Table A4 ESTIMATES FROM WAGE EQUATIONS USED IN PREDICTING WAGES

	HUSBANDS		WIVES	
	OLS	25th Percentile	OLS	25th Percentile
Age	0.040*** (0.009)	0.042*** (0.007)	0.039*** (0.012)	0.035*** (0.006)
Age ²	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Main English Speaking	-0.050 (0.053)	-0.042 (0.033)	-0.085 (0.073)	-0.149*** (0.036)
Other Immigrants	-0.173*** (0.043)	-0.145*** (0.034)	-0.144*** (0.049)	-0.144*** (0.028)
Years since migration	0.002 (0.002)	0.003** (0.001)	0.003 (0.002)	0.003*** (0.001)
HS	0.091** (0.040)	0.046* (0.027)	0.123*** (0.040)	0.053** (0.022)
Cert Diploma	0.090*** (0.025)	0.087*** (0.019)	0.103*** (0.037)	0.029 (0.020)
Bachelor	0.294*** (0.036)	0.232*** (0.024)	0.331*** (0.043)	0.263*** (0.022)
Postgrad	0.407*** (0.037)	0.362*** (0.026)	0.351*** (0.047)	0.293*** (0.024)
Longterm health cond	-0.027 (0.021)	-0.022 (0.019)	-0.112*** (0.028)	-0.109*** (0.018)
Victoria	-0.004 (0.027)	-0.022 (0.018)	-0.050* (0.029)	-0.041** (0.017)
Queensland	-0.065** (0.027)	-0.042** (0.019)	-0.093*** (0.033)	-0.092*** (0.018)
South Aus	-0.047 (0.041)	-0.020 (0.025)	-0.097** (0.042)	0.023 (0.026)
Western Aus	0.036 (0.034)	0.010 (0.023)	-0.048 (0.044)	-0.066** (0.029)
Tasmania	0.006 (0.052)	0.054 (0.040)	0.031 (0.088)	-0.060 (0.042)
Northern Territory	0.192 (0.123)	0.268*** (0.075)	0.064 (0.239)	-0.192*** (0.059)
Aus Capital Territory	0.105** (0.046)	0.101*** (0.038)	0.055 (0.108)	0.093** (0.040)
Other Urban	-0.122*** (0.023)	-0.100*** (0.017)	-0.079** (0.031)	-0.066*** (0.017)
Bounded Locality	-0.027 (0.062)	-0.003 (0.037)	-0.001 (0.054)	-0.011 (0.041)
Rural	-0.198*** (0.036)	-0.171*** (0.020)	-0.028 (0.040)	0.023 (0.020)
#children age 0 to 4	0.020 (0.015)	0.017 (0.011)	-0.012 (0.031)	-0.017 (0.016)
#children age 5 to 14	0.003 (0.010)	0.002 (0.008)	-0.035** (0.015)	-0.024*** (0.008)
#children age 15 to 24	-0.013 (0.018)	-0.022** (0.010)	-0.001 (0.019)	-0.008 (0.009)
#children age 25up	0.041 (0.043)	-0.033 (0.035)	0.061** (0.031)	0.060** (0.028)
Constant	2.077*** (0.189)	1.836*** (0.140)	2.055*** (0.240)	2.064*** (0.121)
R squared	0.242		0.292	
N	5986	5969	2347	2342

NOTES. – See Notes to Table 1. The regression further includes industry and time dummies.