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in Couple Households

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Abstract

Working hours in Australia are quite widely distributed around the population mean. That is, there are relatively many people working both relatively short hours and relatively long hours each week. From a welfare perspective, however, it is not the actual number of hours worked that is of importance, but whether the hours being worked are consistent with individual preferences. In this paper the question of how closely hours preferences are being met is examined using data collected in the first wave of the HILDA Survey. The study focuses specifically on workers in couple households.

The analysis involved two main stages. In the first stage, evidence of a significant time divide – the co-existence of many people working part-time hours who would prefer to work longer and many people working very long hours who would prefer to work fewer hours – is found. The extent of this time divide, however, should not be overstated – the hours of the majority of workers are still reasonably close to their stated preference.

The second stage of the analysis focused on identifying the factors associated with mismatch in working hours preferences. The extent of overemployment, for example, is found to rise with age, and is more pronounced among the self-employed and less pronounced among those with a recent history of unemployment. Underemployment, on the other hand, is also associated positively with self-employment, as well as with casual employment. Perhaps of most interest, we find that in couples preferred hours are influenced by whether or not, and the extent to which, partners achieve their working time preferences. That is, if one member of the couple is unable to work as many hours as desired, this leads their partner to prefer more hours.

1. Introduction

As is widely recognised, labour markets in Australia have undergone enormous changes in recent decades (see Norris and Wooden, 1995; ACIRRT, 1999; Wooden, 2002). One of the more notable changes has been the widening distribution in working hours. That is, compared with earlier periods (e.g., the 1960s) there are now proportionately more workers working either relatively short hours or relatively long hours. By the end of 2004, for example, the proportion of employed persons classified by the Australian Bureau of Statistics (ABS) as part-time workers was over 28 per cent.¹ In contrast, at the start of the 1970s the comparable proportion was just 11 per cent. At the other end of the hours spectrum, we have also witnessed a (less dramatic) rise in the proportion of the employed workforce working relatively long hours each week. According to Wooden (2001, p. 31), just over 20 per cent of the employed workforce in 1975 were working 45 hours or more each week. By the end of 2004 the comparable proportion was 26.2 per cent.²

The obvious question that such trends give rise to is whether this pattern of some working very long hours and others working short hours is consistent with worker preferences or whether it is the result of constraints on the number of working hours available (at the given wage). In the US, for example, researchers have identified the existence of a ‘time divide’ wherein there are many individuals working many more hours than they would prefer – the overemployed – and many others working far less than they would desire – the underemployed (e.g., Drago, 2000; Jacobs and Gerson, 2001). Thus, one of the principal aims of this paper is to explore the extent of differences between preferred and actual hours of work. The analysis, however, goes beyond merely quantifying the size of this time divide to identifying the types of people (and households) who are not happy with their current hours of work and the sorts of characteristics that are most associated with overemployment, on the one hand, and underemployment on the other.

A second aim of the paper is to provide a better understanding of the decision-making processes underlying the allocation of working time within households, and more specifically, between husbands and wives (or more accurately, between male and female

¹ The ABS classifies someone as part-time employed if they usually work less than 35 hours a week (in all jobs) and either did so during the survey reference week or were not at work in the reference week.

² Derived from ABS, *Australian Labour Market Statistics, January 2005* (ABS cat. no. 6105.0). Note, however, that this proportion peaked in the mid-1990s and has actually fallen in recent years.

partners). Indeed, just because there may be considerable disparity between actual hours of work and preferred hours of work at an individual level, it does not follow that this will necessarily translate to the household level. For example, women dominate the ranks of the part-time employed, but many of these women are married to men working quite long hours.

As should be obvious from the preceding discussion, the analyses presented in this paper concentrate on a subset of the population – persons living together as couples. This focus on couples, however, is of interest for a number of other reasons. First, couples account for close to 60 per cent of the Australian adult population.³ Despite this, very few economic studies (including those undertaken overseas) focus on the working hours constraints faced by couples. Couples are either ignored or analysed in combination with single persons (e.g., Kahn and Lang, 1992, 1995; Stewart and Swaffield, 1997; Euwals and van Soest, 1999; Doiron 2003). As a result, previous studies have tended to ignore or, at best, under-emphasise the effects of partner characteristics. Second, given couples are more likely to have children and hence face conflict between work and family responsibilities, the presence of hours constraints will generally be of far greater importance to couples than to single people. This is of particular significance given the growth in recent decades in dual-earner couples as a proportion of all families.⁴

Another key feature of the paper is the data that are used. The data come from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, Australia's first large-scale nationally representative household panel survey. It is not, however, the panel nature of the data that are central to this paper but its emphasis on households. Indeed, the analyses reported on in this paper are based entirely on data from the first wave. Instead, the key feature of the HILDA Survey that is exploited here is its collection of data from *all* adult members of the household. The HILDA Survey is thus ideal for the development and testing of models in which household characteristics and dynamics are thought to shape individual behaviour, and similarly where the characteristics and behaviour of individual household members are thought to influence outcomes observed for households.

³ This figure is based on estimates from the ABS Monthly Population Survey. Estimates from the data set used in this paper are higher. These different estimates are most likely the result of differences in population coverage (for example, the initial sample for the HILDA Survey excluded all persons living in institutions) and differences in the way de facto relationships are defined and treated.

⁴ Data from the ABS Monthly Population Survey indicate that in mid-1986 dual-earner couples represented 37 per cent of all families and 43 per cent of all couples. By mid-2004 the comparable figures were 42 and 51 per cent, respectively.

After introducing the data, we present, in Section 3, density functions which summarise: (i) the distribution of actual and preferred working hours of individuals; (ii) the distribution of combined actual and preferred hours within couples; and (iii) the distribution of the gap between actual and preferred hours for both couples and individuals. We also present summary information about working time preferences disaggregated by household type. Sections 4 and 5 are where we describe and present results from the estimation of models describing the gap between actual and preferred hours of work. In Section 4 we describe the estimation strategy while in Section 5 we present the results. The final section provides a brief summary of our key findings.

2. Data

2.1. The HILDA Survey

As already noted, the data used in this analysis come from wave 1 of the HILDA Survey, a nationally representative household panel survey. Described in more detail in Watson and Wooden (2002), the survey involved interviews with all household members over the age of 15 years (on the 30 June preceding interview) from a stratified random sample of Australian households. The strata were 488 Census Collection Districts (CDs), based on 1996 Census boundaries, randomly selected from all CDs across Australia. Each stratum consisted of approximately 200 to 250 households.

After adjusting for out-of-scope dwellings (e.g., unoccupied or non-residential buildings) and households (e.g., where all occupants were overseas visitors) and for multiple households within dwellings, the total number of households identified as in-scope was 11,693. Interviews were completed with all eligible members at 6872 of these households and with at least one eligible member at a further 810 households. The achieved household response rate was thus 66 per cent. In total, 13,969 individuals were successfully interviewed. Almost all of the interviews were conducted during the period between 24 August 2001 and 21 December 2001.

Comparison with population benchmark data from official ABS sources suggests that the sample has characteristics that are broadly in line with what would have been expected if the sample were truly random. There is, however, at least one major disparity, with residents from Sydney under-represented, a result that Wooden et al. (2002) attribute to both greater difficulties making contact with some Sydney residents (e.g., those in living in high-rise apartments) and a greater reluctance to participate because of time commitments.

2.2. Preferred working hours

Individuals who were employed at the time of interview were asked about their preferred working hours. A two-part question, it was worded as follows:

- If you could choose number of hours you work each week, and taking into account how that would affect your income, would you prefer to work ... fewer hours than you do now, about the same hours as you do now, more hours than you do now?
- In total, how many hours a week, on average, would you choose to work? Again, take into account how that would affect your income.

This question thus presupposes that there may be a mismatch between actual and preferred working hours arrangements, which some might interpret as being inconsistent with revealed preference theory. This does not follow. The revealed preference approach involves identification of individuals' preferences subject to the constraints they confront. Observed (or actual) working hours, therefore, provide individuals with the highest utility level subject to all constraints, including budget constraints. In contrast, in this study we are concerned with the identification of individuals' preferred working hours in the event of the relaxation of some of these constraints. Specifically, in the survey, interviewees were asked to nominate the number of hours they would prefer to work on the assumption that those hours would be made available by employers.

Understanding the significance of the constraints on hours choices is, we believe, critical for policy. Estimates of the effects of policy changes on labour supply behaviour, for example, may be misleading if the availability of choice sets in reality is constrained. It is, therefore, very important to understand the sources of constraints on labour supply (and, where possible, remove them) in order to make effective policies.

But what are the constraints that questionnaire designers would like interviewees to ignore when they answer the question on preferred hours? Ideally, only demand-side constraints should be taken into account. Supply-side constraints, such as family responsibilities and partners' preferences, should have entered individuals' utility functions when choosing their preferred hours. Nevertheless, it seems unlikely that all respondents will have made this distinction. Thus, both demand- and supply-side variables are included when we model the difference between preferred and actual hours.

It also should be noted that the preferred working hours information refers to individuals' own preferences, and not the joint preferences of couples. Indeed, as just discussed, it is not clear whether individuals took their partners' preferences into account when answering the question on preferred hours. If they did not, the number of preferred hours determined by joint preferences is likely to be different from the number of hours obtaining by summing the stated preferences of the two individuals. In these cases, joint preference depends on both individuals' preferences and the relative bargaining power of each member of the couple. When analysing the combined working hours of couples, it is assumed here that the partner's preferences have been taken into account in the determination of preferred hours. Unfortunately, we are unable to test the validity of this assumption with the data used here.

2.3. Sample selection and summary statistics

The analysis in this paper focuses on married and de facto couples of mixed sex where both partners are aged between 18 and 64 years and where both completed the personal interview. Couples where both husband and wife are in the labour force and both indicated that they preferred to work zero hours are excluded.⁵ For comparative purposes, analyses of the preferred working hours of single persons are also reported.

Table 1 provides summary statistics describing the various sub-samples considered in this analysis. Dual-earner couples are the largest group, accounting for 61 per cent of all couples, followed by 'traditional' couples (single-earner couples where the man is the sole wage earner), which account for 23 per cent. Female-earner couples remain relatively rare, representing just 5 per cent of all couples. The remaining 11 per cent of couple households are those where neither partner is employed.⁶ Note that weights were not applied when generating these statistics, thus the figures presented here should be interpreted as sample distributions and not population estimates.

In general, traditional couples are, compared with other couples, younger, more likely to have children and have more children if they have one. This group also has relatively strong views on the relative merit of parental care over formal child care services. That said, the differences between the sub-samples in the mean values on the various attitudinal variables listed in Table 1 are generally not large. Not surprisingly, dual-earner couples have higher

⁵ We suspect that these individuals did not understand the question properly. As it turns out, this exclusion was not of large significance, leading to the removal of just an additional two cases (couples).

⁶ For more about the characteristics of these jobless households, see Scutella and Wooden (2004).

levels of education, more positive attitudes toward work and are more open-minded with regards to gender roles in the home compared with other types of couples. In terms of labour force status, for single-earner couples, in addition to the rarity of female sole bread winners, the males who are not working are more likely to be looking for work than their counterparts (females) in male sole breadwinner families. Perhaps surprisingly, 85 per cent of the jobless couples are not participating in the labour force. That is, relatively few members of these jobless households are actually seeking work and hence classified as unemployed.

Table 1: Sample composition and characteristics (standard deviations in parentheses^a)

<i>Characteristic</i>	<i>Couples</i>				<i>Singles</i>	
	<i>Dual earner</i>	<i>Male earner</i>	<i>Female earner</i>	<i>Jobless</i>	<i>Lone person</i>	<i>Sole parent</i>
Age (years)	41.13 (10.00)	40.22 (10.72)	45.77 (11.73)	49.31 (12.13)	34.06 (13.86)	36.30 (8.35)
Male	0.5	0.5	0.5	0.5	0.53 (0.49)	0.13 (0.34)
Has a degree	0.27 (0.44)	0.17 (0.38)	0.16 (0.37)	0.08 (0.27)	0.19 (0.39)	0.15 (0.35)
Australian born	0.76 (0.42)	0.72 (0.44)	0.72 (0.44)	0.61 (0.48)	0.78 (0.4)	0.77 (0.41)
English 2nd language	0.09 (0.29)	0.14 (0.35)	0.16 (0.37)	0.25 (0.43)	0.11 (0.32)	0.11 (0.31)
Resides in a major city ^b	0.55 (0.49)	0.58 (0.49)	0.55 (0.49)	0.52 (0.49)	0.65 (0.47)	0.56 (0.49)
Has a child under 15 years of age	0.48 (0.49)	0.67 (0.46)	0.26 (0.44)	0.32 (0.46)	0	1
Number of children under 15 years (for those with children)	1.90 (0.85)	2.07 (1.07)	1.74 (0.81)	2.15 (1.22)	0	1.70 (0.94)
Labour force status						
Employed full-time	0.7 (0.45)	0.44 (0.49)	0.27 (0.44)	0	0.49 (0.5)	0.21 (0.4)
Employed part-time	0.29 (0.45)	0.05 (0.22)	0.22 (0.41)	0	0.21 (0.4)	0.27 (0.44)
Unemployed	0	0.03 (0.19)	0.14 (0.34)	0.14 (0.35)	0.08 (0.27)	0.06 (0.24)
Not in the labour force	0	0.46 (0.49)	0.35 (0.48)	0.85 (0.35)	0.2 (0.4)	0.44 (0.49)
Professionals as a proportion of all employed	0.36 (0.48)	0.15 (0.35)	0.13 (0.34)	0	0.17 (0.37)	0.13 (0.34)
Self-employed as a proportion of all employed	0.24 (0.42)	0.20 (0.40)	0.06 (0.24)	0	0.10 (0.30)	0.08 (0.28)
Casual employees as a proportion of all employed ^c	0.16 (0.36)	0.13 (0.34)	0.32 (0.47)	0	0.29 (0.45)	0.35 (0.48)

Table 1 (cont'd)

	<i>Couples</i>				<i>Singles</i>	
	<i>Dual earner</i>	<i>Male earner</i>	<i>Female earner</i>	<i>Jobless</i>	<i>Lone person</i>	<i>Sole parent</i>
Attitudes about work and gender roles ^d						
It is important to have a paying job in order to be happy	4.91 (2.08)	4.75 (2.29)	4.92 (2.24)	4.54 (2.44)	4.63 (2.33)	4.51 (2.23)
I would enjoy having a job even if didn't need the money	4.47 (1.96)	4.20 (2.07)	4.46 (2.06)	3.85 (2.29)	4.19 (2.22)	4.38 (2.07)
If both partners in a couple work, they should share equally in the housework and care of children	5.80 (1.78)	5.88 (1.87)	5.84 (1.89)	5.63 (2.18)	5.49 (2.22)	5.86 (2.07)
Mothers who don't really need the money shouldn't work	3.37 (2.05)	3.97 (2.25)	3.63 (2.18)	3.99 (2.39)	3.25 (2.21)	3.42 (2.2)
Children do just as well if the mother earns the money and the father cares for the home and children	5.03 (1.89)	4.76 (2.05)	4.96 (1.97)	4.33 (2.28)	4.68 (2.21)	4.95 (2.12)
As long as the care is good, it is fine for children under 3 years of age to be placed in child care all day for 5 days a week	2.82 (1.9)	2.52 (1.91)	2.91 (1.95)	2.70 (2.02)	2.71 (1.94)	3.05 (2.14)
A working mother can establish just as good a relationship with her children as a mother who does not work for pay	4.14 (2.03)	3.53 (2.07)	3.88 (2.18)	3.49 (2.19)	3.85 (2.19)	4.13 (2.22)
A father should be as heavily involved in the care of his children as the mother	5.59 (1.78)	5.41 (1.93)	5.64 (2.00)	5.32 (2.18)	5.38 (2.22)	5.62 (2.06)
Number of observations	4168	1604	320	726	3171	446
Proportion of couples / singles	0.611	0.235	0.047	0.106	0.877	0.123

- Notes: a The cells without parentheses imply that the numbers are pre-determined.
b Following the classification used by the ABS in conjunction with its Accessibility / Remoteness Index for Australia, major cities comprise the five mainland State capitals, Canberra, Newcastle, Wollongong, Gosford and the Gold Coast region.
c Casual employment is self identified.
d Attitude items are all scored on a 1-7 disagree / agree scale.

3. Distribution of Preferred and Actual Working Hours

3.1. Kernel density function of preferred versus actual hours

In this section, we first compare the kernel density function of actual and preferred weekly working hours of employed persons. Figure 1 shows that, for workers who are single, irrespective of sex, the distribution in preferred hours of work is reasonably similar to the distribution in actual hours, though for both groups there is evidence of a weak time divide (i.e., the coexistence of overemployment with underemployment). The most marked divergence in these functions occurs for single women, with more of these women preferring

Figure 1: Distribution of actual and preferred working hours (singles)



employment offering 25 to 35 hours per week. Further, Figure 1 suggests that most of these women who prefer a move to a 25 to 35 hour per week job are currently working fewer than 20 hours per week.

The distributions for coupled individuals presented in Figure 2 reveal a very different story. Almost the entire density function of preferred hours for coupled men lies to the left of the density function of actual hours. The spike around 40 hours for desired hours is also higher. In other words, the majority of coupled men prefer to work a traditional full-time work week involving around 40 hours, but many are working much more than this. Overemployment is clearly most pronounced for those reporting working in excess of 50 hours per week.

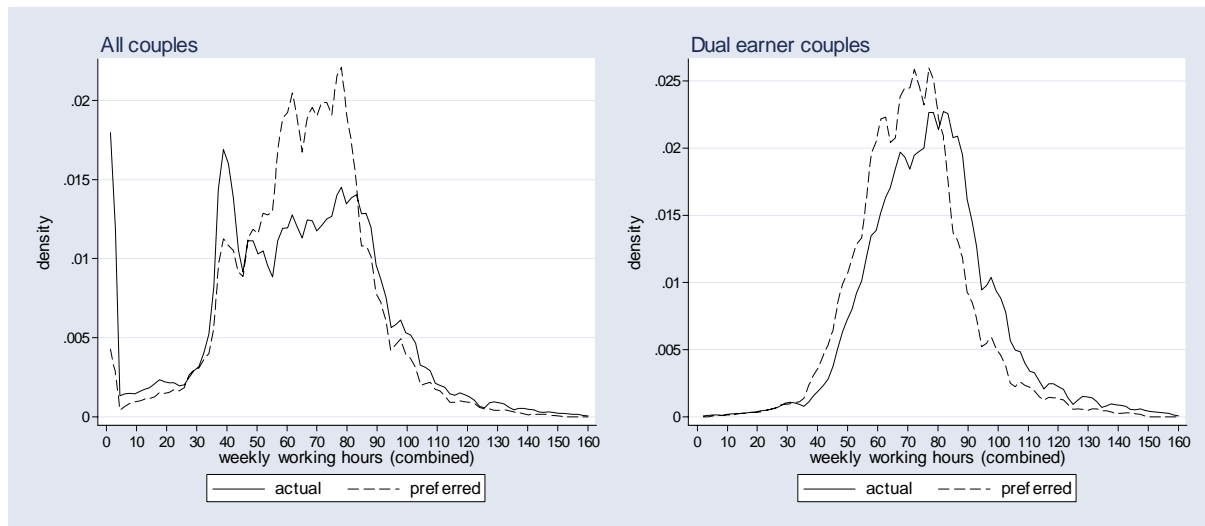
Figure 2: Distribution of actual and preferred working hours (coupled individuals)



For coupled women, the distribution of preferred hours is concentrated between 15 and 40 hours, and more part-time jobs are preferred than currently offered, as reflected in the gap between the density functions in the range between 15 and 35 hours. In this case, however, the achievement of worker preferences would see a decline in both the number of very short hours jobs (less than 15 hours per week) and long hours jobs (more than 45 hours per week). In other words, there is clear evidence of the presence of a time divide for this group.

When we look at couples' combined hours (see Figure 3), it is very clear that, in aggregate, dual-earner couples prefer shorter hours. Again this is reflected in a density function for preferred hours that lies entirely to the left of the density function for actual hours. However, Figure 3 is drawn based on the assumption of full information within couples; that is, couples know the preference of the other member and make decision taking into account their partners' preference. An alternative assumption is that individuals make decision taking their partners actual working hours as given. The graphs which were drawn based on this assumption are presented in an Appendix (Figure A1). Altering the assumptions did not change the conclusion that dual-earners couples prefer shorter hours, only the distance between the density functions of preferred and actual hours are shorter.

Figure 3: Distribution of actual and preferred working hours (couple combined)



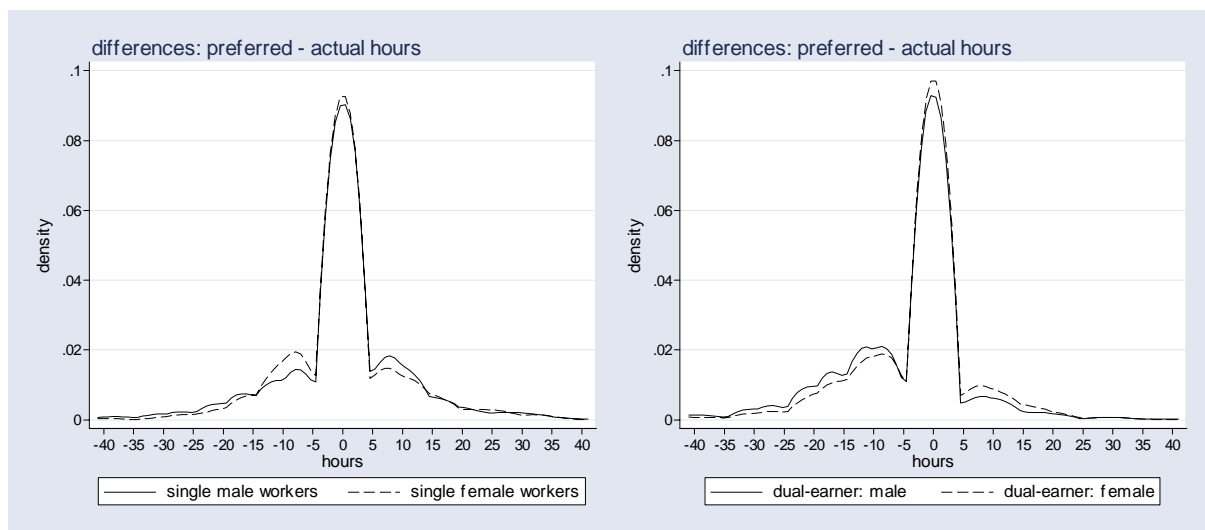
The density function for all couples, on the other hand, has quite a different shape. In particular, when we look at actual hours there are two marked spikes at zero hours and 40 hours, reflecting the presence of both jobless households and single earner households in these numbers. Indeed, it is also hardly surprising that we find a marked gap between the

density functions for actual and preferred hours, with preferred hours exceeding actual hours. Note, however, that this gap is contained to the hours range between 50 and 85.⁷

Figures 1 to 3 only provide us with a picture of how well current hours match the preferred hours in aggregate. Even if the distributions of preferred and actual hours were to lie exactly on top of each other, it does not necessarily mean that all individuals are happy with their working hours. Mismatches between individuals and working hours are still likely to exist.

We therefore plot the distributions of *differences* between preferred and actual hours of individuals for different population subgroups in Figure 4. The most obvious feature of this figure is the large spikes around zero. Most workers are working weekly hours that are quite close to their preferred number – within five.⁸ Thus, when we refer to a time divide we are clearly not talking about a phenomenon that applies to the majority of the workforce. Nevertheless, Figure 4 also reveals sizeable tails extending beyond plus and minus five hours, meaning substantial proportions of workers who are either underemployed or overemployed.

Figure 4: Distribution of the difference between preferred and actual hours (individuals)



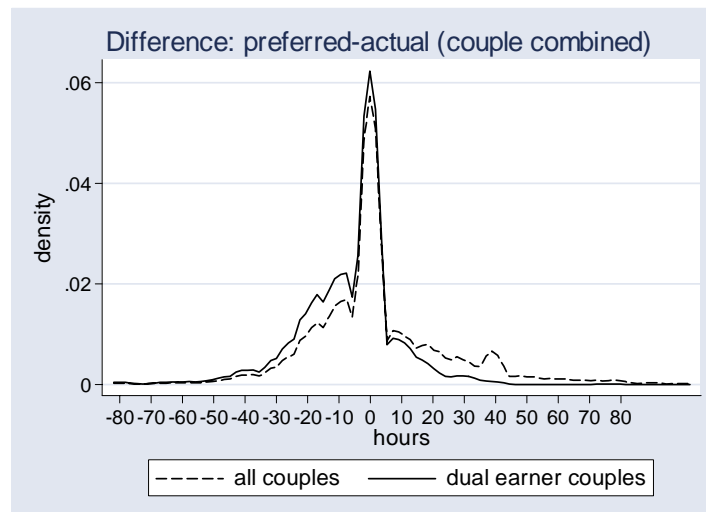
⁷ Again, readers need to bear in mind that the stated preferred hours of non-employed respondents are not directly comparable with that of employed respondents. As noted earlier, for individuals who were not working and wanted a job, preferred hours are those with respect to their reservation wage and the preferred hours are set to zero if they do not want a job.

⁸ In these data 63 per cent of single workers and 62 per cent of members of dual-earner couples were working hours which were within 5 hours of their preferred working hours number.

Comparing single men and single women, there are only small differences in the distribution of the gap between actual and preferred hours. Among persons in dual-earner couples the differences between men and women are more noticeable, with women being more likely to be underemployed and the men more likely to be overemployed. Comparing members of dual-earner couples with single persons, the major difference is that the former are more likely to be overemployed than underemployed, with close to 30 per cent of individuals in dual-earner couples working more than 5 hours above their desired weekly hours compared to less than 20 per cent of single employed persons.

In Figure 5 we present the distribution of the gap between preferred and actual working hours for couples after combining the hours worked by both partners. This figure shows, as expected given the data presented earlier in Figure 3, that among couples, and more particularly dual-earner couples, there is a much greater incidence of overemployment than underemployment. Indeed, almost 50 per cent of dual-earner couples work a combined number of hours each week that exceeds their combined preferred hours. Further, for many of these couples the gap between preferred and actual hours is substantial – almost 20 per cent reported a net gap of 20 hours per week or greater.

Figure 5: Distribution of couples’ combined difference between preferred and actual hours



3.2. Individuals' working time preference by household type

In Table 2 we report further information about the working time preferences of individuals, but disaggregated by different household types.⁹ For each sub-group, and for men and women separately, this table reports the percentage of employed persons who prefer to work more, the same and fewer hours, and their mean actual and preferred weekly working hours.¹⁰

Table 2: Preferred and actual hours of work by household type and sex

<i>Household type</i>	<i>Working hours preferences (%)</i>			<i>Actual hours</i>	<i>Preferred hours</i>
	<i>Fewer</i>	<i>Same</i>	<i>More</i>		
<i>Males</i>					
Couple family w/o children, w/o others	34.6	55.7	9.6	45.1	41.0
Couple family w/o children, w others	29.2	53.7	17.1	42.1	39.8
Couple family w children, w/o others	33.7	53.9	12.3	46.9	43.3
Couple family w children, w others	22.5	59.2	18.4	45.5	44.7
Lone parent w children, w/o others	31.0	47.6	21.4	41.1	39.4
Lone parent w children, w others	14.3	52.4	33.3	37.1	38.8
Lone person	27.5	54.7	17.8	43.0	40.7
Group household	23.9	49.0	27.1	40.5	40.9
Multi-family household	24.1	46.8	29.1	39.0	39.6
TOTAL	31.3	53.8	15.0	44.4	41.6
<i>Females</i>					
Couple family w/o children, w/o others	34.0	53.8	12.2	36.2	33.0
Couple family w/o children, w others	26.5	58.8	14.7	32.3	30.2
Couple family w children, w/o others	24.4	58.8	16.8	27.2	25.7
Couple family w children, w others	25.0	56.3	18.8	33.9	32.0
Lone parent w children, w/o others	19.2	47.5	33.3	27.1	29.4
Lone parent w children, w others	15.6	59.4	25.0	29.7	32.3
Lone person	34.3	51.1	14.6	38.7	36.2
Group household	23.0	57.5	19.5	34.7	34.8
Multi-family household	24.1	51.1	24.8	32.8	33.2
TOTAL	27.7	55.5	16.8	32.2	30.5

There are clearly very significant gender differences in actual working hours irrespective of household type. As is well recognised, females generally work shorter hours on average than males and, more importantly, they also prefer to do so. Nevertheless, this table reveals that the mean gap between actual and preferred hours of work is much the same for men and women. Men are slightly more likely to be overemployed and women slightly more likely to

⁹ The household type is based on derived variables provided in the public release HILDA Survey dataset, but with some modification. In particular, a child is defined as any person living in the household who is under 15 years of age on 30th June 2001.

¹⁰ Again readers should bear in mind that the figures presented in this table are sample distributions and not population distributions. Further, some of the cells sizes (e.g., for male lone parents) are quite small.

be underemployed, but such gender differences are quite small. In total, slightly more than half of individuals work their desired hours, about one third of individuals prefer to work less and less than one sixth of individuals prefer to work more hours each week.

Household type also appears not to matter overly. Men in couple families tend to work the longest hours while among women it is lone persons who typically work the longest. Nevertheless, when we look at the pattern in working hours preferences, there are few, if any, marked differences by household type. Perhaps the stand-out group here is lone parents who do not have other adults present in the household.¹¹ Persons in this category are the least likely to be working their desired hours, with many female lone parents preferring more hours while the reverse is true of men. We can also see that overemployment is relatively concentrated within couple families, though for women at least, this does depend on the presence of children. Where children are present, females are much less likely to be in jobs where their actual hours exceed their preferred hours.

In Table 3 we again focus on couples and present data on the working time preferences of coupled individuals who are employed cross-classified by the full-time and part-time status of their partners.¹² To help with the reading of this table consider the first panel (three rows) of that table. This panel is labelled 'FT, FT' indicating that both members of the couple are employed full-time. The first row provides the distribution of workers according to whether they wish to work fewer, the same or more hours. Again, we take care to distinguish the responses of men from those of women. The second and third rows provide the mean actual weekly hours of work and mean preferred weekly hours of work respectively.

As we would expect, full-time workers are much more likely to have preferences for fewer hours of work while part-time workers are much more likely to have preferences for more hours. Of greater interest is whether these preferences are influenced by the hours worked by the partner. The figures presented in Table 3 suggest the relationship here is weak. For example, compare the average couple where both partners work full-time (FT, FT) with one where the man works full-time and the woman works part-time (FT, PT). The only substantive difference is between the women, with the woman working part-time more likely

¹¹ 'Others' includes both relatives and non relatives. Children over 15 years of age are included among relatives.

¹² In this analysis, full-time working is simply defined on the basis of usual working hours with, as is conventional, 35 hours chosen as the threshold.

Table 3: Preferred and actual hours of employed persons by full-time / part-time status (couples)

<i>Status (male, female)</i>	<i>Male</i>				<i>Female</i>			
	<i>Fewer hours</i>	<i>Same hours</i>	<i>More hours</i>	<i>Total</i>	<i>Fewer hours</i>	<i>Same hours</i>	<i>More hours</i>	<i>Total</i>
FT, FT								
Row per cent	39.2	53.1	7.7	100.0	49.2	48.0	2.9	100.0
Mean actual hours	53.7	48.4	41.4	49.9	46.1	42.3	39.2	44.1
Mean preferred hrs	37.9	48.4	51.4	44.5	30.6	42.3	46.5	36.7
FT, PT								
Row per cent	39.0	54.9	6.1	100.0	11.6	65.9	22.6	100.0
Mean actual hours	52.9	47.0	41.4	49.0	24.8	20.4	16.8	20.1
Mean preferred hrs	38.3	47.0	50.7	43.9	15.1	20.4	28.2	21.6
PT, FT								
Row per cent	9.5	53.6	36.9	100.0	41.7	56.0	2.4	100.0
Mean actual hours	27.5	24.2	21.2	23.4	43.3	42.5	60.0	43.3
Mean preferred hrs	19.9	24.2	38.1	28.9	30.8	42.5	74.0	38.4
PT, PT								
Row per cent	3.2	60.6	36.2	100.0	9.6	59.6	30.9	100.0
Mean actual hours	25.0	22.8	20.9	22.2	25.4	18.5	16.8	18.6
Mean preferred hrs	20.3	22.8	36.2	27.6	18.6	18.5	28.7	21.7
FT, N N, FT^a								
Row per cent	33.6	56.6	9.8	100.0	41.6	53.9	4.5	100.0
Mean actual hours	52.6	46.5	41.6	48.1	43.8	40.2	40.3	41.7
Mean preferred hrs	37.9	46.5	51.5	44.1	29.6	40.2	48.8	36.2
PT, N N, PT^b								
Row per cent	6.1	47.6	46.3	100.0	7.3	47.8	44.9	100.0
Mean actual hours	20.0	18.5	20.3	19.4	27.2	20.2	15.7	18.4
Mean preferred hrs	9.6	18.5	35.8	25.8	19.4	20.2	29.9	24.5
TOTAL								
Row per cent	34.8	54.7	10.6	100.0	29.4	56.7	13.9	100.0
Mean actual hours	51.7	43.7	31.8	44.4	42.2	30.8	20.8	32.2
Mean preferred hrs	36.9	43.7	43.7	41.6	28.9	30.8	32.5	30.5

Notes: FT, PT and N denote employed full-time, employed part-time and not employed, respectively.

a For males, males work full time and females do not work; for females, males do not work and females work full-time.

b For males, males work part-time and females do not work; for females, males do not work and females work part-time.

substantive difference is between the women, with the woman working part-time more likely to prefer more hours and the woman working full-time more likely to prefer fewer hours. Similarly, if we compare the average couple where the man works part-time and the woman works full-time (PT, FT) with one where they both work part-time (PT, PT), the main difference again occurs with respect to the preferences of the women. In this comparison, the preferences of the men do not differ greatly. In contrast, close to one-third of the women employed part-time would prefer a job providing more hours whereas virtually none of the full-time employed women want a job with more hours. Some evidence that individual working hours preferences are sensitive to the hours worked by their partner is, however, provided by the comparison between couples where the man works full-time and the woman works part-time (FT, PT) and couples where they both work part-time (PT, PT). Specifically, in 30 per cent of the cases where the man has a part-time job the woman would prefer to work longer hours. In contrast, very few of the women with a full-time employed partner would prefer a job with more hours.

4. Analytical Framework and Econometric Modelling Strategy

We now turn to a consideration of the factors that are associated with individuals ending up in work situations where their actual hours do not match their desired hours. Theoretically, all supply side factors would have been taken into account when individuals choose their preferred hours. Working hours constraints, therefore, arise from the trade off between wages (or job characteristics) and the number of hours on offer. That is, employers may offer only a certain amount of hours (due to fixed employment costs, institutional restrictions or some other demand-side factor), such that the preferred hours are not available in the current job. Although individuals may be able to obtain preferred hours by changing jobs, they may choose not to do so due to the adjustment costs (which will be especially high if obtaining preferred hours requires not only changing employer but changing industry or occupation). Further, even if the individuals would like to change jobs in order to obtain their preferred hours, the job changing process takes time and thus at any point in time there will always be at least some individuals who are dissatisfied with their current working hours

How do we model the preferred working hours and actual working hours? There are two common approaches in literature. One approach involves estimating the unconstrained labour supply equation; that is, to model preferred working hours (e.g., Euwals and van Soest, 1999). The other is to model the gap between preferred and actual hours (e.g., Kahn and

Lang, 1995; Merz, 2002). Since our major concern is the loss of well-being due to unsatisfactory working hours, we adopt the second approach.

We thus begin with the following simple equation:

$$H_p - H_a = f(X) \tag{1}$$

where H_p and H_a denote preferred hours and actual hours respectively and X is a vector of individual and job characteristics. In this analysis, X includes gender, age, education, country of birth, Aboriginal or Torres Strait islander (ATSI) status, unemployment and labour force history in the year prior to interview, age of youngest child, the existence of financial difficulties, length of tenure in the current job, casual employment status, self-employment, union membership, industry, occupation, attitudes toward work and family, partner's employment status and partner's overemployment or underemployment status. Further details about the explanatory variables are provided in Appendix Table A1.

A wage rate variable is not included in the equation, in part because of the difficulty defining the wage for self-employed workers. More importantly, the hours-wage trade-off is the result of choices. That is, some individuals will trade off preferred hours for a higher wage implying the current wage-hour bundle provides those individuals with higher utility than some other wage-hour bundle. Wages are thus clearly endogenous to hours preferences.

In the literature, it is common to include actual working hours on the right hand side of the equation (e.g., Kahn and Lang, 1995; Merz, 2002). This is particularly important if we are interested in quantifying the extent of the working-time divide phenomenon. However, the inclusion of actual working hours distorts the interpretation of other variables. Conditional on actual working hours, the difference in the hours gap ($H_p - H_a$) between individuals arises from the differences in preferred hours, which is not the major concern in this paper. Instead, our concern is with the loss in individual welfare that arises due to unsatisfactory working hours and the characteristics associated with it. For this purpose, it is better not to condition on actual working hours. We thus report regression results of equations with and without actual working hours on the right hand side. To provide more flexibility in our specification, the actual hours variable is specified as a spline function with knots at 15, 30, 40, 50 and 60.¹³

¹³ A linear spline is simply a continuous piecewise-linear function. In this case we have divided the range of hours into six intervals with interval boundaries at 0, 15, 30, 40, 50 and 60. The hours profile consists of a set of six line segments constrained in such a way that consecutive segments meet at the boundary. Spline functions allow the relationship between actual hours and the dependent variable to vary depending on the

Since the hours gap ($H_p - H_a$) is a continuous variable, equation (1) can be estimated using simple ordinary least squares (OLS) regression methods.¹⁴ But when interpreting the results from OLS estimation it must be borne in mind that, since the dependent variable assumes overemployment and underemployment are at different ends of the same linear scale, the magnitudes or directions of the coefficients reveal nothing about the association between a variable and satisfaction with working hours. Consider, for example, the effects of sex. A negative coefficient on the sex variable (which takes the value 1 for men and the value 0 for females) could mean that the probability of being underemployed is less for men than for women while the probability of overemployment is greater. Whether a variable is associated with increases in individual satisfaction with working hours (i.e., the probability of working desired hours) is thus ambiguous. Variables with positive coefficients will only be associated with unambiguous increases in satisfaction with working hours if an individual is underemployed.

In theory, the effect of explanatory variables on the probability of both overemployment and underemployment can be calculated by simulation using the OLS results. The problem here, however, is that OLS models cannot capture the possibility of two-sided associations between the explanatory variable and the dependent variable. That is, the linear nature of simple regression models cannot allow for the possibility that some variables may be associated with higher probability of both overemployment and underemployment. For example, relatively low levels of human capital may be expected to be associated with a greater risk of underemployment due to relatively low levels of demand for these types of workers. On the other hand, these types of workers also tend to have fewer alternative employment options and so should have relatively little bargaining powers, and thus be may more susceptible to being forced to accept relatively long hours regimes that are in excess of what is preferred. Since only a single coefficient is reported for each variable in the OLS specification, the positive and negative associations may offset each other and yield a coefficient that is not significantly different from zero.

level of actual hours. That is, if we plot the predicted difference between preferred and actual hours against actual hours, the slope of this line can differ across each of the six hours intervals, but the line is continuous with kinks at hours equal to 10, 20, 30, 40, and 50.

¹⁴ In some studies (e.g., Doiron, 2003) data inadequacies have meant that researchers only observe whether actual hours are greater than, equal to, or less than preferred hours. In such studies, ordered probit models are employed.

To best capture the effect of an explanatory variable on satisfaction with working hours, we first investigate the probability of being over- and underemployed using a multinomial logit framework. This model is identified by normalising the parameters β to zero for the base category (satisfied with working hours) and is described by the following set of equations:

$$\Pr(Y = 1 | X) = 1 / [1 + \sum_{j=2}^J \exp(X \beta_j)] \quad (2)$$

$$\Pr(Y = i | X) = \exp(X \beta_i) / [1 + \sum_{j=2}^J \exp(X \beta_j)], \quad j = 2, \dots, J \quad (3)$$

where $Y=1$ is the base category (i.e., neither overemployed nor underemployed). The interpretation of the coefficients is not very intuitive. A simple interpretation of β_i can be illustrated as:

$$P_j(X \beta) / P_1(X \beta) = \exp(X \beta_j), \quad j = 2, \dots, J \quad (4)$$

where $P_j(X \beta)$ denotes the response probability in equation (2). However, it is still very difficult to work out the effects of independent variables on the probability of each outcome based on equation (3). We therefore compute marginal effects with respect to continuous variables based on the following equation:

$$\frac{\partial \Pr(Y = i | x)}{\partial x_k} = \Pr(y = i | x) \left[\beta_{k,i|J} - \sum_{j=1}^J \beta_{k,j|J} \Pr(y = j | x) \right] \quad (5)$$

It is clearly shown in equation (5) that the direction of the marginal effect of variable x_k on the predicted probability of each outcome is not determined entirely by the coefficient β_k . It depends on the coefficients, the value of the variable at which it is evaluated and also the values of all other explanatory variables. We choose to report the mean marginal effect for individuals in our sample. That is, the marginal effect is computed separately based on each individual's characteristics and then averaged. For a single dummy variable, the marginal effect is defined as the change in the probability of being in outcome i when the variable changed from 0 to 1. For a set of dummies, such as education, the marginal effect is defined as the change in the probability of being in outcome i when changed from the base category to that category. The marginal effects for continuous variables are evaluated at the value of the variable of each observation in the sample. Since the marginal effects of an explanatory

variable for all outcome categories are summed to zero, we do not report the mean marginal effect of the base category in subsequent tables.

In addition to the probability of being over- and underemployed, we are also interested in the extent of overemployment and underemployment. We therefore estimated two separate OLS regressions using the hours gap as the dependent variable for the two overemployed and underemployed sub-samples. To simplify the interpretation, we use the numbers of overemployed hours and underemployed hours (the absolute value of $H_p - H_a$) as dependent variables, which can be denoted as follows:

$$\begin{aligned} \text{Extent of overemployment} &= H_a - H_p = \beta X && \text{if } H_p - H_a < 0 \\ &\text{and} && \\ \text{Extent of underemployment} &= H_p - H_a = \beta X && \text{if } H_p - H_a > 0 \end{aligned} \tag{6}$$

5. Results

We first present OLS regression results for all coupled individuals who are employed. Three different specifications were estimated. Specification 1 simply includes actual hours and a sex dummy while Specification 2 includes characteristics of individuals and their partners but not the actual hours terms. Specification 3 includes both the hours terms and the set of individual characteristics. We first focus on what these estimates mean in terms of the working-time divide before moving on to consider those characteristics that are associated with mismatch in working time preferences. We then report the marginal effects from the estimation of a multinomial logit model describing the probability of over- or underemployment together with OLS estimates of the extent of both.

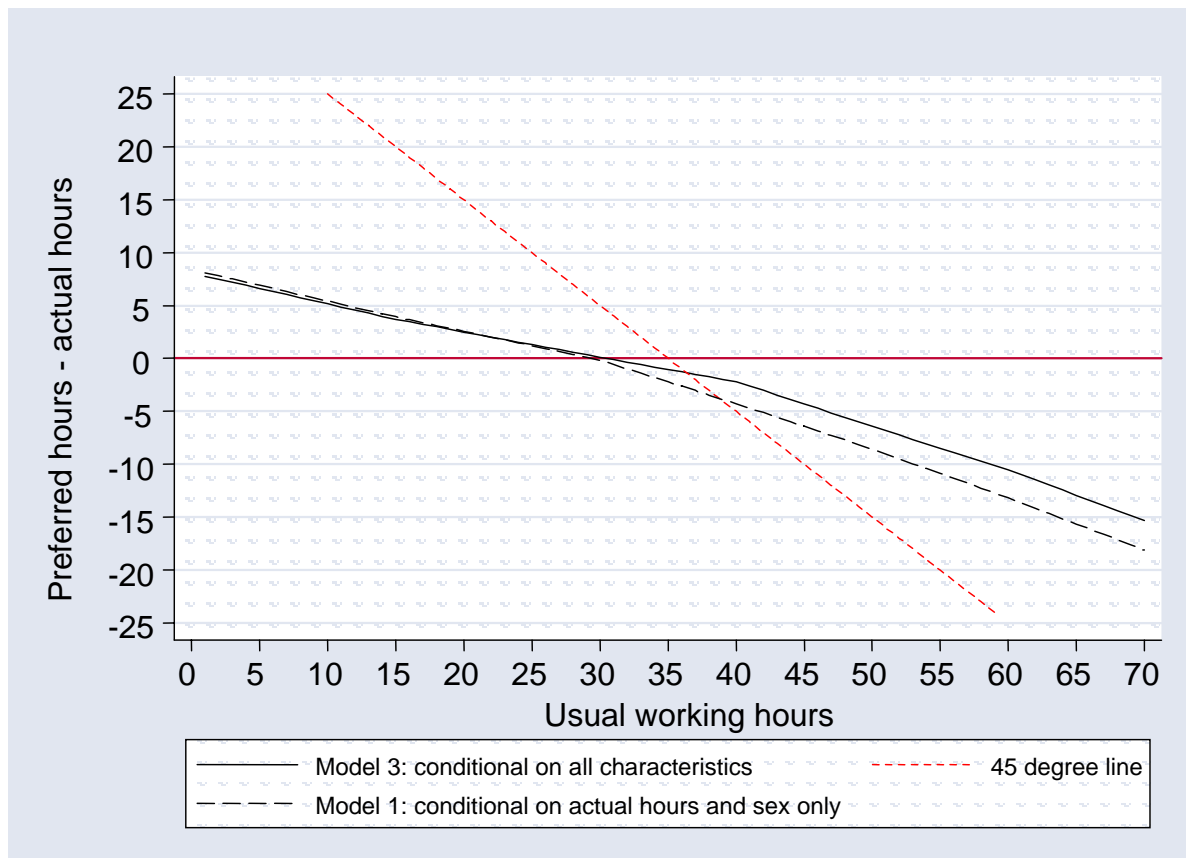
5.1. The working time divide

The OLS regression results are presented in Table 4, and in both specifications including the actual hours terms (Specification 1 and Specification 3) there is evidence of a working-time divide. This is reflected in the significant negative coefficients on the terms in the actual hours spline function. Indeed, given the positive constant term, we can infer that individuals working relatively few hours prefer to work more and that this difference disappears as hours rise (see Drago et al. 2004, p. 13).¹⁵

¹⁵ In the paper by Drago et al. (2004) the dependent variable is actual hours less preferred hours, and hence the hours coefficient is positive while the constant term is negative.

This relationship between actual hours of work and mismatch between actual hours and preferences is more clearly illustrated in Figure 6, which graphically depicts the estimated relationship between the hours gap and actual working hours. The solid and dashed lines represent results from Specification 1 and Specification 3 respectively.¹⁶ Note that the point where these lines cross the horizontal axis is also the point where the regressions find a match between preferred and actual hours of work. In these data that occurs at around 31 hours per week, which is well below what all full-time workers are working and well above the hours worked by the average part-time worker, further evidence of the importance of the time divide. That said, the slopes of these lines are relatively flat (>-1), indicating that actual and preferred hours are correlated. Indeed, if everyone was able to work hours consistent with their preferences the regression line would be a horizontal line at $H_p - H_a = 0$. This suggests that the time divide, while statistically significant, is far from extreme. Consistent

Figure 6: The working-time divide



¹⁶ The solid line is drawn based on the actual hours coefficients from Specification 1 and with the sex dummy set to zero. The dashed line is based on Specification 3 with all the dummy variables set to zero and continuous variables set to the population mean.

with the conclusion reached earlier, the majority of workers in couple households are actually working hours that are not too far removed from their stated preference. The flatness of these lines also indicates considerable diversity in working hours preferences. For example, if everyone in the sample preferred to work 35 hours per week, the estimated relationship between usual hours and the hours gap would be given by the 45 degree line.

5.2. The effects of characteristics on hours gap

To understand the effect of individuals' characteristics on the hours gap, we focus on the results from Specification 2 (in Table 4) where the hours terms are omitted and only individuals characteristics are included. As mentioned earlier, including the actual hours terms on the right hand side would yield a very different interpretation of the coefficients because the hour gap is predominantly driven by preferred hours when actual working hours are held constant.

As might be expected, individuals who are disadvantaged in the labour market are more likely to be underemployed. This is evident in the strong positive association between the proportion of time being either unemployed or not in labour force in the year prior to interview and the hours gap. It is also evident in the positive significant coefficients on the variables representing immigrants from non-English-speaking countries, and especially if they also have English language difficulties, and casual employment, and the positive (weakly) significant coefficient on the variable identifying Aboriginal and Torres Strait Islanders. Consistent with previous literature, the hours gap is also greater for young workers (Kahn and Lang, 1995; Doiron, 2003). Furthermore, it is not surprising that individuals who would enjoy having a job even if they did not need the money are more likely to prefer to work more. Also not unexpected, workers who report having financial difficulties are much more likely to prefer additional hours.¹⁷

In terms of the effects of tenure on the current job, contracting agency models (Lazear, 1981) suggest that long-tenure workers will be paid more than their value of marginal product (VMP) and would want to work more than contracted. In human capital theory (Becker, 1971), on the other hand, long-tenure workers are paid less than their VMP and as a result

¹⁷ Arguably the causation could be in the reverse direction, with underemployment being a cause of financial difficulties. However, in Specification 3 when we control for actual hours, this term remains significant. That is, for all values of hours actually worked, financial difficulties are associated with a desire for more hours.

Table 4: Hours gap – OLS regression results (all coupled individuals in employment

<i>Variable</i>	<i>Specification 1</i>		<i>Specification 2</i>		<i>Specification 3</i>	
	<i>Coeff.</i>	<i>Std. err.</i>	<i>Coeff.</i>	<i>Std. err.</i>	<i>Coeff.</i>	<i>Std. err.</i>
<i>Actual hours spline function:</i>						
Hours 1-10	-0.275*	0.094			-0.300*	0.089
Hours 11-20	-0.275*	0.042			-0.281*	0.041
Hours 21-30	-0.406*	0.045			-0.407*	0.045
Hours 31-40	-0.490*	0.040			-0.431*	0.040
Hours 41-50	-0.453*	0.072			-0.458*	0.071
Hours 51+	-0.468*	0.087			-0.487*	0.087
<i>Demographic characteristics:</i>						
Male	4.493*	0.306	-0.354	0.380	4.216*	0.363
Age 16-25			-1.334*	0.645	-1.283*	0.570
Age 26-35			-2.076*	0.667	-1.907*	0.589
Age 36-45			-2.999*	0.664	-3.139*	0.585
Age 46-55			-2.212*	0.794	-4.226*	0.712
Has a degree			-0.469	0.534	-0.447	0.444
Has a certificate			0.387	0.413	0.334	0.347
Completed Year 12			-0.676	0.564	-0.614	0.485
ESC			0.321	0.451	0.032	0.376
NESC			2.051*	0.449	1.814*	0.394
ATSI			2.004	1.244	0.297	1.140
<i>LM experience / job characs:</i>						
Prop time on UE			10.154*	2.149	6.005*	1.906
Prop time NILF			3.324*	1.177	0.050	1.104
Tenure current employer			-0.011	0.021	-0.012	0.018
Casual employees			4.078*	0.422	0.706#	0.374
Self employed			-1.532*	0.472	-0.546	0.393
Union member			0.127	0.343	0.193	0.287
<i>Attitudes:</i>						
Enjoy having a job			0.151#	0.082	0.427*	0.073
Couples share house work			0.055	0.114	-0.039	0.100
Attitude variables missing			0.042	1.709	1.013	1.637
<i>Family characteristics:</i>						
Age youngest child: <1			0.092	0.709	-1.121#	0.623
Age youngest child: 1-2			0.351	0.534	-0.930*	0.450
Age youngest child: 3-4			0.735	0.646	-0.842	0.551
Age youngest child: 5-12			0.489	0.404	-0.611#	0.351
Age of youngest child: 13+			0.465	0.700	0.069	0.557
Have financial difficulty			1.049*	0.351	1.114*	0.292
Financial variable missing			0.171	1.686	0.804	1.613
<i>Partner's characteristics:</i>						
Partner employed PT			-0.080	0.448	-0.261	0.386
Partner employed FT			0.370	0.470	0.242	0.403
Partner overemployed			-2.412*	0.364	-2.096*	0.304
Partner underemployed			0.901*	0.453	1.176*	0.395
Constant	7.261*	1.201	-5.345*	1.394	7.715*	1.674
R-squared	0.3196		0.1211		0.3722	
No. of observations	5111		5076		5076	

Note: Robust standard errors used. Estimation of Specifications 2 and 3 includes occupation and industry.

would prefer to work fewer hours than the firm would want.¹⁸ Nevertheless, our finding that the coefficient on tenure is not significant supports neither of the existing theories.

One particularly intriguing result is the negative coefficient on self-employment. This result suggests either greater levels of over-employment or lesser levels of underemployment within this group. Given that within the sample of all self-employed persons actual hours on average exceeds preferred hours, it follows that it is the former explanation which is the more salient. This seems rather counter-intuitive given the self-employed have, by definition, considerable autonomy over the times at which they can work.

We also find evidence that the satisfaction of one's partner with their working hour arrangements matter. The direction of the significant coefficients on terms indicating whether the partner is either overemployed or underemployed, are consistent with the possibility that couples change their working hours preferences when their partner is unable to achieve their hours preferences. That is, if your partner is unable to work as many hours as desired, this leads you to prefer more hours.¹⁹

When both actual hours and individual characteristics are included in model 3, it is immediately apparent that this has a marked effect on the magnitude and significance of some of the individual characteristics. Most obviously, gender differences are not significant in model 2 but become very significant when actual working hours are controlled for in model 3. In other words, while there is no mean difference in the hours gap between men and women, when we compare men and women who work the same hours, men are found to prefer to work, on average, almost four hours more per week than women. This thus suggests that women, on average, work fewer hours than men by choice.

We also see marked changes in the size and significance of the coefficients on the variables representing self-employment, the proportion of time spent not in the labour force during the last year and whether the individual has difficulties with the English language. In these cases, the coefficients become smaller in absolute size when the hours terms are included. Thus while the self-employed are more likely to prefer fewer hours in aggregate, this effect is relatively weak (and statistically insignificant) once we compare individuals working the

¹⁸ See Kahn and Lang (1995) for more detailed discussion of this issue.

¹⁹ It might be argued that such results reflect assortative mating, wherein people who get 'stuck' in jobs requiring very long hours (or very short hours) pair with persons in similar jobs. This argument, however, is weakened by the inclusion of controls for occupation and industry. It is further weakened by the persistence of these effects once actual hours are controlled for.

same hours. This reinforces the somewhat perplexing conclusion implied above that the long hours worked by the self-employed are, at least at the margin, involuntary.

5.3. Probability and extent of over- and underemployment

The mean marginal effects of individuals' characteristics on the probability of different hours outcome categories are presented in the left panel of Table 5²⁰ and the extent of over-employment and underemployment (measured in hours) given the individuals are overemployed / underemployed are shown in the right panel.

Consistent with the findings from the OLS regressions, age is found to have a significant effect on working hours satisfaction. Prime-age workers, in particular those aged between 36 and 45 years, are more likely to be over-employed and less likely to be under-employed compared with the control group (55 to 64 year-old workers). Interestingly, the number of overemployed hours among the overemployed, while lowest for the oldest control group, is actually highest for the immediate preceding age cohort (45 to 54 year olds). Age, however, does not appear to exert a significant effect on the magnitude of underemployment for those individuals who are underemployed.

These results also again confirm that recent unemployment experiences affect hours outcomes. The greater the duration of unemployment during the past year, the greater the probability of both over- and underemployment (though the overemployment effect is subject to a relatively large standard error). Further, among the underemployed, prolonged exposure to unemployment is associated with a much greater distance between preferred hours and actual hours (about 3.4 hours for those who experienced 6 months unemployment in the past 12 months). However, for those who are overemployed, an unemployment history during the previous year is associated with a much lesser volume of overemployed hours.

Duration of tenure with current employer again is found to have only small effects; a small negative effect on the probability of underemployment is found, but no significant effects on the extent of either over- or underemployment. This finding provides only weak support, at best, for the predictions of human capital theory.

²⁰ The multinomial logit model assumes independent of irrelevant alternatives. Hausman test statistics suggest that we cannot reject the independent irrelevant alternatives assumption.

Table 5: Explaining the probability and extent of over- and underemployment for coupled individuals

	<i>Prob. of over - and underemployment (multinomial logit)</i>				<i>Extent (hours) of over- and underemployment (conditional OLS)</i>			
	<i>Overemployment</i>		<i>Underemployment</i>		<i>Overemployment</i>		<i>Underemployment</i>	
	<i>Mar eff</i>	<i>Std err.</i>	<i>Mar eff</i>	<i>Std err.</i>	<i>Coeff.</i>	<i>Std err.</i>	<i>Coeff.</i>	<i>Std err.</i>
<i>Demographic characteristics:</i>								
Male	0.014	0.016	-0.002	0.012	0.219	0.642	0.659	0.818
Age 16-25	0.052	0.041	-0.027	0.017	2.468*	1.191	0.971	1.269
Age 26-35	0.093*	0.042	-0.030	0.018	2.645*	1.217	0.583	1.275
Age 36-45	0.124*	0.043	-0.057*	0.017	2.557*	1.228	-0.030	1.235
Age 46-55	0.024	0.045	-0.051*	0.017	4.966*	1.609	-1.358	1.678
Has a degree	0.050*	0.023	-0.009	0.017	-0.964	0.977	0.515	1.059
Has a certificate	-0.013	0.018	0.001	0.011	-1.044	0.831	-0.505	0.721
Completed Year 12	0.033	0.027	-0.044*	0.014	-0.393	0.938	1.800	1.292
ESC	-0.004	0.019	-0.011	0.014	-0.557	0.751	0.886	0.952
NESC	-0.067*	0.019	0.055*	0.016	-0.301	0.708	1.820*	0.861
ATSI	-0.070	0.070	0.070	0.045	-0.311	2.603	1.056	1.504
<i>LM experience / job characs:</i>								
Prop time on UE	0.092	0.125	0.180*	0.043	-7.111*	3.117	6.826*	2.417
Prop time NILF	-0.190*	0.084	0.021	0.033	-3.555	2.169	2.321	2.372
Tenure current employer	0.001	0.001	-0.003*	0.001	-0.045	0.037	0.020	0.054
Casual employees	-0.146*	0.018	0.127*	0.015	-0.827	1.051	3.601*	0.726
Self employed	-0.017	0.016	0.044*	0.015	6.054*	0.762	2.912*	0.983
Union member	0.013	0.016	0.026*	0.012	-0.438	0.564	0.206	0.775
<i>Attitudes:</i>								
Enjoy having a job	-0.012*	0.004	0.006*	0.003	0.297*	0.140	0.096	0.168
Couples share house work	-0.005	0.005	0.004	0.004	0.198	0.197	0.119	0.275
Attitude variables missing					4.440#	2.564	0.209	2.850
<i>Family characteristics:</i>								
Age youngest child: <1	-0.027	0.033	-0.010	0.022	0.342	1.061	0.591	1.322
Age youngest child: 1-2	-0.035	0.023	0.018	0.016	0.591	0.861	-0.198	1.179
Age youngest child: 3-4	-0.082*	0.026	0.004	0.019	1.085	1.250	0.696	1.371
Age youngest child: 5-12	-0.040*	0.018	0.003	0.012	0.070	0.624	-0.512	0.806
Age of youngest child: 13+	-0.049#	0.026	0.012	0.020	1.769	1.257	0.622	1.408
Have financial difficulty	-0.029#	0.016	0.058*	0.011	0.531	0.647	0.353	0.600
Financial variable missing					0.996	2.275	3.165	3.559
<i>Partner's characteristics:</i>								
Partner employed PT	-0.005	0.020	-0.031*	0.013	-1.428#	0.742	-0.576	0.951
Partner employed FT	-0.041*	0.020	-0.004	0.014	-0.484	0.833	0.315	1.026
Partner overemployed	0.120*	0.017	-0.007	0.011	1.276*	0.579	-1.409#	0.755
Partner underemployed	0.012	0.022	0.074*	0.017	-0.572	0.690	0.363	0.745
Constant					10.566*	2.379	7.998*	3.332
Pseudo R-squared	0.0884				0.1492		0.1352	
No. of observations	5089				1649		611	

Notes: 1. Marginal effects reported for the multinomial logit models and coefficients for the OLS regression models.

2. Robust standard errors used. “*” and “#” indicate significant at 5% and 10% level.

3. All estimations include occupation and industry dummies.

The Table 5 results also provide more clarification about the self-employment results discussed earlier. There it was concluded that the results suggest greater levels of overemployment among the self-employed, which seemed counter-intuitive given we would generally think that self-employed individuals have a relatively high degree of control over the amount of time they work. In fact, the multinomial logit model reveals no higher probability of being overemployed and a significantly higher probability of underemployment. This is much more in line with expectations given that while the self-employed can determine how many hours they will supply, they do not have complete control over how much their time will be in demand. Once we look at the extent of hours mismatch, however, we find that the gap between actual hours and preferred hours, be it in the direction of overemployment or underemployment, is much greater for the self-employed. It was this that obviously drove the result reported in Table 4.

In terms of partners' preferred and actual hours, we again find evidence that hours preferences are influenced by the extent to which partners achieve their hours preferences. Again, if your partner is overemployed, you are more likely to be overemployed, and if your partner is underemployed, you are more likely to be underemployed. An overemployed partner also means an increased mismatch between hours worked and hours desired for overemployed workers, but a reduced mismatch for underemployed worker. The presence of an underemployed partner, on the other hand, appears to exert no significant influence on the extent of hours mismatch.

We also estimated the multinomial logit equations for the subset of dual-earner couples, this time disaggregated by sex. The marginal effects are presented in Table 6.

Comparing the male and female results, it can be seen that the signs and significance of the marginal effect of most explanatory variables do not differ greatly, with the most pronounced differences occurring with respect to the age, age of youngest child and attitudes toward work variables.

Age, for example, appears to influence the probability of male overemployment but not underemployment, whereas the reverse is true for women. Prime age (35-44 years old) males have highest probability of overemployment, while females in this age group have the lowest probability of underemployment. As for age of youngest child, it is perhaps unsurprising that this set of variables has a much greater influence on the over- and underemployment status of females. Finally, we can see that attitudes to work only have a significant impact on the hours

preferences of women. Women who enjoy working are less likely to report being overemployed and more likely to report being underemployed; in a nutshell, they prefer to work more hours. In contrast, there is no relationship between our work attitudes variable and hours preferences among men. This possibly reflects traditional sex roles within the household; men expected, and are expected, to be the primary income earner, and as a result, more intrinsic aspects of employment have relatively less bearing on how many hours they would like to work.

6. Conclusion

Using self-reported data, this paper has provided a statistical overview of the working time preferences of Australian workers, and more specifically, of those who live in couple relationships.

The individual-based analysis showed that while almost two-thirds of the employed sample was working hours that were identical or reasonably close to their stated preferences, the distribution of the differences between preferred and actual working hours contained sizeable tails. Such data thus suggest the presence of a time divide wherein many people work part-time hours but would prefer to work longer co-exist with other people working very long hours who would prefer to work fewer hours. Further, despite the ability of couples to effectively pool labour supply, we found no evidence to suggest that individuals in couple households are less susceptible to this ‘divide’. They were, however, relatively more likely to report actual hours in excess of their preferences rather than the reverse.

The next stage of the analysis focused on identifying the factors associated with mismatch in working hours preferences. The extent of overemployment, for example, was found to rise with age, and was more pronounced among the self-employed and less pronounced among those with a recent history of unemployment. Underemployment, on the other hand, was also associated positively with self-employment, as well as with casual employment. Perhaps of most interest, we found that in couple households, preferred hours are influenced by whether or not, and the extent to which, partners achieve their working time preferences. That is, if one member of the couple is unable to work as many hours as desired, this leads their partner to prefer more hours.

With further waves of data from the HILDA now available, future research will be better placed to quantify the importance of individual and household level factors in explaining the tension between actual and preferred hours of work. However, we suspect that unless firm-

level data can be incorporated into these data then progress in our understanding is likely to be limited. The main constraints on workers achieving their working hours preferences must surely lie on the demand-side, implying that substantive progress is unlikely without data sets which link employee data to firm-level data. Unfortunately, Australia is not well-served by this type of data collection.

Table 6: Explaining the probability and extent of over- and under employment for individuals in dual-earner families, by sex

	<i>Males</i>				<i>Females</i>			
	<i>Overemployment</i>		<i>Underemployment</i>		<i>Overemployment</i>		<i>Underemployment</i>	
	<i>Mar eff</i>	<i>Std err</i>	<i>Mar eff</i>	<i>Std err</i>	<i>Coeff.</i>	<i>Std err</i>	<i>Coeff.</i>	<i>Std err</i>
<i>Demographic characteristics:</i>								
Age 16-25	0.070	0.077	0.065	0.063	0.051	0.054	-0.103*	0.022
Age 26-35	0.170*	0.076	0.030	0.054	0.044	0.053	-0.079*	0.028
Age 36-45	0.199*	0.076	0.010	0.057	0.081	0.056	-0.114*	0.022
Age 46-55	0.098	0.081	0.014	0.064	0.029	0.064	-0.090*	0.021
Has a degree	0.064	0.041	-0.012	0.023	0.048	0.034	0.001	0.025
Has a certificate	-0.018	0.030	0.009	0.018	0.016	0.027	-0.009	0.017
Completed Year 12	0.028	0.046	-0.054*	0.018	0.074#	0.040	-0.055*	0.019
ESC	-0.058#	0.030	-0.026	0.019	0.005	0.034	0.011	0.024
NESC	-0.100*	0.031	0.029	0.020	-0.030	0.033	0.043#	0.025
ATSI	-0.046	0.147	0.067	0.103	-0.023	0.113	0.046	0.074
<i>Labour market experience and job characteristics:</i>								
Prop time on UE	0.169	0.210	0.177*	0.072	-0.157	0.255	0.219*	0.085
Prop time NILF	-0.261	0.310	0.190*	0.077	-0.088	0.087	-0.060	0.045
Tenure current employer	0.000	0.001	-0.003*	0.001	0.001	0.002	-0.002#	0.001
Casual employees	-0.095*	0.038	0.087*	0.031	-0.178*	0.022	0.166*	0.024
Self employed	0.030	0.026	0.012	0.016	-0.056*	0.029	0.076*	0.027
Union member	0.041#	0.024	0.028#	0.016	-0.019	0.024	0.044*	0.020
<i>Attitude:</i>								
Enjoy having a job	-0.006	0.006	0.002	0.004	-0.018*	0.006	0.021*	0.005
Couples share house work	-0.008	0.008	0.000	0.005	0.007	0.008	0.006	0.007
<i>Family characteristics</i>								
Age youngest child: <1	-0.078	0.070	0.063	0.048	0.008	0.062	0.019	0.052
Age youngest child: 1-2	0.003	0.041	0.011	0.024	-0.096*	0.032	0.061#	0.032
Age youngest child: 3-4	-0.037	0.046	-0.010	0.029	-0.095*	0.040	0.011	0.033
Age youngest child: 5-12	-0.017	0.030	-0.007	0.018	-0.080*	0.027	0.022	0.023
Age of youngest child: 13+	-0.082*	0.038	0.020	0.029	-0.006	0.038	0.004	0.032
Have financial difficulty	-0.040#	0.024	0.050*	0.017	-0.003	0.024	0.057*	0.018
<i>Partner's characteristics:</i>								
Partner employed FT	-0.032	0.025	0.038*	0.016	0.012	0.038	0.009	0.023
Partner overemployed	0.141*	0.026	-0.018	0.015	0.110*	0.022	0.002	0.016
Partner underemployed	-0.002	0.035	0.077*	0.025	0.005	0.040	0.085*	0.031
Pseudo R squared	0.0973				0.1301			
No. of observations	2059				2064			

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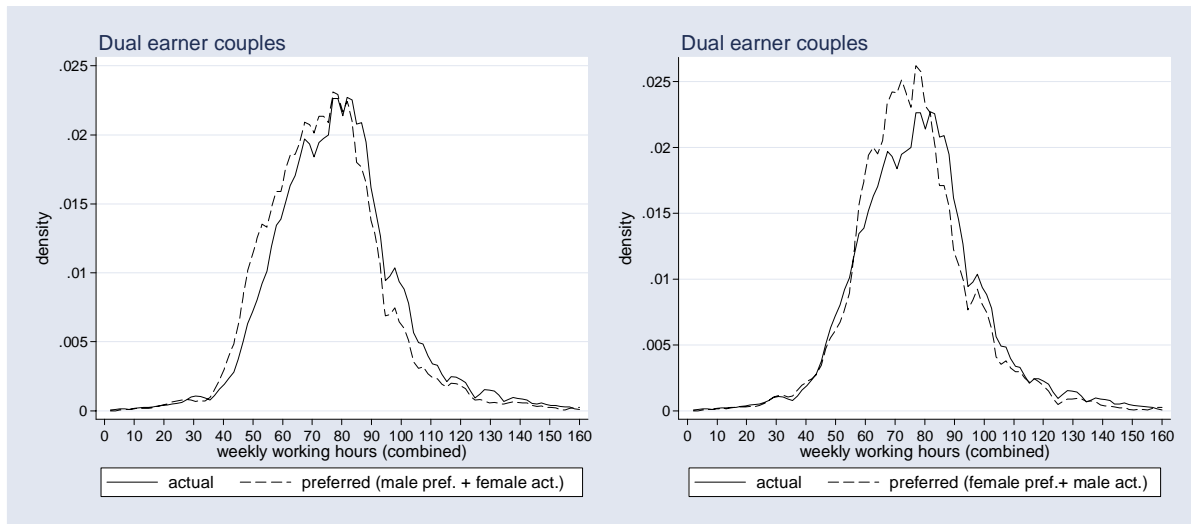
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Appendix

Table A1: Description of Variables

<i>Variable names</i>	<i>Definition of variables</i>
Demographic characteristics	
Male	Sex dummy. Male=1, female=0.
Age 16-25, Age 26-35, Age 36-45, Age 46-55	Age dummies. Omitted = age 55-64.
Has a degree Has a certificate Completed year 12	Highest education level dummy variables. Omitted = did not complete year 12.
ESC NESC	Country of birth dummy variables. ESC = main English speaking countries; NESC=Non English speaking countries; Omitted = Australian born.
Have ENG problem	1 = speaks English poorly or does not speak English at all; 0=others. Based on information provided by the household reference person.
ATSI	1 = Aboriginal or Torres Strait Islander, 0=other.
Labour market experience and job characteristics	
Prop time on UE	Proportion of time unemployed in the past 12 months (maximum=1).
Prop time NILF	Proportion of time not in labour force in the past 12 months (maximum=1).
Job tenure	Duration of employment (years) with current employers
Casual employee	Casual employee = 1; other = 0. Employment status self-determined.
Self-employed	Self employed = 1; Wage and salary earner = 0.
Union member	Union member = 1; Non-union member = 0.
Attitudes	
Enjoy having a job	Single item scored on a 1 to 7 agree / disagree scale. “I would enjoy having a job even if didn’t need the money.”
Share house work	Single item scored on a 1 to 7 scale. “If both partners in a couple work, they should share equally in the housework and care of children.”
Family characteristics	
Age youngest child: <1, Age youngest child: 1-2, Age youngest child: 3-4, Age youngest child: 5-12, Age youngest child: 13+	Age of youngest child dummy variables. Omitted = have no child.
Have financial difficulty	Equals 1 if respondent described he and his family as “poor” or “very poor”, and 0 if otherwise. Based on responses to item: “Given your current needs and financial responsibilities, would you say that you and your family are ...”.
Partner’s characteristics	
Partner employed PT, Partner employed FT	Married or de facto and partner working part-time. Married or de facto and partner working full-time. Omitted = Partner not employed.
Partner overemployed. Partner underemployed.	Actual hours of partners exceeds their preferred hours. Preferred hours of partner exceeds their actual hours. Omitted = actual hours of partner equal to preferred hours.

Figure A1: Distribution of actual and preferred working hours (couple combined)



Note: In left panel, the preferred hour of a couple is defined as the sum of the husband's preferred hour and the wife's actual working hour. In the right panel, a couple's preferred hour is the sum of the husband's actual hours and the wife's preferred hour.