

Work-Life Balance and Time Use: Lessons from Thailand

The multiple responsibilities faced by married women in Thailand have made work-life balance an important issue for policymakers, as long work hours and lack of time for socializing and leisure can lead to a deterioration of health and well-being. Using the merged 2009 Thailand Labour Force Survey and National Time Use Survey data, the paper examines work-life balance situations by analyzing the determinants of unpaid work, market work and leisure time among 12,437 married individuals aged 25 to 60 years old. Rural women cope with tensions between their market work and household tasks by reducing their leisure time. Urban women manage their care responsibilities by reducing their time spent on market work. Although both women and men confront tensions between household and market work and between work and leisure, the tensions are likely to be more intense for women, affecting their participation in the labour market as well as their ability to achieve a healthy work-life balance. Some policy options to address this issue conclude this paper.

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Introduction

The growth of women's labour force participation in recent decades in Thailand has created a significant challenge for women to achieve a healthy balance between market and household work and other important aspects of life, such as socializing and leisure. While both men and women face trade-offs between work and leisure time, women have the added burden of domestic and care work responsibilities. The challenge of achieving a healthy work-life balance has brought increasing attention to the amount of household and market work that they do, which is linked to socially ascribed gender roles and the resulting division of household labour.

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A better understanding of how married men and women allocate their time can give insight into their ability to achieve a healthy work-life balance. Such information is vital for the design and implementation of social and employment policies that address the heavy burden of unpaid work faced by women and help promote their access to decent employment. To date, empirical studies on the time allocation of men and women in Thailand remain scarce making it difficult for policymakers to tackle the issue. This paper addresses this gap by answering the following questions: What determines the amount of time Thai women and men spend on market work and unpaid household work? Relatedly, what factors affect the amount of social and leisure time spent by women and men? This paper also takes into account differences in the experiences of women and men living in rural and urban areas.

Background³

Amongst developing countries Thailand has one of the highest labour force participation (LFP) rates of women and men. The female LFP rate in 1980 was close to 80 per cent while the male rate was slightly below 90 per cent. The female LFP rate remained above 60 per cent until 2012 (World Bank, 2015). Alongside the moderate to high economic growth experienced by Thailand, improvement in women's education, women's representation in parliament and efforts by the Government of Thailand to promote gender equality have contributed to the integration of women into the labour market.³

Since the ratifications of Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) in 1985, the Beijing Platform for Action in 1995 and the Millennium Development Goals in 2000, the Government of Thailand has prioritised the promotion of gender equality in its national and local policies. The country has made concerted efforts to incorporate international standards and best practices on gender equality into its policies and legal framework. For example, the country has implemented a total of eleven short-term (5-year) and two long-term (20-year) women's development plans that outline the national policies on gender equality. More recently, the Women's Development Plan (2012-2016) was implemented to improve women's social status and enhance their ability to participate in local, regional and national decision-making processes (OWAFD, 2009). In terms of labour policies, Thailand adopted the Labour Protection Act (No. 3) of 2008 to provide better protection to and eliminate discrimination against women and children. In 2012, the Government of Thailand approved paid paternity leave for up to 15 days for government officials (OWAFD, 2009). In 2015, the Government of Thailand approved 600 million Thai Baht (approximately 20 million USD) for the implementation of an Unconditional Child Support Grant scheme, which

3 The proportion of seats held by women in national parliament in 2013 was 15.8 per cent, which was a 6.6 percentage point increase from that in 2001 (World Bank, 2015). In terms of education, females' average years of schooling has increased by 3.6 years from 3.5 years in 1990 to 7.1 years in 2010 (UN Women, 2015).

provides regular cash payments of 400 Thai Baht (approximately 11 USD) per child to caregivers of children under the age of two living in poor households. This scheme is expected to cover a total of 135,000 children born from October 2015 to September 2016 (UNICEF, 2015).

Despite these significant efforts to promote gender equality, recent economic and demographic trends have brought to the fore the issue of work-life balance for women. First, labour force participation rates for women have steadily declined in the last 25 years since 1988, reaching 62.9 per cent in 2012 (World Bank, 2015). Population projections suggest that the share of working-age and youth populations will decrease by 4.5 per cent and 11.1 per cent respectively by 2030 (ILO, 2013). The ratio of the population aged 65 and above to total population is projected to rise from 9.4 per cent in 2010 to almost 25 per cent in 2030 (ILO, 2013). Based on these projections, the Thai economy needs to prepare itself for increased demand for caregiving. Both the increasing gender gap in labour market trends and the expected demand for care for older persons have brought attention to the time constraints faced by women.

The definition of work-life balance can vary depending on the context and socioeconomic setting. In the case of Thailand, work-life balance refers to one's ability to allocate a sufficient amount of time for spending with family, friends, attending community, religious and social occasions and for one's hobbies and leisure. The extent to which women can maintain a healthy work-life balance is conditioned to a large extent by the existing social norms and prevailing gender role expectations. Within the Thai household, family members have broadly defined duties based in part on their sex and in part on their age. These socially ascribed roles have been enforced by centuries-old religious, political and social structures. Religion has an important influence on gender relations and roles in Thai society. It has been used, by some, to justify both culturally and politically, not only the status quo, but also the ideology of female subordination (Tantiwiramanond and Pandey, 1987). Its interpretation and practices—through formal laws, kinship system, and cultural practices—has frequently given social status and value to sons over daughters and influenced childhood upbringing, with sons usually excused from domestic tasks while daughters are expected to perform household duties (Tantiwiramanond and Pandey, 1987).

In today's Thai society, men are still expected to assume authority and leadership roles both in the workplace and at home. Regardless of whether or not they are employed, women are obligated to perform housework, including cooking, bringing up children and keeping the family healthy. Socially, the 'worth' of a woman is often evaluated by her ability to perform housework. A wife who neglects her household responsibilities is considered to be 'lazy or bad' (Hirai, 2002). As a result, Thai women's identities are strongly related to their abilities to perform housework, despite the fact that the majority of them are engaged in market work.

An assessment of the division of unpaid domestic and care work and market work can provide insights into how social, economic and demographic factors influence the time allocation of women and men and their ability to

attain a healthy work-life balance. These abilities are affected by a person's socioeconomic and demographic characteristics, which include sex, wages, lifecycle stage, education and number of children and older persons in the household.

A person's hourly wages, along with his or her spouse's hourly wages, can influence time allocation via two pathways. Firstly, an increase in the person's hourly wages (or the opportunity cost of not working) induces the person to allocate more time towards market work and less time on leisure and household work activities. This "substitution effect" may influence the spouse to contribute more of his or her time on performing household and care work and thereby reduce his or her time on market work. Second, an increase in hourly wage raises one's purchasing power, enabling them to buy labour-saving services and goods, such as a washing machine or hiring domestic help. Through this "income effect," the person is able to allocate more time towards socializing, family and leisure and less time towards household and market work.

As individuals progress through the life cycle, they experience different levels of household work along with leisure time, with major changes occurring during especially for women during child bearing years. Educational attainment influences one's labour supply and occupation but also time spent in household management and care activities such as being more involved in children's school-related activities. Household composition, particularly the number of children, also influences the amount of time spent in domestic and care work, and therefore available time for market work and for social/leisure activities. On one hand, the number of young children increases care work; on the other hand, older children and elderly members can help in doing household chores. The analysis of the impact of these factors on the allocation of time can deepen our understanding of the work-life balance situations faced by women and men.

Data description

The analysis makes use of the combined 2009 Labour Force Survey (LFS) and Time Use Survey (TUS) datasets collected by the National Statistical Office of Thailand from 76 strata (75 provinces and Bangkok Metropolitan Area) between July 2009 and September 2009. The 2009 LFS contains information on work status, occupation, industry, weekly hours of work, average monthly earnings of employees, education and other labour force characteristics. The TUS includes information on the activities each respondent engages in on a weekday or a weekend and how much time is spent performing each activity. These activities are recorded in a 24-hour diary divided into ten-minute slots. Each TUS respondent is also required to provide basic demographic information about themselves for example, their age, gender, education level, religion and marital status.

The sample in the LFS was selected using the stratified two stage sampling method while the TUS followed a stratified three stage sampling method. In the first stage, 5,976 enumerated areas (EAs) were randomly chosen from

each province based on probability sampling. Information on the EAs and the list of EAs were obtained from the 2000 Thai Population and Housing Census. Among the selected EAs, 3,336 EAs were from the municipal or urban areas while the remaining 2,640 EAs were drawn from the non-municipal or rural areas for both surveys (NSO, 2009).

In stage two of both the LFS and TUS, 79,560 households in total were selected from each EA using the systematic sampling method, which sorted households by sizes and earnings. Among these chosen households, 50,040 households were from municipal areas, and 29,520 were from non-municipal areas for both the LFS and TUS. At this stage, every household member from each selected household was interviewed for the LFS (NSO, 2009).

In the third stage, one household member who was at least 10 years old was chosen to be interviewed for the TUS from each household using simple random sampling. The chosen respondent was interviewed for the TUS after his or her LFS interview was completed on the same day. A table of random numbers was used to randomly select a day for the TUS respondent from each household to complete his/her 24-hour time diary (NSO, 2009).

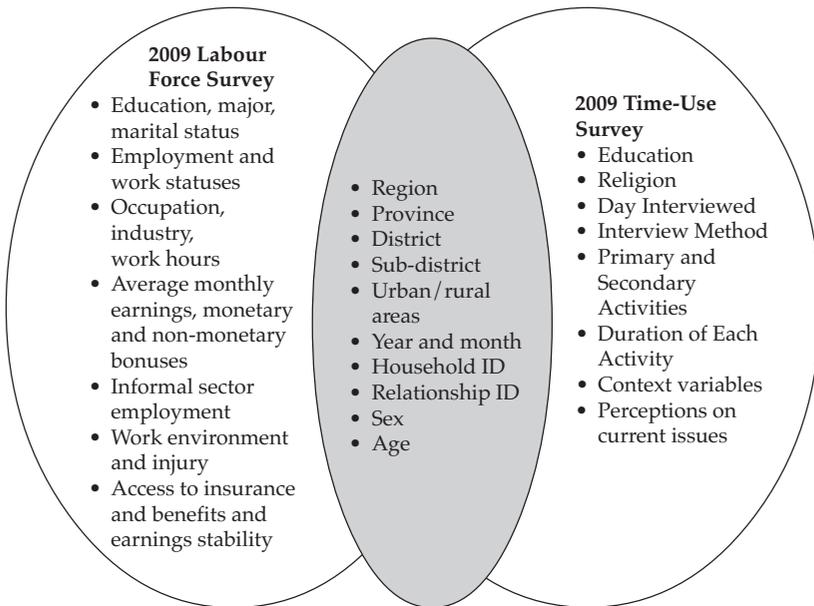
A unique feature of the 2009 TUS data is that they were collected from the same households as the 2009 LFS; both datasets have identical household identification numbers. This enables the merging of both surveys shown in figure 1. The TUS sample involves 65,044 households while the LFS involves 65,499 households. Individual-level weights⁴ are then used to adjust the TUS and LFS to take into account the 9,430 observations dropped in the data merging. Hence, the combined 2009 TUS and LFS dataset is representative of the population, after adjustment. The resulting total sample consists of 181,736 individuals from 56,069 households.

The advantage of combining the LFS and TUS datasets is clear. They provide more comprehensive information on the country's labour force, employment and earnings that they could not capture alone. The merged dataset includes not only work-related statistics, but also the amount of time that the respondent spent on a variety of economic and non-economic activities in the formal, informal and domestic sectors throughout a day.

The study focuses on 12,437 married individuals between 25 to 60-years-old who were interviewed for the TUS during a typical weekday. Due to poor collection of secondary activity time the analysis focuses on primary activities only. This is a limitation of the study as individuals who find it difficult to attain a healthy work-life balance are likely prone to multi-tasking.

4 See Appendix A for detailed discussion on how the weights were adjusted.

Figure 1 Variables used to merge the labour force survey and time use survey datasets



Descriptive statistics

Table 1 presents the household and individual characteristics of the sub-sample data. About 87.2 per cent of the households have at least one dependent, 23.7 per cent have young children (0-5 years old) and 5.4 per cent have members aged 61 or above. The majority of these households (57.3 per cent) live in urban areas while 42.7 per cent live in rural areas. About 39 per cent of the respondents have not completed a sixth grade or elementary school education, and more men (30.9 per cent) have at least a high school diploma compared to women (28.1 per cent). Even though the majority (more than 80 per cent) of these individuals are employed, 68 per cent of women and 58 per cent of men earn less than 10,000 Thai Baht (approximately 291.63 USD) per month on average.

Table 2 presents the time use patterns of women and men in primary activities. Both women and men in the sample have relatively high participation rates and average time spent on labour market work, but men engage in labour market activities to a greater extent than women (80.1 per cent and 96.2 per cent respectively). Participating women spend an average of 420.4 minutes per day in the labour market, compared to 457.6 minutes per day for participating men. On the other hand, nearly all (95.6 per cent) women perform household and care activities compared to only 47.3 per cent of men, with women spending more than double the time of men in these unpaid work activities. Men allocate slightly more time to leisure and

Table 1 Selected characteristics of households and individuals, Thailand, combined labour force survey and time use survey, 2009

| <i>Household characteristics</i> | <i>Number of households</i> | | <i>Percentage of total</i> | |
|---|-----------------------------|-------------------|----------------------------|-------------------|
| Household composition: | | | | |
| Households with children 0-5 years old | 2 944 | | 23.67 | |
| Households with children 6-11 years old | 3 575 | | 28.74 | |
| Households with children 12-17 years old | 3 451 | | 27.75 | |
| Household with older persons (61 and above) | 665 | | 5.35 | |
| Average household size | 3 | | | |
| Average dependency ratio ¹ | 0.5 | | | |
| Rural-urban location² | | | | |
| Urban | 7 127 | | 57.3 | |
| Rural | 5 310 | | 42.7 | |
| Total | 12 437 | | 100 | |
| | | | <i>Men</i> | |
| | | | <i>Women</i> | |
| <i>Individual characteristics</i> | <i>No. of persons</i> | <i>% of total</i> | <i>No. of persons</i> | <i>% of total</i> |
| Highest educational attainment: | | | | |
| Completion of 4-year degree or higher | 879 | 13.37 | 769 | 13.11 |
| Completion of 2-year degree | 241 | 3.67 | 311 | 5.3 |
| High school diploma | 729 | 11.09 | 734 | 12.52 |
| Completion of 9 th grade | 711 | 10.82 | 698 | 11.9 |
| Completion of 6 th grade | 1 432 | 21.79 | 1 116 | 19.03 |
| Completion of 5 th grade or lower | 2 581 | 39.27 | 2 236 | 38.13 |
| Monthly average wages³ (Thai Baht): | | | | |
| B0-B9999 | 1 324 | 67.69 | 1 384 | 58.32 |
| B10,000-B19,999 | 268 | 13.7 | 461 | 19.43 |
| B20,000-B29,999 | 210 | 10.73 | 262 | 11.05 |
| B30,000-B39,999 | 128 | 6.54 | 191 | 8.05 |
| B40,000 or above | 26 | 1.34 | 75 | 3.15 |
| Employment status⁴: | | | | |
| Not in the labour force | 1 258 | 19.14 | 146 | 2.49 |
| Unemployed | 15 | 0.23 | 17 | 0.29 |
| Employed | 5 300 | 80.63 | 5 701 | 97.22 |
| Total | 6 573 | 100 | 5 864 | 100 |

Notes: ¹ Dependency ratio is the number of individuals below the age of 17 and above 61 divided by those aged 18-60.

² An urban area has a gross income of at least 5 million Baht and a population of at least 5,000 with a minimum density of 1,500 per km². Otherwise, it is a rural area.

³ Gross monthly wages employees only. 1 USD is equal to 34.29 Baht in 2009.

⁴ Full-time is 35 or more hours per week. Part-time refers to those who work less than 35 hours per week. Underemployed is an individual who would like and is able to spend a greater amount of time in paid employment.

Table 2 Participation rates and average time spent on major activities of sampled respondents (N = 12,437)

| <i>Primary activities</i> ¹ | <i>Women</i> | | <i>Men</i> | |
|---|--|--|---|---|
| | <i>Participation rate</i> ² (per cent) | <i>Conditional mean time</i> ³ (min per day) | <i>Participation rate</i> (per cent) | <i>Conditional mean time</i> (min per day) |
| Labour market work ⁴ | 80.09 | 420.38 *** | 96.21 | 457.64 *** |
| Job search/setting up business | 0.12 | 115.71 | 0.15 | 250.53 |
| Travel related to work | 61.46 | 63.96 *** | 83.16 | 73.08 *** |
| Household (domestic and care) work | 95.6 | 235.20 *** | 47.23 | 105.07 *** |
| Domestic work ⁵ | 94.91 | 179.30 *** | 36.97 | 81.04 *** |
| Care of dependents ⁶ | 32.34 | 151.14 *** | 17.51 | 86.34 *** |
| Volunteer work ⁷ | 3.01 | 192.73 | 2.11 | 215.14 |
| Socializing, community participation and religious practice | 41.53 | 73.15 *** | 48.92 | 77.25 *** |
| Leisure and sports | 89.45 | 150.40 *** | 91.62 | 159.05 *** |
| Self-care and maintenance | 100 | 673.70 *** | 100 | 705.19 *** |

- Note:*
- ¹ Thailand's classifications of TUS activities follow the ICATUS 2012's activity classifications.
 - ² Percentage of individuals who have performed at least 10 minutes of each activity in the 24 hour period.
 - ³ The mean time spent by individuals who performed at least 10 minutes of the activity in the 24 hour period. It is the mean time conditional on participation.
 - ⁴ Labour market activities are work for corporations, non-profit, institution and government; household unincorporated primary, non-primary and construction enterprises; and work for household providing services for income.
 - ⁵ Domestic work includes food preparation and cooking, care of textiles and footwear, pet care, shopping, clothes care and other housework, and home maintenance, household management, transporting adult household members, and travel associated with any of the these activities.
 - ⁶ Care to adults and children includes physical care and minding of own and other children, care to dependent adults, help to non-dependent adults, travel related to unpaid care giving services to household members and other activities related to unpaid care giving services to household members.
 - ⁷ Volunteer work refers to unpaid community work including involvement in civic and related responsibilities.

sports, as well as socializing and community participation and religious activities, than women. They also spend more time on self-care and sleep than women (705.2 versus 673.7 minutes per day respectively). These results indicate longer working hours for women compared to men, and a lesser ability to maintain a healthy work-life balance.

Methodology

In this analysis, we examine the factors influencing the time spent in labour market activities, domestic and care work (referred to as household work) activities, and social and leisure activities. The last category is defined as the total time an individual spends on socializing, community participation, religious participation, leisure and sports. Since an individual's time spent on labour market work activities is highly correlated with the time spent on household work and leisure activities, a crucial concern in conducting separate analyses is the correlation among the error terms of the separate equations. Moreover, the presence of zero values for labour market work and household activities' time yields biased estimates when the left-censored values are not taken into account.

Taking these characteristics into account, the basic regression model for each activity category is specified as follows:

$$\begin{aligned} t_{j\text{HHOLD}}^* &= X_{i\text{HHOLD}}\beta_{\text{HHOLD}} + \varepsilon_{j\text{HHOLD}} \\ t_{j\text{MARKET}}^* &= X_{i\text{MARKET}}\beta_{\text{MARKET}} + \varepsilon_{j\text{MARKET}} \\ t_{i\text{LEISURE}}^* &= X_{i\text{LEISURE}}\beta_{\text{LEISURE}} + \varepsilon_{j\text{LEISURE}} \end{aligned} \quad (1a)$$

$$\begin{aligned} t_{jk} &= 0 \text{ if } t_{ik}^* \leq 0 \\ t_{jk} &= 0 \text{ if } t_{ik}^* > 0 \end{aligned} \quad (1b)$$

where t_{ik}^* is the latent total amount of minutes per day spent on activity k (market work, household work, or leisure) by each employed individual i during the weekdays. X_{ik} are vectors of individual and household characteristics including those that may likely influence time allocation such as their predicted hourly wages (in log form)⁵, the spouse's predicted hourly wages (log form), life cycle stage (age and age squared), educational attainment (education levels) and household composition. The latter includes the number of children aged between 0 and 5 years of age, 6 and 11 years of age, and 12 and 17 years of age, and the number of older persons aged 61 years or above. Region dummies are used as location fixed effects. β_k is a vector of unknown parameters to be estimated and ε_{jk} represents the error terms. Equation 1b indicates that the actual observed minutes t_{jk} will equal its latent variable if the latent variable is positive. If it is unobserved, it will be equal to zero.

To address the problems of left-censoring and cross-equation error correlations, the study employs a multi-equation and mixed-method approach⁶ for estimating equation 1a. In other words, it first estimates the predicted hourly wage and then in the second stage, it uses a Tobit model,

5 Appendix B details the two-step Heckman procedure and instrumental variable procedure used for estimating the predicted hourly wages and testing their exogeneity. See Appendix C for estimation results.

6 See David Roodman, "Fitting fully observed recursive mixed-process models with cmp". *The Stata Journal*, vol. 11, No. 2 (2011).

which allows for limited dependent variables (Wooldridge, 2009). The study then corrects the error term correlations by using a Seemingly Unrelated Regressions approach to estimate the Tobit equations jointly as a system and models their underlying disturbances as jointly normally distributed (Wooldridge, 2009; Roodman, 2011).

A pooled regression (a binary regression where a binary gender variable is used) may not be suitable in assessing the determinants of time allocation of men and women. Such a model assumes that the set of covariates have identical effects on women and men implying that gender only has an intercept effect that remains the same regardless of the values taken by other covariates that determine time use. Given that Thailand has strong patriarchal gender norms that shape social expectations about roles, it is likely that the set of individual and household characteristics have different effects on women and men. The result of a likelihood ratio test confirms this and thus, separate models for women and men are estimated.

In addition, since the data contains both husbands and wives error terms are not independent across individuals. This results in biased standard errors. This analysis hence, obtains consistent and unbiased estimates of the error terms by estimating robust standard errors in all cases.

Results

Tables 3 and 4 present the regression estimates for household work and market work by gender for rural and urban areas respectively, while Table 5 presents estimates for leisure by gender for rural and urban areas. Table 3 results indicate that in the rural areas, the predicted hourly wage of women (log) decreases their household work time but has no significant effect on their labour market time. Higher predicted hourly wage of men, on the other hand, reduces their time in labour market work, indicating an income effect that is consistent with the findings of other studies.⁷ As their spouses' predicted earnings increase, both women and men do more household work, though the magnitude of the effect is greater for women. This suggests that the household division of labour may be influenced by the spouse's bargaining position. However, cultural norms that assign women as household managers provide strong incentive for women to substitute their market work time for unpaid work, as their husbands' wages increase.

Age is another strong predictor of time allocation; rural women and men shift their time more towards labour market work as they progress through their life cycle, although this occurs at a decreasing rate. Having multiple jobs increases rural men's time in market work significantly but not for women.

In terms of education, having a Bachelor's degree or higher increases rural women and men's time spent in the labour market by 105 and 142 minutes respectively compared to those without any education (base dummy).

⁷ See Heckman (1974).

Table 3 Results of the determinants of household and market work by gender for rural areas

| <i>Variables</i> | <i>Women</i> | | <i>Men</i> | |
|----------------------------------|-----------------------|--------------------|-----------------------|--------------------|
| | <i>Household work</i> | <i>Market work</i> | <i>Household work</i> | <i>Market work</i> |
| Own predicted hrly wage (log) | -28.95 * | -21.10 | 21.85 | -64.37 *** |
| | (-17.5) | (-25.64) | (-16.16) | (-17.52) |
| Spouse predicted hrly wage (log) | 51.52 *** | -47.32 ** | 31.32 ** | -13.34 |
| | (-15.82) | (-21.28) | (-12.25) | (-12.99) |
| Age | -9.864 ** | 15.52 ** | 0.36 | 9.900 * |
| | (-4.377) | (-6.52) | (-4.352) | (-6.018) |
| Age squared | 0.123 ** | -0.200 *** | -0.01 | -0.121 * |
| | (-0.0515) | (-0.0769) | (-0.0483) | (-0.0652) |
| Multiple job dummy | 4.41 | -2.20 | -9.13 | 43.92 *** |
| | (-13.19) | (-23.66) | (-11.16) | (-11.96) |
| Completed 4-yr degree or higher | -12.61 | 105.0 *** | -32.46 | 141.8 *** |
| | (-28.65) | (-39.1) | (-26.5) | (-28.49) |
| Completed 2-yr degree | 38.40 | -2.34 | -39.67 | 76.21 ** |
| | (-35.34) | (-56.38) | (-25.78) | (-29.92) |
| Completed high school | 27.01 | -20.58 | -15.65 | 41.09 ** |
| | (-18.45) | (-29.15) | (-17.1) | (-18.18) |
| Completed 9 th grade | -10.90 | 45.52 * | 14.47 | 30.66 |
| | (-15.21) | (-23.82) | (-17.27) | (-19.45) |
| Completed 6 th grade | 17.66 * | -20.74 | -4.09 | -4.24 |
| | (-10.61) | (-16.89) | (-11.45) | (-12.58) |
| No. children 0-5 y/o | 47.78 *** | -17.42 | 46.36 *** | -21.88 ** |
| | (-10.76) | (-16.05) | (-8.972) | (-9.258) |
| No. children 6-11 y/o | 21.11 *** | 0.91 | 23.49 *** | -8.99 |
| | (-8.124) | (-12.72) | (-7.22) | (-7.965) |
| No. daughters 12-17 y/o | -6.33 | 6.84 | -9.80 | -2.88 |
| | (-4.811) | (-7.693) | (-5.966) | (-6.104) |
| No. sons 12-17 y/o | 2.62 | -10.94 | -18.15 *** | -2.73 |
| | (-5.461) | (-9.429) | (-5.316) | (-5.454) |
| No. adults 61 and up | 10.03 | -24.63 | -21.30 | 7.58 |
| | (-18.72) | (-25.34) | (-13.59) | (-17.27) |
| Constant | 671.0 *** | -1.044 *** | -91.43 | 356.30 |
| | (-132.8) | (-139.5) | (-147.8) | (-243.2) |
| Location fixed effects | Yes | Yes | Yes | Yes |
| Observations | 2 282 | 2 282 | 2 524 | 2 524 |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 4 Results of determinants of household and market work by gender for urban areas

| <i>Variables</i> | <i>Women</i> | | <i>Men</i> | |
|------------------------------------|-----------------------|-----------------------|-----------------------|----------------------|
| | <i>Household work</i> | <i>Market work</i> | <i>Household work</i> | <i>Market work</i> |
| Own predicted hourly wage (log) | 18.49 (-15.91) | -85.17*** (-28.28) | 2.79 (-13.3) | -47.38*** (-16.0) |
| Spouse predicted hourly wage (log) | 1.26 (-6.919) | -7.30 (-13.51) | 10.89 (-10.00) | -17.69 (-11.87) |
| Age | 2.51 (-4.337) | 0.72 (-7.424) | 3.89 (-4.034) | 2.80 (-4.813) |
| Age squared | -0.03 (-0.0506) | 0.02 (-0.0894) | -0.04 (-0.0465) | -0.05 (-0.0547) |
| Multiple job dummy | 22.19 (-19.63) | 10.95 (-33.29) | 14.99 (-13.73) | 48.98** (-24.27) |
| Completed 4-yr degree or higher | -43.13 (-28.49) | 164.2*** (-48.53) | 17.36 (-20.65) | 53.45** (-24.45) |
| Completed 2-yr degree | -16.83 (-25.87) | 62.88 (-54.02) | 18.12 (-18.03) | 27.63 (-20.78) |
| Completed high school | -9.79 (-17.11) | 83.98*** (-31.33) | 26.94* (-14.45) | -1.55 (-18.06) |
| Completed 9 th grade | -10.19 (-14.75) | 33.03 (-30.6) | 4.04 (-13.99) | 17.22 (-18.05) |
| Completed 6 th grade | -2.71 (-12.74) | 35.50 (-22.99) | -0.21 (-13.08) | 0.06 (-16.06) |
| No. children 0-5 y/o | 81.91*** (-10.67) | -63.82*** (-18.29) | 39.04*** (-8.308) | -10.22 (-10.12) |
| No. children 6-11 y/o | 26.12*** (-6.773) | -28.10** (-13.96) | 21.22*** (-7.754) | 0.47 (-9.15) |
| No. daughters 12-17 y/o | -4.30 (-4.766) | 11.44 (-8.637) | 3.46 (-5.753) | -6.76 (-6.957) |
| No. sons 12-17 y/o | 6.51 (-4.89) | -7.13 (-9.27) | 0.96 (-5.349) | -4.13 (-7.397) |
| No. adults 61 and up | -26.01** (-13.05) | 31.18 (-21.63) | -18.81 (-17.59) | -3.72 (-18.51) |
| Constant | -2.62 (-105) | 771.1*** (-185.5) | -187.1* (-95.84) | 804.2*** (-115.4) |
| Location fixed effects | Yes | Yes | Yes | Yes |
| Observations | 3 026 | 3 026 | 3 181 | 3 181 |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Lower educational attainment does not have any significant labour supply effect among women but the increase in educational level (high school and up) yields a progressive increase in labour market time among rural men. The number of children, aged between 0 and 5 years and between 6 and 11 years, increases both rural women and men's household work time by about 47 minutes per day and it negatively affects men's time in market work. Having older sons however seems to decrease rural men's household work, indicating that they help their fathers by doing some of the male chores. Older household members aged 61 and above do not have a significant effect on the work performed by rural women and men.

Table 4 presents the regression results for urban married women and men. While the estimates for rural and urban areas share some similarities, there are several interesting differences. For instance, as hourly wages increase, both women and men spend less time on market work and the reduction is greater for women. This income effect seems to outweigh the substitution effect as evidenced by the non-significance of spousal earnings.

Interestingly, only household composition has a significant impact on urban women's household work time. The number of young children significantly increases the household work of urban women (81.9 minutes), more so than among rural women (47.8 minutes). The childcare effect on urban women is also greater compared to that on urban men (39.8 minutes). Children aged 6-11 years have similar effects in that they increase the household work of both urban women and men, though to a smaller degree. Children, aged between 0 and 5 years old and between 6 and 11 years old, also decrease urban women's time spent on market work by 63.8 and 28.1 minutes respectively. These results indicate that the need for childcare leads to a trade-off between market and household work among urban women, and an overall increase in the total work time for both urban women and men. Unlike in rural areas, adults aged 61 years and above seem to help with some domestic and care chores performed by women, thus reducing the latter's work by 26 minutes.

Education has a large and positive effect on urban women's labour market time. Urban woman who have completed high school and Bachelor degrees increased their labour market time by 84 and 164 minutes compared to those with no education. The size of this effect is also greater compared to the education effect on rural women. This may be explained by the fact that more labour market opportunities are available to women in urban areas.

Table 5 reports the estimates for leisure time of women and men in rural and urban areas. Consistent with the income effects shown in tables 3 and 4, the study finds that as wages increase, women and men allocate more time for leisure. In Thailand, higher earnings enable households to obtain domestic help and labour-saving durables that reduce the work burden especially among urban women. The education dummy variable coefficients indicate that rural and urban women and rural men who complete a four-year degree or higher spend significantly less time on non-work activities than those with less education. This and the results in tables 3 and 4 suggest that the high opportunity cost in terms of earned income compels educated women,

Table 5 Estimates of determinants of leisure time for rural and urban areas

| <i>Variables</i> | <i>Rural</i> | | <i>Urban</i> | |
|------------------------------------|------------------------|------------------------|------------------------|-----------------------|
| | <i>Women leisure</i> | <i>Men leisure</i> | <i>Women leisure</i> | <i>Men leisure</i> |
| Own predicted hourly wage (log) | 45.66 *** (-13.33) | 47.23 *** (-13.34) | 80.75 *** (-13.6) | 34.36 *** (-11.65) |
| Spouse predicted hourly wage (log) | 1.56 (-7.914) | 9.05 (-8.624) | 1.99 (-8.326) | 12.95 (-8.325) |
| Age | -1.12 (-3.326) | -2.41 (-5.389) | -6.06 (-4.067) | -1.49 (-3.5) |
| Age squared | 0.01 (-0.0397) | 0.02 (-0.0572) | 0.06 (-0.0484) | 0.03 (-0.0398) |
| Multiple job dummy | 0.97 (-10.99) | -25.89 *** (-7.607) | -22.60 (-14.91) | -14.26 (-12.31) |
| Completed 4-yr degree or higher | -68.25 *** (-20.35) | -48.76 ** (-21.84) | -112.6 *** (-25.89) | -21.10 (-18.03) |
| Completed 2-yr degree | -27.96 (-22.48) | -33.40 * (-19.99) | -45.99 (-31.02) | -13.62 (-15.69) |
| Completed high school | -6.48 (-14.31) | -7.02 (-13.89) | -48.14 *** (-16.37) | 0.42 (-13.18) |
| Completed 9 th grade | 0.98 (-11.54) | -9.30 (-13.42) | -11.86 (-16.8) | -1.73 (-11.08) |
| Completed 6 th grade | 1.09 (-8.704) | 3.95 (-9.016) | -17.16 (-12.64) | 11.92 (-11.53) |
| No. children 0-5 y/o | -22.48 *** (-7.579) | -7.01 (-7.646) | -12.92 (-8.054) | 1.20 (-7.461) |
| No. children 6-11 y/o | -17.88 *** (-6.287) | -14.14 ** (-5.805) | -4.62 (-7.503) | -0.98 (-6.862) |
| No. daughters 12-17 y/o | -2.70 (-4.675) | -2.20 (-3.953) | 1.94 (-4.814) | 2.13 (-5.366) |
| No. sons 12-17 y/o | 7.51 (-4.767) | 5.91 (-5.194) | 0.29 (-5.258) | -0.52 (-5.166) |
| No. adults 61 and up | 7.84 (-9.496) | -10.72 (-13.25) | -6.27 (-10.65) | 3.43 (-13.92) |
| Constant | -70.17 (-97.15) | 158.00 (-161.8) | -3.44 (-96.6) | -17.84 (-81.8) |
| Location fixed effects | Yes | Yes | Yes | Yes |
| Observations | 2 282 | 2 524 | 3 026 | 3 181 |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

especially in urban areas, and men to spend less time on socializing, community participation and leisure. Children aged between 0 and 5 years old and between 6 and 11 years old significantly decrease rural women's leisure time by 22.5 and 17.9 minutes respectively. The leisure time of urban women and men, on the other hand, is not influenced by household composition.

The above findings indicate that men also share to some extent the difficulty faced by married women to attain a work-life balance. It is clear that the need for childcare increases men's household work although the effect is greater among women. In the case of urban women, the need for childcare significantly reduces their labour market participation. There are also other forces at play that influence people's ability to attain work-life balance, which can be explored in future research. The relative bargaining position of women and men in the household seems to affect the household division of labour. Although women still do the majority of household work, married men are also contributing. The extent to which gender roles are changing therefore implies some variation in the degree of rigidity in gender roles across households. Moreover, household income and wealth can determine women and men's ability to purchase substitutes for their household labour, indicating that the experiences of poor, middle and upper class women and men are likely to be different.⁸

Conclusions

This paper examines the factors that influence the ability of married women and men to attain work-life balance by examining the determinants of time allocated towards household work, market work and social and leisure activities. Using the combined 2009 Labour Force Survey and National Time Use Survey data, the study finds that women in rural and urban areas do most of the domestic and care work, even when they participate in the labour market. Although the number of children below 12 years old increases both the household work time of women and men, it has a much stronger effect on women. Rural women manage their care responsibilities by allocating less time for leisure. However, this unpaid labour-leisure trade-off is not found among urban women and men. Instead, urban women manage their care responsibilities by reducing their time spent in market work. In addition, older household members provide assistance with household chores, enabling urban women to have greater time for leisure.

An increase in hourly wages reduces rural women's unpaid work and urban women's market work time. This suggests that higher earnings enable women to purchase time-saving goods and services and enhance their ability to bargain for a more equal division of household tasks. However, an increase in a spouse's hourly wages creates an incentive for rural and urban women to substitute their market work time for household work. The issue of work-life balance is particularly problematic for individuals with low earnings and also among the highly educated, particularly women. Low

⁸ Unfortunately, the dataset does not include household income and wealth information.

wage earnings increase the household work of rural women and are associated with longer hours of market work among rural men and urban women and men. Educated men and women tend to have longer market work hours and less time for leisure, social, religious and civic engagement compared to those with less education. One plausible explanation may be the prevalence of a work culture, especially in skilled, professional and managerial jobs, that makes long work hours the norm. It may also be due to social values, shared in many parts of the world, that place more emphasis on the rewards of work (e.g. higher consumption) than on the benefits of leisure and socializing.

This analysis provides strong evidence of gender inequality in terms of division of household labour and speaks to the challenges associated with managing housework, care work and market work for women and men in Thailand. Long work hours among women are a serious concern as they can lead to a deterioration of health and a decline in productivity. The Government can play an important role in helping women and men, especially those with young children, to achieve a balance between work, family life and leisure. Strengthening the country's parental leave laws, addressing discrimination issues in the labour market by reducing the gender wage gap and gender bias in hiring, promotion and retention, expanding and increasing the effectiveness of its childcare subsidy programme, and providing affordable quality day care facilities in both urban and rural areas will allow both women and men to achieve a healthy work-life balance.

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Appendix A

Merging of the labour force survey and time use survey datasets

The fact that the 2009 Labour Force Survey (LFS) and Time Use Survey (TUS) data surveyed identical households during the same period allows these two datasets to be directly merged, using individual and household demographic characteristics that are present in both surveys. Given that these characteristics are together unique to each respondent, they are used as identifiers to match corresponding observations from the Labour Force Survey with identical individuals from the Time Use Survey into single observations. The characteristics used for merging include relationship to the household head, sex, age, interview dates, region, province, district, sub-district, urban and rural areas, and household identification number. The resulting total number of observations in the combined LFS and TUS dataset is 181,736 individuals from 56,069 households. About 9,430 households cannot be merged and are dropped from the dataset.

To take into account the loss of observations due to data merging, the individual weights for both the TUS and LFS have been adjusted. First, the LFS and TUS weights are adjusted by aggregating the weights in each unmerged survey. These weights are denoted by w_{LFS} and w_{TUS} . Second, the aggregated weights for each survey are calculated after the datasets are merged. The resulting weights can be referred to as W_{LFS} and W_{TUS} . Third, the weight ratios for each dataset are estimated by dividing the weights calculated prior to merging by those estimated after the datasets have been merged. Fourth, the adjusted weights for each survey are obtained by multiplying each of these ratios by the corresponding aggregated weights calculated in step 2. Adjusted TUS weight is used in all regression analysis of this paper.

This paper focuses on a subsample of married individuals aged 25 to 60 years old. As a result, 67,541 individuals who were not the household head or spouse, not married, or not living in couple households are dropped. 71,441 individuals who were younger than 25 or older than 60 years are also dropped from the sample. In addition, 30,317 individuals who were not interviewed for the TUS during a typical weekday are dropped. This analysis relies on a subsample of 12,437 individuals.

Appendix B

Predicted hourly wage estimation: two-stage Heckman model

Hourly wages are observed for individuals who are employed and are unobserved for those who are not in the labour force as well as those who did not report their hourly wages. Selection bias occurs when estimation using observed hourly wages fails to take into account the unobserved hourly wages, resulting in inconsistent time-use estimates.

To address this concern, the estimation uses a two-step procedure proposed by Heckman (1979) to calculate predicted hourly wages for all respondents in the unrestricted dataset. In the first stage, the wage labour participation decision is estimated by using a probit model. The results from the probit model are then used to estimate the inverse mills ratio, which is the ratio of the probability density function to the cumulative distribution function. To correct for sample selectivity, the inverse mills ratio is included in the second stage as an independent variable to estimate on the sample with observed hourly wages using the Ordinary Least Squares approach. Following this, hourly wages for all individuals in the dataset are predicted. Mathematically, the Heckman two-step wage equation can be expressed as follows:

$$\text{Stage 1: } M_i = z_i\gamma + v_i$$

$$\text{Stage 2: } \ln(w_i) = x_i\beta + \rho\lambda(z_i\gamma) + e_i \quad (2)$$

where M_i is equal to 1 if the individual is a wage earner, and 0 otherwise; z_i is a vector of all exogenous individual and household characteristics; $\ln(w_i)$ is a vector of hourly wages in log form; x_i is a vector of observable human capital characteristics; λ represents the inverse Mills ratio; γ and β are vectors of parameters of observed individual and household characteristics; and v_i and e_i are the error terms assumed to be normally distributed. The observed individual and household characteristics included in both stages are the person's age, age squared, sex, occupation, educational attainment, and region dummy variables.

The Heckman approach imposes an exclusion restriction, which requires that at least one variable should appear in the first-stage selection equation but not in the second-stage equation. The reason is that, if the exogenous variables in both stages are identical, the second stage is likely to suffer from a collinearity problem, generating imprecise estimates. To meet the exclusion restriction, household size is included in the first stage and does not appear in the second stage of the regression. The justification for this is that household size is a strong predictor of labour market participation decisions and is unlikely to directly influence individuals' hourly wages. The regression results for the Two-Step Heckman approach is reported in table 6 (Appendix C).

One concern regarding the use of predicted hourly wage is that it may be endogenous with respect to the dependent variable. The direction of causality between a person's hourly wages and his or her time in labour

market work is ambiguous. For instance, hourly wages could affect a person's work time via income effect. On the other hand, the person's work time can affect his or her hourly wages. This paper overcomes this potential problem by replacing actual hourly wages used as an independent variable in Equation 1a with the predicted hourly wages in log form generated from the two-step Heckman procedure.

This study conducts the Wald test of exogeneity to verify the exogeneity of the predicted hourly wages. The p-values associated with the Wald tests for all total work models are greater than 0.05 and are thus statistically insignificant, suggesting that the null hypothesis of exogeneity cannot be rejected. Therefore, the predicted hourly wages are indeed exogenous, indicating that a non-instrumental variable analysis is appropriate.

Appendix C

Table 6 Two-stage Heckman estimates for predicted hourly wages

| <i>Variables</i> | <i>Log of hourly wage</i> | <i>Probability of working</i> |
|--------------------------------|---------------------------|-------------------------------|
| Male | 0.159 *** (0.0244) | 0.389 *** (0.0196) |
| Age | 0.0178 ** (0.00774) | 0.00355 (0.0110) |
| Age squared | 7.21e-05 (9.41e-05) | -0.000340 *** (0.000126) |
| Household size | | -0.0369 *** (0.0114) |
| Professionals | 0.120 *** (0.0443) | |
| Technicians | -0.0772 (0.0480) | |
| Clerks | -0.162 *** (0.0494) | |
| Services workers | -0.383 *** (0.0513) | |
| Agricultural workers | -0.695 *** (0.0546) | |
| Craft and trade workers | -0.482 *** (0.0491) | |
| Plant and machine operators | -0.405 *** (0.0492) | |
| Elementary occupation | -0.546 *** (0.0503) | |
| Other occupations | -0.977 *** (0.0420) | |
| Associate or vocational degree | -0.336 *** (0.0390) | -0.537 *** (0.0548) |
| High school diploma | -0.510 *** (0.0514) | -0.940 *** (0.0416) |
| Lower secondary completion | -0.690 *** (0.0536) | -0.975 *** (0.0417) |
| Primary school completion | -0.840 *** (0.0578) | -1.105 *** (0.0367) |
| No educational qualifications | -1.071 *** (0.0616) | -1.140 *** (0.0350) |
| Location fixed effects | Yes | Yes |
| Constant | 4.271 *** (0.166) | 1.212 *** (0.237) |
| Observations | 47 638 | 47 638 |

Robust standard errors in parentheses; *** p<0.01, **p<0.05, *p<0.1