

**Full Title:**

Who brings more gender equality in couple's time use in Hong Kong – co-resident elderly parents or helpers?

**Authors:**

Mengni Chen (author to whom correspondence should be addressed)

Department of Sociology, University of Copenhagen, Denmark;

Email: [hkfancymn@gmail.com](mailto:hkfancymn@gmail.com)

Muzhi Zhou

Department of Sociology and St Antony's College, University of Oxford, Oxford, United Kingdom

Email: [muzhi.zhou@sant.ox.ac.uk](mailto:muzhi.zhou@sant.ox.ac.uk)

## **Abstract**

In Hong Kong, extended households are declining while households with helpers are increasing. More and more couples resort to hiring helpers instead of living with elderly parents to outsource domestic work. Currently, it is not clear whether elderly parents and helpers would have the same impact on couples' time use. To fill this gap, the study examines couples' paid work time and domestic work time, as well as the gender gap in time use in different household types (i.e. couple-only households, households with elderly parents, and households with helpers). It uses the couple data from the first wave of Hong Kong Panel Study of Social Dynamics in 2011 and conducts the inverse propensity weighting with regression adjustment (IPWRA) analysis. The results show that couples' total domestic work is reduced to a greater extent in the helper household than that in the elderly-parent household. But this difference disappears if couples live with relatively younger, healthy and retired parents. Although the impact of younger, healthy and retired parents and hired helpers would reduce couples' total domestic work time similarly, they are different in the sense of "help for whom": hired helpers reduce the gender gap in paid work time and domestic work time, mainly by influencing wives' time use; elderly parents reduce couples' domestic work time in a less gendered way, favoring both husbands and wives. Elderly parents and helpers could reduce couples' domestic workload more or less, but whether gender equality is promoted through outsourcing is worth more attention.

**Keywords:** time use; domestic helpers; gender gap; Hong Kong; multigenerational families; elderly parents

# **Who brings more gender equality in couple's time use in Hong Kong – co-resident elderly parents or helpers?**

## **Introduction**

The work–family conflict has been increasing with the rise of female labor participation in many Asian societies. In Hong Kong, a society characterized by its fast-paced lifestyle and culture of very long working hours, the time–based work–family tensions are even more severe. Young couples may resolve the conflict by making wives staying at home principally responsible for domestic work; they may also outsource domestic work to elderly parents or helpers so that they can both develop their careers. In Asian societies, multigenerational households are widely accepted and even regarded as an ideal living arrangement (Ko, 2012). The elderly parents in multigenerational households often share the burden of childcare and housework, which could greatly reduce the domestic workload of young couples and releases more time for them to engage in economic and leisure activities. However, over the past two decades in Hong Kong the household structure has become more nuclearized. The number of three-generational extended households—that is, a household composed of a couple, at least one of their parents, and their unmarried children—decreased from 94,595 in 2001 to 89,102 in 2016, now accounting for only 6.2% among all household with married couples (HKCSD, 2011, 2016). Meanwhile, the number of households with hired helpers has risen rapidly. For instance, in 1995, 13% of household with married couples and children hired a helper; this ratio increased to 30% in 2016 (Legislative Council, 2017). This trend reveals that more and more couples in Hong Kong turn to hiring helpers rather than relying on co-residing elderly parents for outsourcing domestic work.

Do elderly parents and helpers play the same role in couples' time use? Existing research has investigated the impact of either helpers or co-resident parents on women's labor supply and time spent in domestic work (Cortes & Pan, 2013; He & Wu, 2019; Li, 2017; Shen, Yan, & Zeng, 2016; Ta, Liu, & Chai, 2019; Tong & Chiu, 2017). However, we have not found any work that has compared the two and looked into their differences. For instance, outsourcing domestic work to elderly parent or helpers, which could reduce couples' time in domestic work to a greater extent, and which could narrow down the gender gap in domestic work time and paid work time? Answering this question could help us to understand the potential change in gender equality among couples when more of them are hiring domestic helpers. To understand how elderly parents and helpers may shape a couple's daily life in different ways, this paper focuses on the time-use patterns of husbands and wives in different types of households (i.e., couple-only households, households with elderly parent(s), households with helper(s)). Specifically, based on the data at couple level,

we conduct inverse propensity weighting with regression adjustment analysis (IPWRA) to examine the potential impact of co-resident elderly parents and hired helpers on husbands' and wives' paid work time, domestic work time, as well as the gender gaps in time-use patterns.

This study contributes to the existing literature in two dimensions. First, it uses the couple-level data and addresses the issue of selection effect of couples in different types of households by applying IPWRA analyses. This methodological advancement surpasses many previous studies that used individual-level data and did not control for the potential selection effect. Second, it examines the within-family gender gap in time use across different types of households. It distinguishes the roles of co-resident elderly parents and hired helper in promoting the gender equality in the private sphere of family—particularly in time allocation to paid word and domestic work. The findings indicate that young, healthy and retired elderly parents and hired helpers have a similar impact on couples' total time in domestic work but have different impacts on the gender gap in time use: elderly parents reduce both husbands' and wives' domestic work time, and thus do not change the gender gaps significantly, whereas helpers reduce the gender gaps via changing wives' time use. A shift from outsourcing to elderly parents to hired helpers seems to bring in greater gender equality in time use among married couples, but whether this shift changes the gender inequality in the family sphere fundamentally should be worth more attention.

### **Outsourcing domestic work – elderly parents and helpers**

Elderly parents and domestic helpers can both provide indispensable help to domestic work for couples who suffer from the great work-family conflict. Compared to the relatively simple purchasing story for hiring a helper, why parents offer help to their adult children involves more complex explanations.

Hiring a helper is a kind of purchasing behavior—the family buys a contractual service from the helper who receives specific payment as agreed with the family. In Hong Kong, the labor contract between the employer and the helper is governed by Hong Kong laws and regulations. The helper should only perform domestic duties specified in the contract with the employer, and asking the helper to do work not stated in the contract is not allowed (Immigration Department, 2019).

Volunteering to assist in domestic work to their adult children is common for Chinese parents, and their contribution is often unpaid, despite some monetary transfer from young couples to fulfill their filial obligations. One explanation is that parents provide support in hope of receiving elderly care in return when their health condition worsens (Silverstein, Conroy, Wang, Giarrusso, & Bengtson, 2002). Economic concern is another important reason. Some couples resort to elderly parents because of the low financial cost, when their earnings are not enough to afford a helper (Sun, 2012).

More often, out of parental altruism, elderly parents give more and receive less (Ko, 2012), as Wheelock and Jones (2002) put it, “it comes from love.” As important members of the extended family, Chinese parents share common interests with their adult children and grandchildren and care for the welfare of the whole household (Tu, Freedman, & Wolf, 1993). Chinese elderly parents often believe that it is their normative responsibility to offer support to adult children and to make sure their children achieve success in both career and family (Xie & Xia, 2011). In Ko’s qualitative study, a grandparent in Hong Kong emphasized his devotion to the young couple’s family, saying, “I’d make them go to work without worry, without worry about the family... I’ve to take care of the whole family, of course” (Ko, 2012, p. 103). In contrast, the helper is motivated more by the economic benefits provided by the employer. Shi (2017) has found that they may bargain for an increase of wages by being uncooperative or threatening to quit.

### **Different potential impacts of elderly parents and helpers on couples’ time use pattern**

Hiring helpers or receiving help from co-resident parents may have different potential impact on couples’ time use. Very often, helpers are younger and they are employed specifically for taking over the domestic work of the employer. Elderly parents are relatively much older and less energetic than helpers. Thus, in terms of physical strength, helpers are very likely to reduce couples’ domestic workload more than elderly parents.

In addition, according to expectation of filial piety, it is the obligation of the younger generation to obey, respect, and take care of the older generation (Whyte & Ikels, 2004). Young couples who live with their elderly parents are often concerned about whether their elderly parents are overburdened with domestic work, whether they are in good health, and whether grandparenting is unfair to them (Sun, 2012). In contrast, as “outsiders” or “strangers” in the eyes of young couples (Lui, 2012; Tam, 2001), helpers are in a much lower position in the household and may not receive enough respect as they should be given. Employers and other family members may see themselves as superior to the helpers, thus legitimizing their exploitation of helpers’ labor (Shi, 2017). Therefore, compared to work performed by helpers, the workload of elderly parents should be smaller.

Previous work has consistently found that hiring domestic workers promotes women’s, mostly mothers’, labor supply. Helpers have been found to increase women’s labor force participation, particularly mothers with a young child (Cortes & Pan, 2013; Tong & Chiu, 2017). He and Wu (2019) have further shown that helpers increase women’s paid work time, and reduces their share of household. However, findings from existing studies on how much elderly parents can reduce couple’s domestic work time and increase paid work time are not very consistent. Yang, Fu, and Li (2016) have found that multigenerational

co-residence actually decreases women's labor force participation, but does not affect men's labor supply.. Shen et al. (2016) have shown that co-residence increases women's work time by 20-26 per week. Ta et al. (2019) have shown that co-residence reduced women's time in domestic work and increased their time in paid work. In the realistic world, co-residence with elderly parents could be due to various concerns. Some couples live with parents for the low-cost childcare, or to save the housing cost. Chang (2015) has shown that couples with children under age 3 are likely to co-reside with elderly parents to meet their childcare needs. Some couples want to better look after elderly parents, especially when they are very old, or in bad health. Chen (2005) and Forrest Zhang (2004) have revealed that the residential pattern of elderly parents and married children changes over the life course: early in the life course, co-residence is likely to respond to the needs of young couples, and later on is more likely to serve the needs of ageing parents. Young couples are likely to benefit from multigenerational co-residence to the greatest extent, if their parents are relatively younger, healthy, and not working. If parents are relatively old and in poor health, couples may spend more time in domestic work (especially eldercare) and less time in paid work. Thus, it is very important to distinguish elderly parents' characteristics and life stage.

Previous studies have shown that over the past decades, men have increased their time in domestic work, disproportionately in non-routine domestic work, but women still have taken most responsibility of routine housework, indicating the deep-rooted gender specialization (Hook, 2006; Kan, Sullivan, & Gershuny, 2011). Groves and Lui (2012) have found that Hong Kong men view hiring a helper as a "gift" to their working wives to buy out domestic work. In Hong Kong, domestic duties of a helper written in the employment contract often include routine housework and caring activities that have strong feminine characteristics, such as preparing meals, washing dishes, sweeping the floor, cleaning the house, doing the laundry, babysitting, elderly-caring, etc. (HelperChoice, 2021). Therefore, it is very likely that helpers reduce wives' domestic work time more than husbands', thus narrowing down the gender gap in domestic work.

However, the impact of co-resident parents on couples' time use may not be as gendered as the impact of the helper. Chinese intergenerational families are also patrilocal, where the husband's parents are more likely to co-reside with their adult children with the expectation that the wife would be the primary caregiver (Zhan, 2005; Zhan & Montgomery, 2003). Those elderly parents may care more about their son's welfare and help with the domestic work that is usually shouldered by men. Elderly parents are motivated to support and devoted to the couple's household, disregarding any specific type of domestic work. Husbands' domestic work is very likely to be significantly reduced also, as men are often more specialized in non-routine household. This could be more so if there is a younger, healthy, and retired father in the household.

In this study, we compare three types of household: 1) couple household where there is no co-resident elderly parent or hired helper; 2) elderly-parent household where couples live together with their parent; 3) helper household where couples hired a helper. We made two sets of comparisons: a) comparing three types of households without distinguishing elderly parents' characteristics; b) compare the three types of household, including only elderly-parent households where elderly parents are under age 80, healthy, and not working. Based on the review, the following hypotheses are proposed.

H1. The couples' total domestic work time is reduced to a greater extent and total paid work time is increased to a greater extent in the helper household, than that in the elderly-parent household.

H2. In the helper household, wives' domestic work time is reduced more and paid work time is increased more than husbands'; and the gender gaps in domestic work time and paid work time are smaller.

H3. In the elderly-parent household, the reduction of wives' and husbands' domestic work time is less gendered; the increase of wives' and husbands' work time is less gendered; and the gender gap in domestic work time and paid work time remain unchanged.

## **Materials and methods**

The present study makes use of the Hong Kong Panel Study of Social Dynamics (HKPSSD). HKPSSD is a territory-wide representative household panel survey, conducted in 2011, 2013, 2015, and 2017 (Wu, 2016). This study uses the first wave, which covered 3,214 households, 7,218 adults, and 958 children. This study is restricted to households where couples were less than 60 years old. After matching the spouse IDs of both men and women, 798 couples were identified. Among these, 591 reported no co-resident elderly parents or helpers (i.e. the couple household); 81 reported co-residence with elderly parents (i.e. elderly-parent household); 111 reported hiring helpers (i.e. the helper household); 15 reported having both co-resident elderly parents and helpers. The last type of household ( $n=15$ ) are excluded from analysis due to their small sample size. Therefore, the final analytical sample is 783 ( $=591 + 81 + 111$ ) couples.

The dependent variables include: 1) couples' total paid work time per week; 2) total domestic work time per week; 3) husbands' paid work time and domestic work time; 4) wives' paid work time and domestic work time; 5) the gender gaps in paid work time; and 6) the gender gap in domestic work time. Paid work time is derived from the question, "How many hours do/did you actually work per week in your current job/recent job?" The domestic work time is derived from the question, "How many hours on average did you spend in doing domestic work every day last month?" Regarding domestic work, it should be noted that the survey did not differentiate between time spent on care (for children or elderly) and time spent on

household chores, or between time spent on domestic work on weekdays or weekends. To make domestic work time comparable with paid work time, the average weekly domestic work time is obtained by multiplying the daily domestic work time by seven.

Co-residence with elderly parents is measured by whether elderly parents lived at the young couple's home for more than 3 months over the past 6 months. Out of 81 couples who were living with parents, 67 lived with paternal parents and 14 lived with maternal parents. Due to the small sample size of the maternal elderly-parent household, we do not distinguish patrilocal and matrilocal multigenerational residence. Hiring a help is measured by whether the household hire any foreign or local domestic helper. Out of 111 couples who hired a helper, 97 hired a live-in foreign helper and 14 hired full-time or part-time local helper. In this study, we do not distinguish the two either.

Couples' decision to live with elderly parents or to hire a helper is not randomly made. Therefore, controlling for the selection of couples into different types of households is necessary. This study employs an inverse propensity weighting analysis with regression adjustment (IPWRA), a type of propensity score analysis to control for selection bias. Here, the couple household is considered as the control group, while the elderly-parent household and the helper household are considered as two different treatment groups. The propensity score is the probability of a person being assigned to a particular group given a series of observed covariates. Propensity score matching, weighting, and stratification are the three most common ways to reduce selection bias by equating groups based on the observed covariates. For this study the inverse propensity weighting (IPW) is chosen rather than propensity score matching for two reasons. First, propensity score matching is often used when there are only two groups, that is, one treatment group and one control group. IPW is more suitable when there are more than two groups. Second, propensity score matching does not perform very well when the sample size is small and may not make full use of the whole sample, as it discards unmatched observations (DiPrete & Gangl, 2004; Rosenbaum, 2002). IPW allows to keep all observations but weight them according to propensity scores. Regression adjustment (RA) controls for covariates when estimating the treatment effects on the outcome. IPWRA has double-robust property, meaning that the estimates of the effects will be consistent if either treatment model (IPW) or the outcome model (RA) is misspecified.

In this paper, the propensity score refers to the probability of a person being assigned to a certain type of household. Specifically, at first, the selection into different types of households is estimated based on a multinomial logistic regression, which predicts the probability of couples living without co-residing parents and helpers, the probability of couples living with elderly parents, and the probability of couples with a hired helper. The multinomial regression includes a set of variables that are shown to be associated with the choice of co-residing with parent or hiring helpers in previous research (Gruijters & Ermisch, 2019;



He & Wu, 2019; Yang et al., 2016): age of the wife and husband, their education attainment, number of live-in children under age 18, the household income, the number of rooms (excluding kitchen and bathroom) in the house, wife's permanent residency in Hong Kong, and wife's employment status. Moreover, the interaction between wives' permanent residency and their education attainment is also included in the modeling. Second, the data is adjusted by weighting each observation with the inverse of the propensity score, that is, taking  $1/p$  as the weight where  $p$  is the probability derived from the multinomial regression model. A further check of the data balance before and after weighting is made. In particular, the standardized bias<sup>i</sup> (sometimes called the standardized difference in means) of unweighted and weighted data are compared. If the absolute values of standardized bias for all covariates are below 0.25, the data is considered to be balanced after weighting (Ho, Imai, King, & Stuart, 2007; Kost & Lindberg, 2015; Stuart, 2010). Third, after obtaining the weighted data, the average treatment effect (ATE) of different types of households on couples' time use are calculated in the outcome model, using on the OLS regression. The outcome model includes age and education of the couple, number of live-in children under age 18, the household income, and wife's permanent residency in Hong Kong as covariates.

## Results

### *Descriptive analysis*

Table 1 shows the descriptive statistics of the sample. The average age of husband and wife were about 47.55 and 43.54 years, respectively. Education distribution indicates that husbands were slightly more educated than wives, with a higher proportion of husbands having tertiary education. About 11% of wives were not Hong Kong permanent residents, most of them from Mainland China. And 50% of wives were not employed. And 51.6% of the sample had household income in the range of 15,000 – 40,000 HKD. On average, each household had 1.04 children under age 18 living in the household. The average number of rooms (excluding kitchen and bathroom) was about 2.25.

[Insert Table 1 here]

Table 2 shows paid work time and domestic work time for husbands and wives. On average, in Hong Kong, husbands spent 51.5 hours per week in paid work and 4.7 hours in domestic work; wives spent 37.5 hours per week in paid work and 18.2 hours in domestic work. There are significant variations in time-use patterns across the three household types. Regarding paid work time, in the helper households, husbands spent the fewest hours in paid work while wives had longest paid working hours. The paid work time of wives in the elderly-parent households was the shortest. Regarding domestic work time, husbands and wives in the couple household spent 5.1 and 20.7 hours per week, the most among the three types of household.

By comparing the elderly-parent households and the helper households, the latter seems to reduce the time in domestic work to a larger extent.

Regarding the gender gap, husbands spent more time in paid work than their wives by 14 hours per week and less time in domestic work by 13.6 hours on average. Husbands and wives in the couple households had the largest gender gap in domestic work time. In the elderly-parent households, couples had the largest gender gap in paid work time. Couples in helper households had smallest gaps in both paid work and domestic work time. This seems to indicate that by hiring helpers, the time-use patterns of husbands and wives are relatively more equal.

[Insert Table 2 here]

#### *Multinomial modeling on the selection of household type*

Table 3 shows the results of multinomial regression, which predicts the probability of couples living in any of the three types of households. The couple household is the reference group. The older the husband, the less likely the couple is to be in an elderly-parent household or a helper household. Households with wives having tertiary education, being employed, having more children to care, or with the household income more than 40,000 HKD are more likely to hire a helper. Households with wives not being permanent residents were more likely to live together with parents. The common predictor for elderly-parent households and helper households is the number of rooms in the house: couples who have a house with more rooms are more likely to live with parents or hire a helper.

[Insert Table 3 here]

Based on the multinomial regression (in Table 3), propensity scores of household types are estimated. Observations are weighted by the inverse of the propensity scores. Figure 1 shows the standardized bias for the data before and after weighting. The closer the absolute value of the standardized bias to zero, the more balanced the data. After weighting, the standardized bias for almost all covariates moved closer to zero, and all their absolute values fell below 0.25. This indicates that IPW has created a more balanced sample of households with similar characteristics in the three groups.

[Insert Figure 1 here]

#### *Estimation of the effect of elderly parents and helpers on couples' time use*

Table 4 shows the results from IPWRA analyses on couples' total work time and total domestic work time, without considering elderly parents' characteristics. The average treatment effect (ATE) was shown at the top of the table while the coefficients of covariates were shown in the three outcome models in the table. If all couples do not live with elderly parents or hire a helper (Situation 0), the average potential total work time and total domestic work time would be 89.2 and 25.6 hours, respectively (See POM). If all couples live with elderly parents (Situation 1), the total domestic work time is not significantly different from that under Situation 0 (see ATE 1). If all couples hire a helper (Situation 2), the total domestic work time is significantly less than that under Situation 0, by the amount of 11.3 hours per week (see ATE 2). The ATE of helpers on total domestic work is significantly larger than the ATE of elderly parents (see ATE1 vs ATE2), indicating that the hired helper would reduce couples' domestic work time more than co-resident parents. However, whether having co-resident parents or hired helpers, the total work time is not significantly different from that of the couple household. And there is no significant difference between the average treatment effect (ATE) of elderly parents and ATE of helpers on the total work time. Such insignificant role of elderly parents in young couples' time use is probably because some couples in the multigenerational households have to spend more time taking care of their parents, particularly when they are very old, or in poor health.

[Insert Table 4 here]

Therefore, we restricted our sample to include only households with co-resident parents who are under age 80, healthy, and not working for comparison. The results are shown in Table 5. Here only the ATEs are presented, and the full table (which includes the outcome models) can be obtained from the author. ATEs of elderly parents and helpers on total work time are still not significant, indicating that neither of which would have a significant impact on total work time. One reason could be that couples shift the saved total domestic work time to leisure time rather than work time under the culture of long working hours in Hong Kong. The other reason could be that husbands' and wives' work time are affected in the opposite direction (which is addressed in the analyses on the gender gap in time use later, See Table 6 and 7). Different from results in Table 4, total domestic work time in the elderly-parent household is now significantly less than that in the couple household, by the amount of 7.4 hours (see ATE 1). And the ATE on total domestic work time is not significantly different from ATE of helpers. Findings from Table 4 and 5 partially support our first hypothesis: couples' total domestic work time would be reduced to a greater extent in the helper household than in the elderly-parent household. But this difference would disappear if couples live with elderly parents who younger, healthier, and not working, implying a change in the direction of help as parents age.

[Insert Table 5 here]

Furthermore, to examine whether elderly parents and helpers would have different impact on the gender gap in couples' time use, we performed IPWRA analyses on husbands' and wives' time in paid work and domestic work, and the corresponding gender gaps. The results are shown in Table 6 (considering all elderly-parent household) and Table 7 (considering only elderly-parent households where parents are under age 80, healthy, and not working. The full tables can be obtained from the author. As shown in Table 6, if all couples do not live with parents or hire a helper, the average potential paid work time and domestic work time of husbands would be 51.9 and 5.6 hours per week, respectively; those of wives would be 37.3 hours and 20.1 hours, respectively. The gender gap in paid work time and domestic work gap would be round 14.5-14.6 hours. In the elderly-parent households, husbands' and wives' time in paid work and domestic work as well as the gender gaps are not significantly different from those in the couple household (see ATE1). This seems to indicate that elderly parents neither have an impact on husbands' time use nor on wives' time use. In contrast, in the helper household, wives' domestic work time decreased by 9.5 hours and paid work time increased by 4.6 hours; husbands' paid work time has no significant change but their domestic work time decreased by 1.8 hours ( $p < 0.1$ ). The gender gap in paid work time and domestic work time are narrowed down significantly (See ATE2 on gender gaps). We also found that the ATE of the helper household is significantly different from ATE of the elderly-parent household in reducing wives' time in domestic work and the gender gap in domestic work time. This implies that hiring a helper is likely to reduce the gender gap in time use, mainly through changing wives' time.

As shown in Table 7, the role of elderly parents in couples' time use turned out to be significant when we consider co-residence with young, healthy, and not working parents. Now in the elderly-parent households, domestic work time of husbands and wives would be reduced significantly to a similar extent, by 3.52 and 3.86 hours per week (see ATE1). No significant changes in couples' work time were observed. Consequently, gender gaps in paid work time and domestic work time remain similar with those in the couple household. We also found that ATEs of the helper households are significantly different from the ATEs of the elderly-parent households in reducing time gaps in paid work ( $p < 0.1$ ) and domestic work time. Findings from Table 6 and 7 partially support the second and third hypotheses: hiring a helper is likely to reduce domestic work time and increase paid work time more for wives than for husbands, thus narrowing down the gender gap in time use; co-resident elderly parents—particularly who younger, healthy and retired are likely to have similar impacts on husbands' and wives' time in domestic work, therefore may not change the gender gap in time use.

[Insert Table 6 and 7 here]

## Discussion and conclusion

In Hong Kong, as more families choose to outsource domestic work to helpers rather than elderly parents, it is interesting to understand whether this change would bring different consequences on women's and men's time use and the gender gap in time use. Based on the couple data transformed from the first wave of the Hong Kong Panel Study of Social Dynamics in 2011, this study has investigated the time use of young couples in different types of households: the couple household, the elderly-parent household, the helper household. We find that when we do not consider elderly parents' characteristics, couples' total domestic work time is reduced to a greater extent in the helper household than that in the elderly-parent household. However, when elderly parents are relatively younger, healthy and retired, couples' total domestic work actually is reduced to a similar extent with that in the helper household. This partially supports the first hypothesis. It also implies that the function of multigenerational co-residence could change over the life course: it is likely to benefit couples' time use—particularly reducing the domestic workload—in early stages, while it may increase couples' eldercare burden in later stages. Thus, if we do not specify elderly parents' characteristics and life stage, the results could be misleading. Therefore, future studies on the role of elderly parents in couples' daily life should pay attention to the importance of the family life cycle.

Second, we find that gender gap in paid work time and domestic work time are narrowed down in the helper household, mainly because wives' paid work time increases and domestic work time decreases. This result partially supports the second hypothesis. It implies that hiring a helper is likely to have a gendered impact on couples' time uses, by working through wife's paid work and domestic work time. He and Wu (2019) have investigated the impact of a hired helper on women's labor supply, and demonstrated similar findings. But their study was not based on the couple-level data and did not consider the impact of multigenerational residence. In Hong Kong, hiring helpers has become a prevalent practice, because the cost of helpers is relatively low of about HK\$5,000, which is very affordable for many middle-class households. Nonetheless, by hiring female helpers, the narrowed time gap between husbands and wives may not necessarily mean that the gender equality is promoted in the private sphere or that the gender ideology has changed (Cheung, 2014). Groves and Lui (2012) have found that husbands were likely to become even less involved in domestic work, because they paid the price of the helper and believed that they had the right to enjoy the benefit. By transferring wives' load of housework and childcare to another (non-family-member) woman in the household, the traditional gender specialization could be strengthened rather than weakened, or as Groves and Liu (2012, p. 70) put it, "it is reproducing gender and inequality."

Third, the findings reveal that husbands' and wives' time in domestic work decrease to a similar extent in the elderly-parent household where parents are younger, healthy and not working, thus gender gaps in time use remain unchanged. This partially support the third hypothesis. It means that the impact of co-

resident parents on couples' domestic work time is less gendered than the impact of hired helpers, favoring both husbands and wives. This is probably because elderly parents are more devoted to the couple's family than hired helpers and have taken over both routine and non-routine domestic work, thus benefit husbands and wives similarly. Considering men's much smaller contribution in domestic work, this similarity in the reduction of domestic work time also reflects the disproportional help received by the husband. Therefore, this similarity could instead reflect the patrilocal coresidence feature (in this sample, 83% of elderly-parent households are couples living together with paternal parents) where the sons receive an unbalanced level of assistance. Our findings are different from the study of Ta et al. (2019). They focus on the impact of multigenerational family on dual-earner couples' time use based on an activity diary survey in Beijing, China. They have found that co-residence with elderly parents benefit women more, by shifting their time in household responsibility to employment. However, their sample is very small (N=147) and did not use the couple-level for analyses. Besides, they did not consider the selection effect as well as elderly parents' characteristics. In our study, we find that although the impact of younger, healthy and retired parents and hired helpers would reduce couples' total domestic work time similarly (according to our first finding), they are different in the sense of "help for whom".

Last but not least, in societies like Hong Kong where "long working hours" is deeply rooted in the culture, promoting gender equality in labor participation and paid work time seems to mean asking wives to work longer hours, as much overworking as their husbands (52 working hours as shown in Table 1). To achieve this, outsourcing domestic work to elderly parents or helpers becomes a good option. However, outsourcing domestic work to the third party may only temporarily mask the high level of gender inequality in domestic work. These solutions should not be able to promote gender equality fundamentally, unless men join women in the private sphere of the family (Goldscheider, Bernhardt, & Lappegård, 2015).

There are some limitations in this study. First, this paper has not looked into young couples' time spent in childcare versus household chores, as the survey does not provide further information on the types of domestic work. For the same reason of data limitation, whether elderly parents and helpers have different impacts on young couples' time-use patterns on weekdays versus weekends has not been examined in this paper. Second, due to very limited sample of households with both elderly parents and domestic helpers, this paper cannot provide insights as to how the two may play different roles within one household. Third, this paper has investigated the behavioral outcomes of paid work and domestic work but not explored the underlying motivations for hiring helpers or living with parents among the young couples. Besides, our current analyses cannot tell whether paid work time causes the family to hire a helper or vice versa. Therefore, the results should not be interpreted from a causal perspective. The results should not be interpreted from a causal perspective. Fourth, considering the small sample size of the maternal parent

household, we are unable to provide a reliable comparison between patrilocal and matrilocal multigenerational residence. Fifth, this paper has not considered couples that live within close proximity of elderly parents and some other situations (e.g. elderly parents come along to help during the day), which to some extent may lead to underestimation of their impact on couples' time use. Finally, patterns of leisure time are excluded from the analysis due to limited data—an area that deserves special attention in Hong Kong with its deeply ingrained culture of overwork.

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**Notes on contributors**

**Mengni Chen** is currently an assistant professor in Copenhagen University, Denmark. She is also an affiliated researcher in Centre of Demographic Research at University of Louvain and National Fund Institute of Scientific Research in Belgium (FNRS). Her interests include marriage and family in East Asia, population dynamics and economic development, and social policies. Her work has been published in *Population and Development Review*, *Journal of Social Policy*, *Journal of Ethnic and Migration Studies*, *Social Science and Medicine*, *Social Indicators Research*, etc.

**Muzhi Zhou** is currently a post-doctoral researcher at the University of Oxford. She studies how critical life events, such as marriage or childbirth, reshape people's lives in the United Kingdom, Europe, and East Asia and factors related to family formation patterns. She also works on how children spend their time and its implications. Her work has been published in *Gender & Society*, *Demographic Research*, and *Chinese Sociological Review*.

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## Note

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<sup>i</sup> Standardized bias is defined as the absolute value of the difference in means of each paired household type (couple-only households vs. elderly parent households; couple-only households vs. helper households) divided by the standard deviation of the mean for all households.

Table 1 Descriptive statistics of variables in the analysis

	Percentage
Type of household	
Couple-only household	75.48
Grandparent household	10.34
Helper household	14.18
Education of husband	
Tertiary	15.96
Secondary or below	84.04
Education of wife	
Tertiary	12.01
Secondary or below	87.99
Permanent residency of wife	
Yes	89.02
No	10.98
Employment status of wife	
Employed	49.94
Not employed	50.06
Household income	
$\leq 15,000$ HKD	31.67
15,000-40,000 HKD	51.60
$\geq 40,000$ HKD	16.73
	Means (Standard Deviations)
Age of husband	47.55
Age of wife	43.54
Number of children	1.04
Number of rooms	2.26

Table 2 Paid work time and domestic work time per week (in hours) by gender and household type

	Paid work		Gap in paid work (H-W)	Domestic work		Gap in domestic work (W-H)
	Husband	Wife		Husband	Wife	
Average per week	51.5	37.5	14.0	4.7	18.2	13.6
By household type						
Couple only	52.0	36.9	15.1	5.1	20.7	15.6
Grandparent	51.9	34.5	17.4	4.0	15.5	11.4
Helper	48.5	42.9	5.6	2.7	7.2	4.5

Table 3 Multinomial logistic regression predicting the type of household (reference: the couple household)

VARIABLES	Elderly-parent household	Helper household
Husband's age	-0.0587* (0.0273)	-0.103** (0.0327)
Wife's age	-0.0517 (0.0316)	0.0252 (0.0360)
Husband's education		
Ref. Secondary or below		
Tertiary	-0.743 (0.485)	0.471 (0.337)
Husband's education		
Ref. Secondary or below		
Tertiary	0.0842 (0.573)	0.704+ (0.362)
Wife's HK permanent resident		
Ref. Yes		
No	1.185** (0.374)	-0.432 (0.663)
Wife's education × HK permanent resident		
Tertiary × No	0.519 (0.879)	-0.847 (1.377)
Wife's employment status		
Ref. not employed		
Employed	0.408 (0.265)	1.243*** (0.282)
No. of children	-0.0162 (0.175)	0.501** (0.173)
No. of room	0.876*** (0.200)	0.866*** (0.197)
Household income		
Ref. ≤ 15,000 HKD		
15,000-40,000 HKD	0.205 (0.300)	0.0723 (0.352)
≥ 40,000 HKD	0.497 (0.472)	1.665*** (0.397)
Constant	0.325 (1.070)	-2.179+ (1.145)
Observations	783	783

Note: \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1

Table 4 Results of the IPWRA analysis on total work time and total domestic work time (N=783): all elderly-parent households

	Total paid work time	Total domestic work time
Average treatment effect (ATE)		
ATE1: Elder parents vs couple	-1.055	-2.799
ATE2: Helper vs couple	2.704	-11.29***
ATE1 vs ATE2	NS	$p < 0.01$
Potential outcome means of couple households (POM)	89.18***	25.61***
Outcome model (0) for the couple household		
Husband's age	-0.353	0.392*
Wife's age	0.213	-0.0881
Husband's education (Ref. secondary or below)		
Tertiary	-2.587	2.017
Wife's education (Ref. secondary or below)		
Tertiary	3.535	0.826
Wife's HK permanent resident (Ref. Yes)		
No	-15.34**	5.727*
No. of children	-1.505	2.656**
Household income (Ref. $\leq 15,000$ HKD)		
15,000-40,000 HKD	1.672	-2.806+
$\geq 40,000$ HKD	2.558	-3.989
Constant	98.60***	9.112
Outcome model (1) for the elderly-parent household		
Husband's age	-0.158	0.522*
Wife's age	0.0516	0.314
Husband's education (Ref. secondary or below)		
Tertiary	4.674	14.52+
Wife's education (Ref. secondary or below)		
Tertiary	-31.85**	0.997
Wife's HK permanent resident (Ref. Yes)		
No	-13.93+	2.669
No. of children	-1.293	1.881
Household income		



(Ref. $\leq 15,000$ HKD)		
15,000-40,000 HKD	-4.537	-1.933
$\geq 40,000$ HKD	17.48*	-7.894*
Constant	98.73***	-18.08+

Outcome model (2) for the helper household

Husband's age	1.762**	1.106**
Wife's age	-1.919**	-1.122*
Husband's education (Ref. secondary or below)		
Tertiary	-5.307	0.0847
Wife's education (Ref. secondary or below)		
Tertiary	8.847+	-2.111
Wife's HK permanent resident (Ref. Yes)		
No	-12.52	24.50*
No. of children	-6.463+	-0.457
Household income (Ref. $\leq 15,000$ HKD)		
15,000-40,000 HKD	1.454	3.479
$\geq 40,000$ HKD	3.615	2.431
Constant	98.15***	6.374

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Note: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ , +  $p < 0.1$

Table 5 Results of the IPWRA analysis on total work time and total domestic work time (N=751): elderly parent household with parents under age 80, healthy, not working

	Total paid work time	Total domestic work time
Average treatment effect (ATE)		
ATE1: Elderly parents vs couple	-1.524	-7.373***
ATE2: Helper vs couple	2.118	-10.56***
ATE1 vs ATE2	NS	NS
Potential outcome means of couple households (POM)		
	89.71***	25.50***

Note: \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1

Table 6 Results of the IPWRA analysis on husbands' and wives' time use (N=783): all elderly-parent households

	Husband's time		Wife's time		Gender gap	
	Paid work	Domestic work	Paid work	Domestic work	Paid work	Domestic work
ATE1: Elderly parents vs couple	-1.626	-1.262	0.571	-1.537	-2.197	-0.275
ATE2: Helper vs couple	-1.915	-1.771+	4.619*	-9.523***	-6.534*	-7.752**
ATE1 vs ATE2	NS	NS	NS	$p < 0.01$	NS	$p < 0.01$
Potential outcome means of couple households (POM)	51.89***	5.559***	37.29***	20.05***	14.60***	14.49***

Note: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ , +  $p < 0.1$ .

Gender gap in paid work = husband's time – wife's time; gender gap in domestic work = wife's time – husband's time;

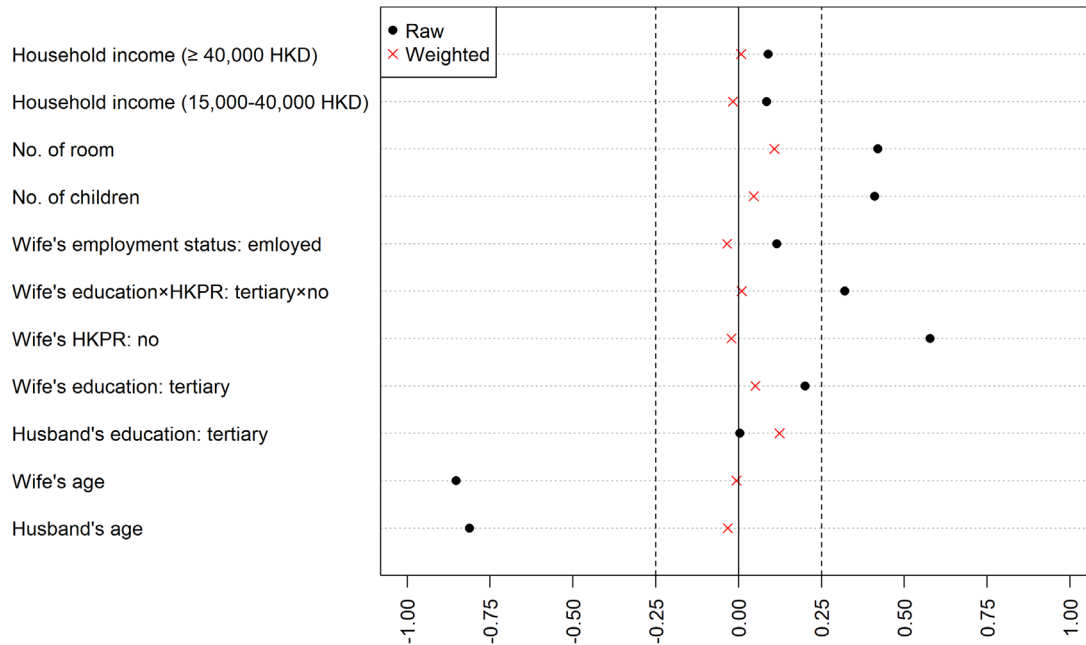
Table 7 Results of the IPWRA analysis on husbands' and wives' time use (N=751): elderly-parent households with parents under age 80, healthy, not working

	Husband's time		Wife's time		Gender gap	
	Paid work	Domestic work	Paid work	Domestic work	Paid work	Domestic work
Average treatment effect (ATE)						
ATE1: Elderly parents vs couple	1.284	-3.522**	-2.808	-3.851*	4.091	-0.33
ATE2: Helper vs couple	-2.163	-1.900+	4.280+	-8.656***	-6.443+	-6.756**
ATE1 vs ATE2	NS	NS	NS	NS	$p < 0.1$	$p < 0.05$
Potential outcome means of couple households (POM)	52.07***	5.595***	37.64***	19.90***	14.43***	14.31***

Note: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ , +  $p < 0.1$ .

Gender gap in paid work = husband's time – wife's time; gender gap in domestic work = wife's time – husband's time;

### Elderly-parent household vs couple household



### Helper household vs couple household

