Work Hours and Amenity Trade-offs

By César Garro-Marín, Neil Thakral, and Linh T. Tô[*]

Are workers who place a higher value on a specific amenity more likely to receive that amenity in exchange for lower wages? According to the classic compensating differentials model proposed by Rosen (1986), the answer would be yes. However, when considering a bundle of multiple amenities, the relationship becomes more complex.

We present a compensating wage differentials model that incorporates complementarity and substitutability in firms' provision of amenities and workers' preferences for them. Specifically, we allow for the possibility that providing an amenity may be more (or less) costly when combined with other amenities, or that workers may place higher value on amenities offered together. These interactions help explain why some amenities tend to be bundled, while others are more often traded off.

Our empirical analysis examines amenity substitution in the US labor market using data from the National Longitudinal Survey of Youth 1997 cohort (NLSY97). We highlight how shorter or more flexible total work hours are traded off with other workplace amenities, contributing significantly to the gender earnings gap. Our findings suggest that women may need to forgo amenities they value to secure shorter, more flexible work hours.

I. A model of compensating differentials with two amenities

The model follows and extends Rosen (1986). Workers of homogeneous observable productivity (π) sort into firms offering bundles of two amenities (n_A, n_B), where n_d

is an indicator for the provision of amenity $d \in \{A, B\}$.

On the labor demand side, firms face costs k_A and k_B of providing amenities A and B individually, and an additional cost k_{AB} (possibly negative) of providing both amenities together. This term captures any complementarity or substitutability in the provision of amenities. For example, schedule flexibility may be less costly to offer with remote work in place, where coordination becomes less essential, but more expensive in an office setting, where synchronized schedules can generate value for the firm.

On the labor supply side, workers differ in their willingness to pay (WTP) for amenities. Three components describe workers' valuation for amenities. We denote by x_A and x_B the worker's WTP for each amenity separately, while x_{AB} captures the additional WTP for the two amenities together.

Given the prices of amenities A and B, p_A and p_B respectively, and any price interaction p_{AB}, wages are determined by worker productivity net of compensating differentials: $w = \pi - p_A n_A - p_B n_B - p_{AB} n_A n_B$.

Given prices, firms and workers choose the amenity bundle that maximizes their respective rents. Firms' rents are given by $(p_A - k_A)n_A + (p_B - k_B)n_B + (p_{AB} - k_{AB})n_A n_B$, while workers' rents are given by $(x_A - p_A)n_A + (x_B - p_B)n_B + (x_{AB} - p_{AB})n_A n_B$. In equilibrium, amenity prices are such that for all amenity bundles (n_A, n_B), the demand for labor by firms offering each bundle matches the supply of labor by workers seeking it.

Figure 1 provides a summary of how workers choose amenities in equilibrium.[1] To interpret the relationships, first consider the simpler case when there is no price interaction, i.e., the price for A does not depend on whether the worker also has B, and vice

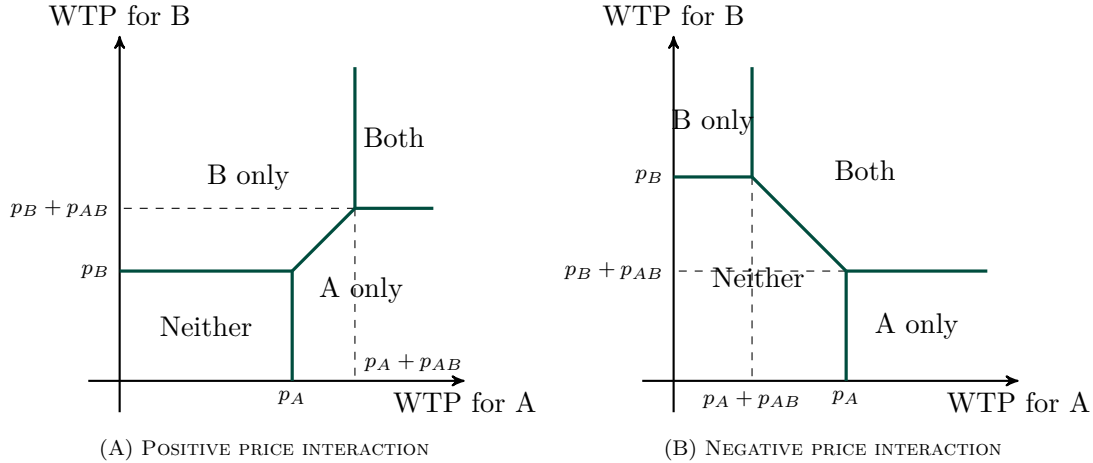(A) Positive price interaction   (B) Negative price interaction

Figure 1. Worker sorting with two amenities

Notes: The figure shows the equilibrium supply of labor by workers seeking different amenity bundles. Panel (a) shows the sorting pattern with a positive price interaction, while panel (b) shows it with a negative interaction.

versa. For each individual amenity, this reduces to the case of one amenity in isolation, i.e., the worker has an amenity if and only if their WTP for that amenity exceeds the price. This scenario results in two orthogonal threshold lines in the WTP space, with the cutoffs dividing the space into four quadrants. In general, however, the price of one amenity may depend on whether the worker also "purchases" the other amenity.

For a positive price interaction (panel A), the combined price of obtaining both A and B together exceeds the sum of their individual prices. In particular, a worker with WTPs for A and B above the standalone thresholds ($x_A > p_A$ and $x_B > p_B$) obtains only one amenity if the added cost of the bundle is too high ($x_A < p_A + p_{AB}$ or $x_B < p_B + p_{AB}$). The 45-degree line segment in the figure represents the locus where the worker is indifferent between getting one of the two amenities and not the other. Its horizontal distance (or, equivalently, its vertical distance) directly corresponds to the magnitude of the additional cost p_{AB}. Workers receive both amenities if their WTPs x_A and x_B are large enough to overcome the additional cost. If not, they receive whichever amenity yields a greater rent (difference between WTP and price).

For a negative price interaction, obtaining both amenities together comes with a dis-

count relative to purchasing each individually. The discount induces a different 45-degree boundary compared to the positive price interaction case. When x_A falls between $p_A + p_{AB}$ and p_A, there is a threshold WTP for B, above which the worker obtains both amenities and below which the worker obtains neither. This threshold decreases one-for-one as the WTP for A rises. Similarly, when x_B falls between $p_B + p_{AB}$ and p_B, analogous logic applies.

Accounting for the pricing of amenity bundles provides a lens for understanding the distribution of workers across different types of jobs. A positive price interaction can cause a worker to have a job with only amenity B despite having a higher WTP for A than another worker who has A. This sheds light on the prevalence of women in jobs with lower pay and fewer hours as opposed to higher-hour roles offering greater flexibility in choosing when and where to work. Even if women tend to have higher WTPs than men for schedule and location flexibility, they may not be more likely to have these amenities. Instead, women may end up with flexibility via reduced hours, which can carry a significant wage penalty and further reinforce gender-based disparities in the labor market.

II. Analysis of changes in amenities during job transitions

Table 1 shows which amenities tend to be bundled together using data from the 1997 cohort of the National Longitudinal Survey of Youth (NLSY97) (Bureau of Labor Statistics, 2024). Most amenities tend to appear together, except for two amenities capturing flexibility in work hours: working reduced hours, and having variability in work hours. However, whether equilibrium prices feature interactions is distinct from the observed associations between amenities in the data. We would not learn about the fundamental amenity interactions if, for example, higher-skilled individuals can afford a pair of amenities while lower-skilled individuals cannot have either.

The ideal way to characterize worker sorting across jobs with different amenity bundles would be to look directly at individuals' WTP, holding skill levels constant, to see which pattern in Figure 1 emerges. Aside from the difficulty of controlling for skills, collecting precise individual-level WTP data presents another challenge.[2]

In settings where such data cannot be collected, tracking job changes can provide useful information for learning about how workers trade off different amenities insofar as their underlying skill or productivity remains the same. The NLSY97 provides rich individual-level data on amenities and worker characteristics, with a panel structure that tracks changes across jobs. Our sample includes employed individuals aged 18 to 64, totaling 6,755 individuals and 55,415 person-years. Details on sample selection and variable definitions appear in Appendix A.[3] We observe 22,284 job transitions, averaging 3.3 per person, with 89 percent involving changes in job amenities, 78 percent resulting in the gain of at

least one amenity, and 73 percent involving the loss of an amenity.

To provide initial evidence on substitution patterns, Table A2 shows pairwise correlations in amenity changes after job changes. Workers gain or lose most amenities together, with the strongest correlations between maternity benefits, paid tuition, and flexible schedule. However, reduced hours and variability in hours are negatively correlated with the other amenities, especially the three listed above.[4]

Despite the advantages of examining job changes, this evidence has its own limitations. In particular, observed job changes could potentially reflect large preference shocks by inframarginal workers. If few workers have an amenity, then the marginal worker's WTP puts them in the tail of the distribution, leaving a large mass of inframarginal workers who might experience significant shocks pushing them into that tail. However, when marginal workers fall near the mode of the WTP distribution, there is less scope for inframarginal workers' job changes to drive the results. Thus, the prevalence of the amenities we focus on partially mitigates this concern.

Another way to address this interpretation issue is to break down job changes more carefully. Specifically, we analyze whether gaining or losing one amenity accompanies changes in another. In the positive price interaction case (Figure 1), a small change in the WTP for A can move workers from having B only to having A only. This transition is much less likely in the negative interaction case, as it requires not only a larger positive shock to the WTP for A but also a large negative shock to the WTP for B. Negatively correlated shocks to WTP become especially unlikely when considering forms of flexibility such as reduced hours and schedule flexibil-

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[2]Drake, Thakral and Tô (2025) presents an estimation strategy to overcome the first issue, while Drake et al. (2025) presents a WTP elicitation method to overcome the second issue.

[3]Table A1 summarizes workers' characteristics (panel A) and the ten amenities in our dataset (panel B). The most common amenities are variability in work hours (57 percent), followed by paid maternity leave and flexible schedules (both at 45 percent).

[4]The trade-off between work-hour flexibility and other amenities also arises in other data sources. For instance, we find that the trade-off between reduced hours and schedule flexibility also arises in the American Working Conditions Panel data from Maestas et al. (2023). The correlations in the presence of workplace amenities (Table A3) and in amenity changes after job transitions (Table A4) both suggest that workers give up schedule flexibility, paid time off, and the ability to work remotely when taking a reduced-hour job.

TABLE 1—CORRELATIONS IN THE PRESENCE OF AMENITIES, ALL WORKERS

	Paid mat.	Unpaid mat.	Ret. plan	Paid tuition	Child-care	Stock opts.	Remote-friendly	Flex. sched.	High hr. var.	Reduced hours
Paid maternity	1.00									
Unpaid maternity	0.37	1.00								
Retirement plan	0.28	0.39	1.00							
Paid tuition	0.40	0.45	0.39	1.00						
Childcare	0.21	0.23	0.19	0.29	1.00					
Stock options	0.32	0.32	0.28	0.38	0.23	1.00				
Remote-friendly	0.18	0.23	0.18	0.23	0.09	0.14	1.00			
Flexible schedule	0.54	0.46	0.35	0.42	0.19	0.33	0.21	1.00		
High hour variability	-0.14	-0.09	-0.08	-0.10	-0.03	-0.13	-0.12	-0.12	1.00	
Reduced hours	-0.40	-0.30	-0.27	-0.27	-0.11	-0.19	-0.15	-0.33	0.20	1.00
Observations	55,415									

Notes: The table shows the correlation in the presence of amenities for all workers. Data from NLSY97.

ity. Analogously, a small change in the WTP for A can move workers from having neither amenity to having both amenities only in the negative price interaction case, but such a transition is much less likely with a positive interaction. Finding similar magnitudes for transitions in the opposite direction, from having both amenities to having neither, further limits the types of shocks that make the alternative interpretation plausible.

We examine the probability of gaining or losing other amenities when workers gain or lose reduced hours after a job transition in Figure 2. Workers gaining reduced hours are most likely to gain variability in work hours (panel A) and to lose paid maternity leave and schedule flexibility (panel B). Conversely, those losing reduced hours are most likely to gain paid maternity leave and schedule flexibility (panel C) and lose variability in hours (panel D). When analyzing transitions to and from occupations with high variability in work hours, our second proxy for work-hour flexibility, we find analogous substitution patterns (Figure A1). Patterns for schedule flexibility mirror the trade-offs seen in transitions involving flexibility in hours (Figure A2).

Figure 2 also illustrates how the trade-offs disproportionately affects women's job choices. Women are more likely than men to give up amenities such as schedule flexibility or paid maternity leave when moving into reduced-hour jobs (panel B) and gain these amenities at higher rates upon leaving such jobs (panel C). Even if women value sched-

ule flexibility more than men, positive price interactions between reduced hours and flexible schedules can push them into lower-hour jobs with fixed schedules. Such interactions appear particularly constraining for women, whose job transitions put them on the margin of trading off these different forms of flexibility more often, and highlight the importance of technological changes allowing for job designs that offer more comprehensive forms of flexibility (Goldin, 2014).

III. Conclusion

This article proposes a model in which firms' provision of amenities and workers' preferences for them can exhibit complementarity or substitutability. Our analysis suggests that offering flexibility in the number of work hours alongside other amenities can be costly, leading workers—especially women—to trade-off reduced hours for other benefits. A promising direction for future work is to incorporate labor force participation decisions into models of amenity provision, as workers' preferences regarding flexible hours, scheduling, and location can play an important role in determining whether they remain in the labor force at all. Future research could also explore how worker skills interact with amenity bundling. High-skilled occupations might be more likely to restrict the ability to combine flexibility in hours with other forms of flexibility, which can further exacerbate gender disparities in labor market outcomes.
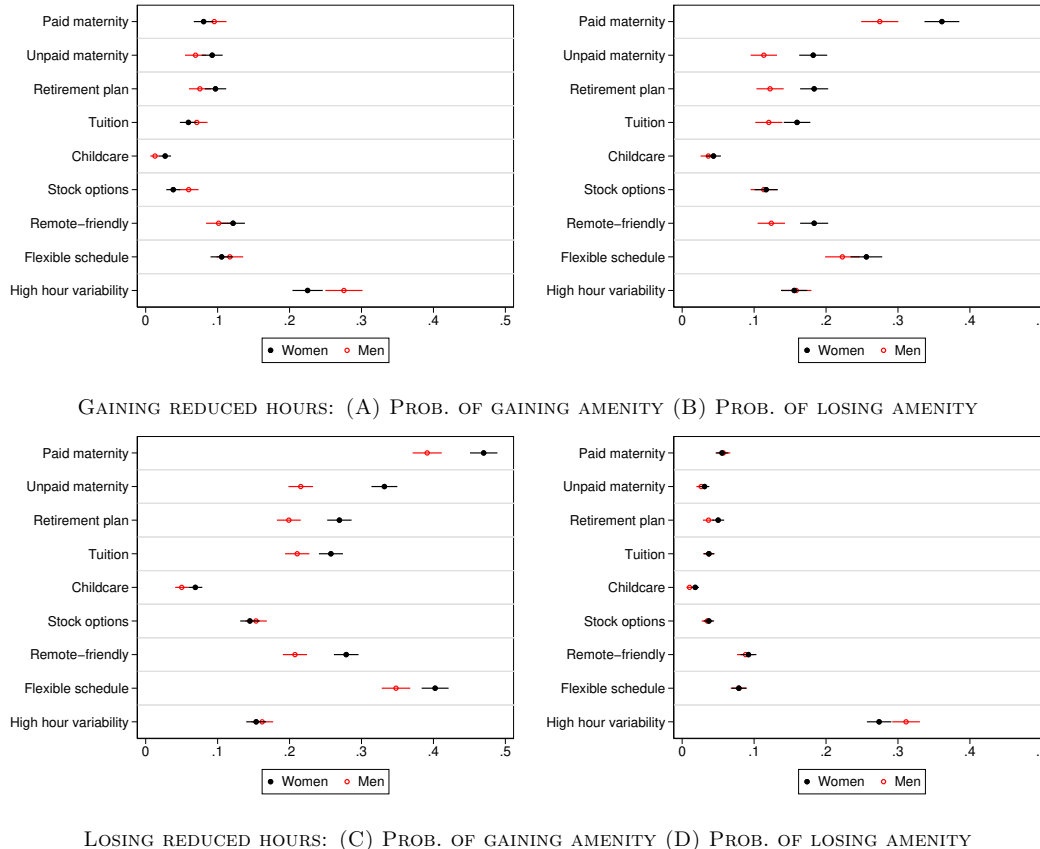
GAINING REDUCED HOURS: (A) PROB. OF GAINING AMENITY (B) PROB. OF LOSING AMENITY

LOSING REDUCED HOURS: (C) PROB. OF GAINING AMENITY (D) PROB. OF LOSING AMENITY

FIGURE 2. PROBABILITY OF TRADING OFF OTHER AMENITIES FOR REDUCED HOURS BY GENDER

Notes: The figure shows the probability of gaining (panel A) or losing (panel B) other amenities following a job transition where the worker gains reduced hours, and the probability of gaining (panel C) or losing (panel D) other amenities following a job transition where the worker loses reduced hours.

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Online Appendix to Work Hours and Amenity Trade-offs

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ADDITIONAL INFORMATION ABOUT THE DATA

We use data from all waves (1–20) from the NLSY97 (Bureau of Labor Statistics, 2024). We restrict the sample to employed workers aged 18 to 64. Whenever respondents had several jobs in a year, we only kept information from their primary job. Our main results make heavy use of job transitions across waves. We define job transitions using the current job start date. In total, we have information for 6,755 individuals across 55,415 person-years. Table A1 summarizes the demographic and job characteristics of the sample.

We consider the job and amenity information provided directly by the survey, excluding job characteristics related to the provision of insurance benefits. Employer-provided insurance is typically priced at the group level, benefiting from risk pooling. We define two additional job traits using the NLSY data: working reduced hours and having high variability in work hours. We say a worker works reduced hours if their weekly hours are below the mean for the sample (35.09 hours per week), while we say that a worker has high variability in work hours if they work in an occupation with a standard deviation in weekly hours of work above the mean (10.87 hours per week). These two traits aim to capture flexibility in choosing the hours to work. The former parallels the definition of flexibility in working hours from Flabbi and Moro (2012), who consider a worker as being in a job that offers the amenity of hours flexibility if they work less than 35 hours per week.

* Garro-Marín: University of Edinburgh, United Kingdom, cgarrom@ed.ac.uk. Thakral: Brown University, United States, neil_thakral@brown.edu. Tô: Boston University, United States, linhto@bu.edu. This material is based upon work supported by the National Science Foundation under Grant Nos. 2149371 and 2149414.

We say a worker is in a remote-friendly job if her occupation has high rates of remote work. Data on remote work comes from the Current Population Survey (CPS) telework supplement (Flood et al., 2024). We use all monthly data from October 2022 to November 2024 and limit the CPS sample to employed workers aged 18 to 64 with a valid occupation. We compute the share of workers doing remote work by occupation title and define an occupation as remote-friendly if its remote work share is above the mean.

We homogenize the occupational classifications between the NLSY and the CPS using the crosswalk published by the Census Bureau (U.S. Census Bureau, 2010). The NLSY classifies occupation according to the 2002 census occupation classification. We converted the CPS-provided occupation codes to the 2002 classification using the crosswalk between the 2010 and 2002 census occupation codes.

We also show supplementary results based on the panel dataset from Maestas et al. (2023). We use their extract from the 2015 and 2018 waves of the American Working Conditions Survey (AWCS) and add two additional variables from the AWCS raw data: weekly usual hours of work and whether the worker changed jobs relative to the previous wave. We restrict the sample to workers aged 18 to 64, employed in both 2015 and 2018. We drop observations with missing values in any of the workplace amenities. We use the amenity definitions from Maestas et al. (2023) and, in addition, define having a reduced-hour job as having usual weekly hours of work below the sample mean (39 hours). In total, we have observations for 945 workers and 1890 person-years.

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Tables and figures

Table A1—Summary statistics

Variable	Observations	Mean	Min	Max	SD
A. Person-level variables					
Number of job transitions	6,755	3.30	0.00	11.00	2.10
Female	6,755	0.50	0.00	1.00	0.50
Black	6,755	0.25	0.00	1.00	0.43
Hispanic or mixed race	6,755	0.20	0.00	1.00	0.40
Some college or more	6,755	0.42	0.00	1.00	0.49
B. Person-year-level variables					
Changed job relative to previous interview	55,415	0.40	0.00	1.00	0.49
Hours per week	55,415	35.09	1.00	100.00	12.71
Paid maternity	55,415	0.45	0.00	1.00	0.50
Unpaid maternity	55,415	0.30	0.00	1.00	0.46
Retirement plan	55,415	0.28	0.00	1.00	0.45
Tuition	55,415	0.25	0.00	1.00	0.43
Childcare	55,415	0.06	0.00	1.00	0.23
Stock options	55,415	0.16	0.00	1.00	0.37
Remote-friendly	55,415	0.32	0.00	1.00	0.47
Flexible schedule	55,415	0.45	0.00	1.00	0.50
High hour variability	55,415	0.57	0.00	1.00	0.50
Reduced hours	55,415	0.36	0.00	1.00	0.48
Number of amenities in the job	55,415	3.19	0.00	10.00	1.99

Notes: The table shows summary statistics for the full sample. Data from NLSY97.

TABLE A2—CORRELATION OF CHANGES IN AMENITIES AFTER JOB TRANSITIONS

	Paid mat.	Unpaid mat.	Ret. plan	Paid tuition	Child-care	Stock opts.	Remote-friendly	Flex. sched.	High hr. var.	Reduced hours
Paid maternity	1.00									
Unpaid maternity	0.30	1.00								
Retirement plan	0.22	0.23	1.00							
Paid tuition	0.32	0.34	0.26	1.00						
Childcare	0.16	0.19	0.16	0.23	1.00					
Stock options	0.27	0.27	0.22	0.31	0.17	1.00				
Remote-friendly	0.09	0.08	0.05	0.08	0.03	0.06	1.00			
Flexible schedule	0.46	0.36	0.21	0.31	0.14	0.27	0.08	1.00		
High hour variability	-0.09	-0.06	-0.06	-0.05	-0.02	-0.07	-0.17	-0.07	1.00	
Reduced hours	-0.31	-0.19	-0.15	-0.17	-0.07	-0.12	-0.11	-0.22	0.10	1.00
Observations	22,284									

Notes: The table shows the correlation between changes in amenities after a job transition.

TABLE A3—CORRELATIONS IN CHANGES IN AMENITIES FOLLOWING JOB TRANSITIONS, AMERICAN WORKING CONDITIONS SURVEY

	Works remotely	Own schedule	Mostly sitting	Chooses work	Training opps.	Relaxed pace	Works by self	Has PTO	Positive impact	Team-based	Phys. activity	Reduced hours
Can work remotely	1.00											
Sets own schedule	0.31	1.00										
Mostly sitting	0.16	0.09	1.00									
Chooses how to work	0.10	0.14	0.04	1.00								
Training opportunities	0.08	0.08	0.06	0.06	1.00							
Relaxed pace	0.04	0.00	0.09	0.04	-0.00	1.00						
Works by self	0.02	0.01	0.07	-0.00	-0.08	0.15	1.00					
Has PTO	0.00	-0.03	0.11	0.07	0.02	-0.06	-0.07	1.00				
Positive impact	0.00	0.05	-0.08	0.07	0.02	-0.04	-0.10	0.06	1.00			
Team-based, evaluated as team	-0.06	-0.01	-0.06	-0.01	0.04	-0.08	-0.78	0.04	0.09	1.00		
Moderate physical activity	-0.08	-0.01	-0.75	0.02	-0.02	0.01	-0.04	-0.08	0.12	0.02	1.00	
Reduced hours	-0.11	-0.03	-0.11	-0.05	-0.03	0.09	0.08	-0.34	-0.02	-0.01	0.09	1.00
Observations	1,890											

Notes: The table pools the 1,890 person-years observations for 945 workers. Amenities are sorted by the value of the correlation with the ability to work remotely. Data from Maestas et al. (2023)'s extract of the American Working Conditions Survey.

TABLE A4—CORRELATIONS IN CHANGES IN AMENITIES FOLLOWING JOB TRANSITIONS, AMERICAN WORKING CONDITIONS SURVEY

	Works remotely	Own schedule	Mostly sitting	Chooses work	Training opps.	Relaxed pace	Works by self	Has PTO	Positive impact	Team-based	Phys. activity	Reduced hours
Can work remotely	1.00											
Sets own schedule	0.09	1.00										
Mostly sitting	0.18	0.01	1.00									
Chooses how to work	0.11	-0.05	-0.03	1.00								
Training opportinities	-0.00	0.07	0.03	0.02	1.00							
Relaxed pace	-0.03	0.13	0.09	-0.04	0.07	1.00						
Works by self	0.07	0.08	-0.03	0.02	0.03	0.12	1.00					
Has PTO	0.03	-0.04	-0.00	0.12	-0.00	-0.08	0.04	1.00				
Positive impact	-0.09	-0.03	-0.08	0.08	0.02	-0.08	-0.05	0.10	1.00			
Team-based, evaluated as team	-0.00	0.02	0.10	-0.03	-0.01	-0.03	-0.76	-0.05	-0.05	1.00		
Moderate physical activity	-0.09	0.09	-0.68	0.03	-0.02	0.01	0.02	-0.04	0.04	-0.08	1.00	
Reduced hours	-0.05	-0.01	-0.11	-0.02	-0.04	0.10	0.06	-0.37	-0.00	0.04	0.01	1.00
Observations	199											

Notes: The table shows the correlation between changes in amenities for the 199 workers who changed jobs between 2015 and 2018. Data from Maestas et al. (2023)'s extract of the American Working Conditions Survey.
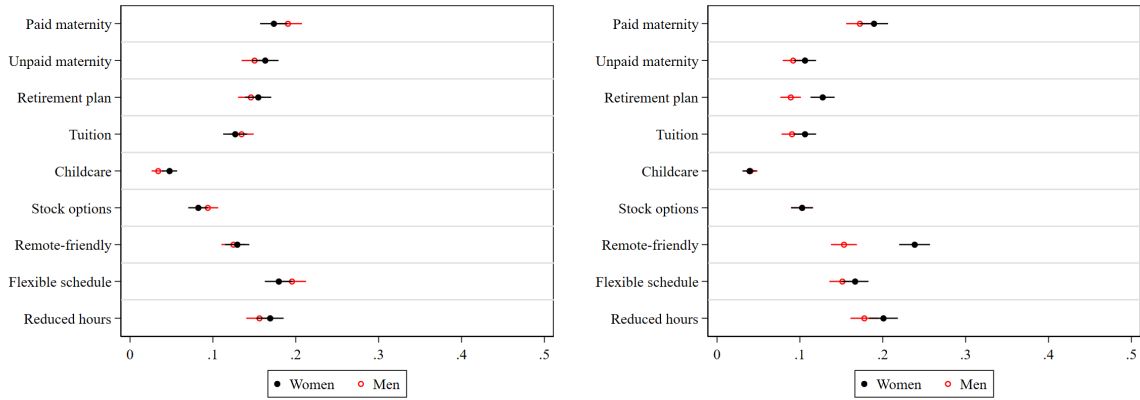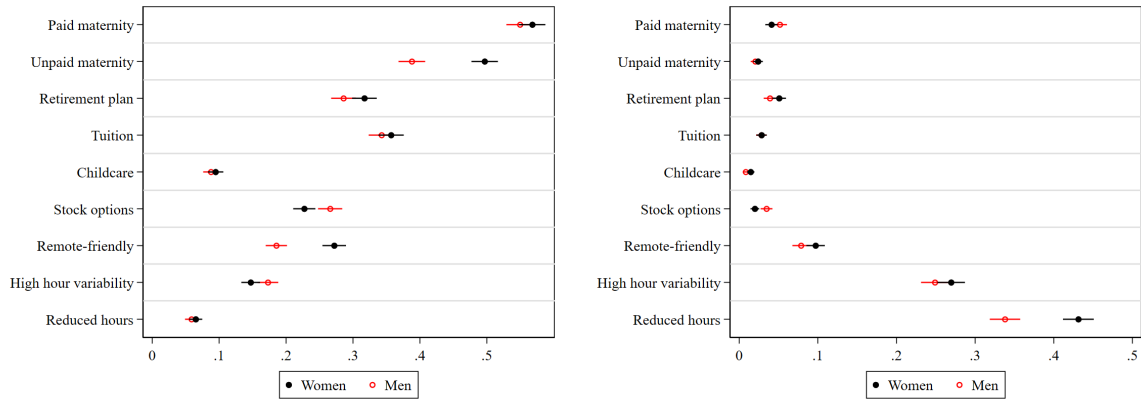
Gaining high hour variability: (A) Prob. of gaining amenity (B) Prob. of losing amenity
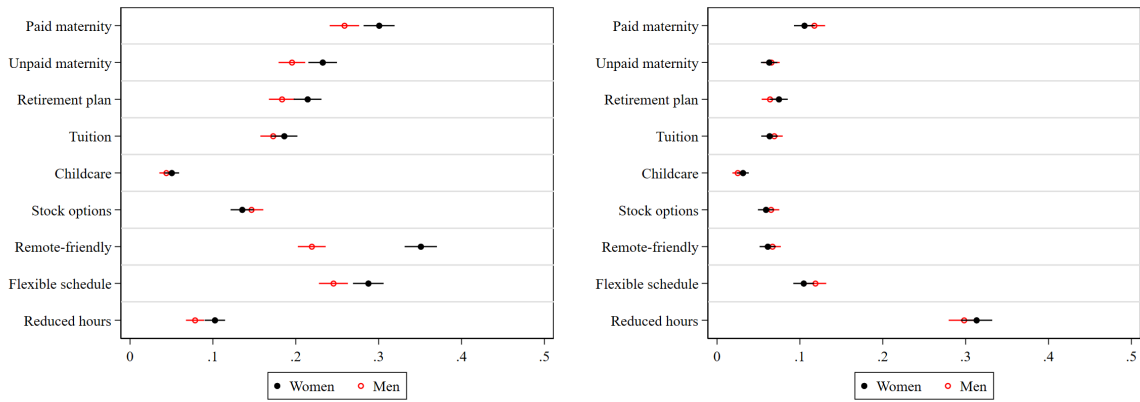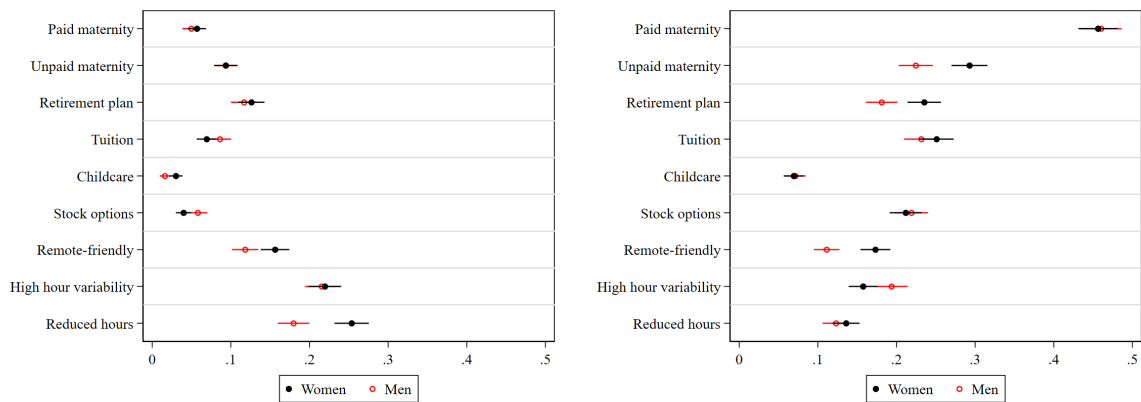

Losing high hour variability: (C) Prob. of gaining amenity (D) Prob. of losing amenity

Figure A1. Probability of trading off other amenities for hour variability by gender

Notes: The figure shows the probability of gaining (panel A) or losing (panel B) other amenities following a job transition where the worker gains high hour variability, and the probability of gaining (panel C) or losing (panel D) other amenities following a job transition where the worker loses high hour variability.

GAINING SCHEDULE FLEXIBILITY: (A) PROB. OF GAINING AMENITY (B) PROB. OF LOSING AMENITY

LOSING SCHEDULE FLEXIBILITY: (C) PROB. OF GAINING AMENITY (D) PROB. OF LOSING AMENITY

FIGURE A2. PROBABILITY OF TRADING OFF OTHER AMENITIES FOR SCHEDULE FLEXIBILITY BY GENDER

Notes: The figure shows the probability of gaining (panel A) or losing (panel B) other amenities following a job transition where the worker gains schedule flexibility, and the probability of gaining (panel C) or losing (panel D) other amenities following a job transition where the worker loses schedule flexibility.