

Paradigm shifts in Gender Economics: A New Era

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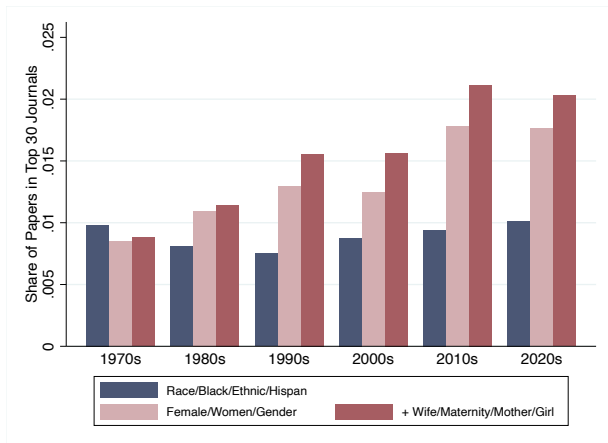
@Sevilla_Almu

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It's a good time to do research in Gender Economics



Source: Olivetti, Pan and Petrongolo (forthcoming) Handbook of Labor Economics

... for having advanced our understanding of women's labor market outcomes

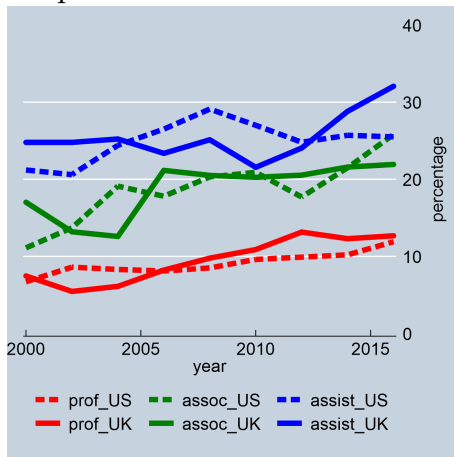


Why do/should we care?

- Significant strides made towards gender equality but...
- Economic Problem: Important, large, persistent hurdles on the path towards gender equality in all countries:
 - Gender gaps in employment and wages
 - ▶ Earnings gaps ranging from 20% to 80%
 - ▶ Women do not make it to the top
 - Educational choices less conducive to lucrative careers
 - ▶ Occupational segregation explains 1/3 of the gender-based difference in earnings [Goldin, 2021]
 - Gender gaps in paid work more than offset by women's disproportionate involvement in unpaid work, even among breadwinners [Gimenez-Nadal et al., 2010][Bertrand et al., 2021]

Why do/should we care?

Trends in Female Representation in Economics - The US and the UK



Notes: UK data obtained from the 2000-2016 Royal Economics Society Women's Committee Survey on Gender Balance of Academic Economics for the 24 Russell Group Universities. Source. [\[Gamage et al., 2020\]](#)

Why do/should we care? Equity

- Women Empowerment and Economic Development
- **Equity:** 50-50
- ".. continuous policy commitment to **equality for its own sake** may be needed to bring about equality between men and women." [Duflo, 2012]

Why do/should we care? Equity

"In order to bring about **equity between men and women**, in my view a very **desirable goal in and of itself**, it will be necessary to continue to take **policy actions that favor women at the expense of men**, and it may be necessary to continue doing so for a very long time." [Duflo, 2012]

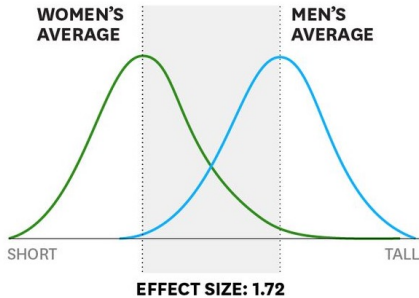
Why do/should we care? Efficiency

The Economic Problem: Mis-allocation of (female) talent more generally:

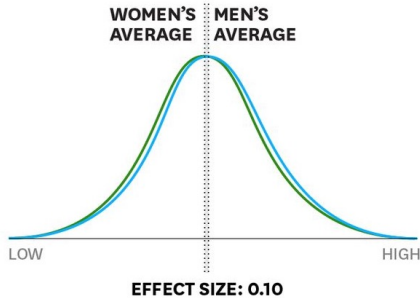
- **Efficiency:** Better allocation of talent → Productivity and economic growth:
 - Women's increased labour force participation during 1960-2000 → GDP pp between 20-40 per cent [Hsieh et al., 2019]
 - Equalising barriers to labor force participation would increase firm productivity by 32% keeping employment and the wage bill constant [Ashraf et al., 2022]

Similar Gender Skill Distribution

HEIGHT



SELF-ESTEEM/CONFIDENCE



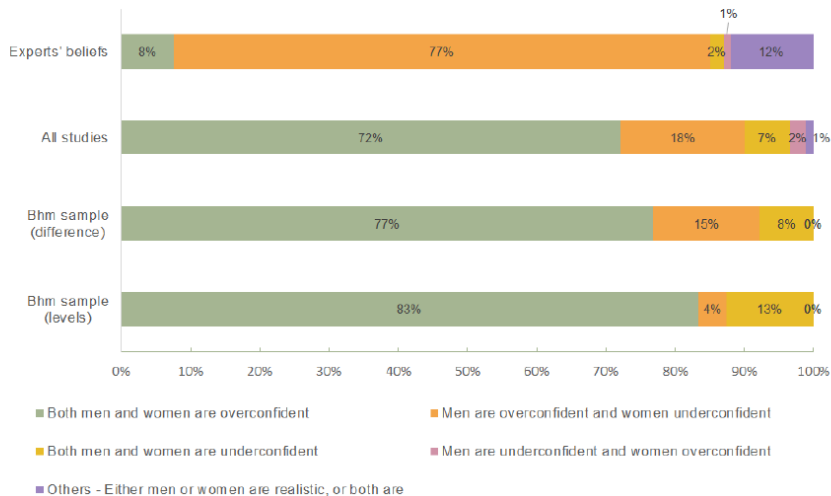
NOTE STATISTICIANS CONSIDER AN EFFECT SIZE OF LESS THAN 0.20 TO BE “TRIVIAL,” 0.20–0.49 TO BE “SMALL,” 0.50–0.79 TO BE “MEDIUM,” AND 0.80 OR MORE TO BE “LARGE.”
FROM “WHAT MOST PEOPLE GET WRONG ABOUT MEN AND WOMEN,”
BY CATHERINE H. TINSLEY AND ROBIN J. ELY, MAY–JUNE 2018

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[Tinsley and Ely, 2018] [Bertrand, 2017] [Hyde, 2005]

Economists' beliefs on overconfidence

[Bandiera et al., 2022]



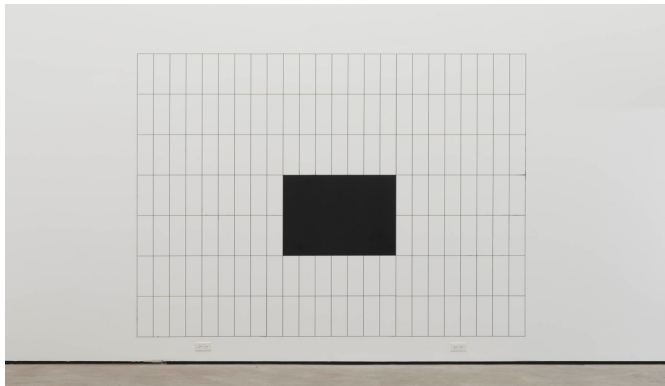
The Motherhood Penalty

After the birth of the first child [Kleven et al., 2019]:

- Women's earnings drop 30%, Men's earnings drop 0
- Ten years after, the gender earnings gap is 20%
- The primary cause of the gender earnings gap:
 - **Women's work hours decrease** significantly after childbirth
 - Work hours **never fully recover**

Supply-side explanation: Time demands from children constrain women's ability to work more hours

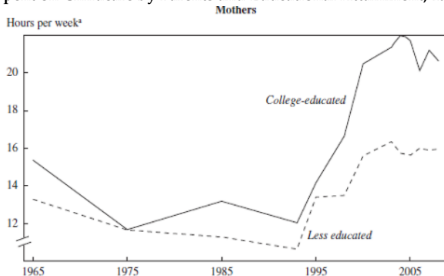
2023 Turner Prize Finalist



Ghislaine Leung, *Hours*, 2022 Score: A wall painting the size of the artist's home studio wall divided into all the hours of the week with the portion of studio hours available to the artist marked in black. Thursday 9AM-4PM, Friday 9AM-4PM.

Childcare Has Increased Over Time, Especially for Higher-Educated Mothers

Time Spent on Childcare by Parents and Educational Attainment, 1965–2008



Source: [Ramey and Ramey, 2010] Others: [Gimenez-Nadal and Sevilla, 2012] [Doepke et al., 2019] [Borra and Sevilla, 2019]

A Paradigm Shift

Modeling Parental Time Investments : A Paradigm Shift for Addressing Gender Inequality in the Labor Market

Pilar Cuevas-Ruiz (LSE)
Nacho Gimenez-Nadal (U Zaragoza)
Sveva Manfredi (LSE)
Almudena Sevilla (LSE)

The Care Economy, Jones, E. and I. Ruiz Olaya Eds.
Oxford Review of Economic Policy (OXREP)

A New Model of Parental Time Investments

- Despite over 60 years of gender-equality policies like maternity and paternity leave and childcare subsidies, achieving gender equality remains elusive. [Kleven et al., 2020]

A New Model of Parental Time Investments - Contribution

Existing research **misses critical** aspects that influence labor market participation, especially for mothers.

- Existing research focuses **narrowly** on:
 - Parental time investments involving **direct interaction** with children (**primary childcare**).
 - Emphasis on the **early years**, overlooking changes as children grow.
- Propose a new way of modeling parental time investments:
 - Parental time investments go beyond early years.
 - Parental time investments includes being **on-call**, not just direct interactive care.

Parental Time Investments by a Child's Age

- **Primary (Interactive) Childcare:** [Ramey and Ramey, 2010] [Ryan et al., 2012]
 - **Preschool 0-5:** Basic care, such as feeding, play, educational games
 - **Middle Childhood 6-12:** Management and travel, Teaching (helping with homework)
 - **High School 13-18:** Talking (career guidance, life decisions)
- **On-call Parental Time Investment:**
 - **Preschool Age 0-5:** Supervision, conflict resolution, emotional reassurance [Folbre et al., 2005]
 - **Middle School 6-11:** Monitoring of homework, offering assistance when needed
 - **High School 12-18:** Emotional availability, providing support during decision-making and crises

Why now?

Long Series in the American Time Use Survey (ATUS):

- Information on daily activities (total time, a child present, whether caring for a child) [Folbre and Yoon, 2007]
- Yearly since 2003 Kleven [2023] => Pseudo - Event Study Approach

Why now? Importance of Investing in Adolescence

- Recent development in neuroscience establishes the malleability of the prefrontal cortex into the early 20s (Dahl, 2004).
 - Neuro-behavioural Changes in Adolescence (Dahl et al., 2018):
 - ▶ Increased motivational salience of social dynamics (peers, status, prestige, sexual and romantic interest)
 - ▶ Increased sensation and/or novelty seeking
 - ▶ Changes in face processing
 - ▶ Changes in sleep and circadian regulation
 - ▶ Other Neurobiological changes
 - Different types of abilities appear to be manipulatable at different ages and adolescence is a critical period (Cunha and Heckman, 2009).
- Latest findings in child development shows that parents influence adolescent health and well-being more than peers (Morris et al., 2017).

A New Model of Parental Time Investments - Primary Childcare

- **Primary childcare:** Time spent in activities reported by the respondent to be "childcare" [Guryan et al., 2008] [Ramey and Ramey, 2010]
 - Basic caring for and Helping Household Children
 - Activities Related to Household Children's Education
 - Traveling related to children
 - Telephone Calls related to children

A New Model of Parental Time Investments - On-Call Parental Time Investment

- **On-call Parental Time Investment:** Time spent in Non-primary childcare activities (like leisure, housework) while being available for a child [Folbre et al., 2005]:
 - Child present: "Who was in the room with you" / "Who accompanied you"

Methods I: Pseudo-Event Study Approach

Following Kleven et al., 2023, we use a **pseudo-event study approach** to examine the evolution of parental time investment over time.

- Estimates the causal effect of parenthood on time spent in childcare by matching individuals with and without children at different event times.
- Three dimensions of time:
 - Calendar time (t)
 - Age (a)
 - Event time (τ)—measured relative to the birth of the first child.
- Matching variables include demographic characteristics such as gender, education, marital status and age.

Methods II: Regression Specification

We run the following specification separately for men and women::

$$Y_{it}^g = \beta^g \mathbf{D}_{i\tau}^{\text{Event}} + \gamma^g \mathbf{D}_{ia}^{\text{Age}} + \delta^g \mathbf{D}_{it}^{\text{Year}} + \varepsilon_{it}^g$$

- Y_{it}^g : Childcare outcome (primary, on-call, or total parental time investment) for individual i of gender g at calendar time t .
- β^g captures the effect of childbirth at different event times (τ) compared to childless individuals.
- A positive β^g indicates an increase in childcare time after childbirth at that specific event time τ , relative to the base year ($\tau = -2$, the year before pregnancy to before) using childless individuals as a control group.
- Age (γ^g), calendar year (δ^g).

Data and Sample

- Data from the American Time Use Survey (ATUS), covering the period from 2003 to 2022.
 - Provides detailed daily activity data from individuals over the age of 15.
 - Sample is drawn from households that previously participated in the Current Population Survey (CPS).
- We sample households where the respondent is aged 20-50.
- Final sample includes:
 - **Cross-section data:** 120,028 respondents (Men: with child 30,583, no child 23,273; Women: with child 47,051, no child 19,121)
 - **Pseudo-Panel data:** 3,785 respondents (Men: $\tau = 0$: 1,112, $\tau = -1$: 1,007; Women: $\tau = 0$: 1,407, $\tau = -1$: 1,259)

ATUS Questionnaire - Activity Recording

What did you do next? ← **Question text**

• **Read if necessary:** An activity is anything you did during the day. Activities include both active tasks like socializing, preparing food, or eating; and more quiet tasks like thinking and relaxing. Right now, you are talking to me on the telephone. Talking on the telephone is one type of activity. ← **Interviewer Instructions**

1. Sleeping
 2. Grooming (self)
 3. Watching TV
 4. Working at main job
 5. Working at other job
 6. Preparing meals or snacks
 7. Eating and drinking
 8. Cleaning kitchen
 9. Doing Laundry
 10. Grocery shopping
 11. Attending religious service
 12. Paying household bills
 30. Don't know/Can't remember
 31. Refusal/ None of your business

← **Pre-coded activities**

	Start	UD	Activity	TIME	Hrs	Mins	Stop	Who	Who_2	Where	Where specify	Variables
[1]	4:00AM		Sleeping	1	4		8:00AM					
[2]	8:00AM		Grooming	1		30	8:30AM					
[3]	8:30AM		Driving to work	1		30	9:00AM	0		12	Car, truck, or motor	
[4]	9:00AM		Working	1		30	9:30AM	0		2	Respondent's work	
[5]	9:30AM			1								
[6]												
[7]												
[8]												

ATUS Questionnaire - With Whom

What did you do next? ← **Question text**

• **Read if necessary:** An activity is anything you did during the day. Activities include both active tasks like socializing, preparing food, or eating; and more quiet tasks like thinking and relaxing. Right now, you are talking to me on the telephone. Talking on the telephone is one type of activity. ← **Interviewer Instructions**

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← **Pre-coded activities**

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[4]	9:00AM		Working	1		30	9:30AM	0		2	Respondent's work	
[5]	9:30AM			1								
[6]												
[7]												
[8]												

Descriptive Statistics in the Cross-Section

Table 1: Descriptive Statistics in the Cross-Section

	Men			Women		
	Child	No Child	Difference	Child	No Child	Difference
On-Call Parental Time Investment	29.62	0	29.62	35.17	0	35.17
Primary Childcare	8.15	0	8.15	13.09	0	13.09
Total Parental Time Investment	37.77	0	37.77	48.26	0	48.26
Age	38.81	34.74	4.07	37.19	35.08	2.11
Fraction College	0.51	0.44	0.07	0.50	0.49	0.01
Fraction High-School or below	0.49	0.57	-0.08	0.50	0.46	0.04
Fraction Ever Married	0.94	0.37	0.57	0.85	0.45	0.40
Number of Individuals	30,583	23,273		47,051	19,121	

Note: This table compares time use outcomes in hours per week and demographic outcomes for men and women with and without children in cross-sectional data. The sample includes all individuals aged 20-50 from 2003 to 2022 from ATUS-CPS data.

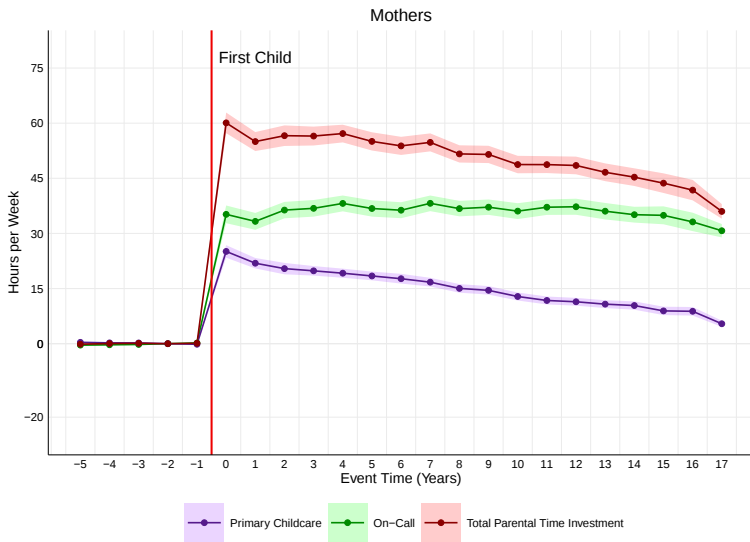
Descriptive Statistics in the Pseudo-Panel

Table 2: Descriptive Statistics in Pseudo-Panel

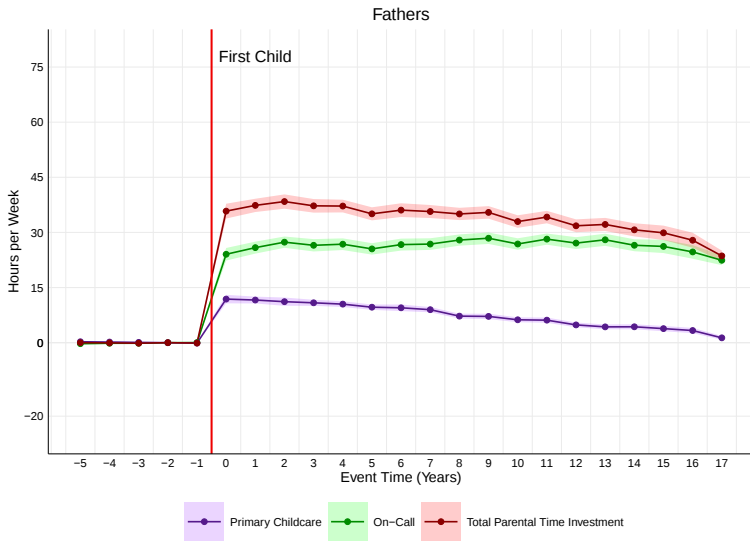
	Men			Women		
	$\tau = 0$	$\tau = -1$	Difference	$\tau = 0$	$\tau = -1$	Difference
On-Call Parental Time Investment	28.99	0	28.99	36.76	0	36.76
Primary Childcare	12.40	0	12.40	25.13	0	25.13
Total Parental Time Investment	41.39	0	41.39	61.89	0	61.89
Age	31.28	30.85	0.43	28.96	28.47	0.49
Fraction College	0.58	0.62	0.04	0.62	0.66	0.04
Fraction High-School or below	0.41	0.38	0.03	0.38	0.34	0.04
Fraction Ever Married	0.88	0.87	0.01	0.77	0.78	0.01
Number of Individuals	1,112	1,007		1,407	1,259	

Notes: This table compares time-use outcomes in hours per week and demographic outcomes for matched men and women at event times $\tau = 0$ and $\tau = -1$ in the pseudo-panel. By construction, individuals at event time $\tau = 0$ are exactly one year older and born in the same cohort as those at event time $\tau = -1$. Also by construction, individuals at $\tau = 0$ and $\tau = -1$ match exactly on all demographic characteristics, but not on time-use outcomes. The sample includes all matched parents at $\tau = 0$ (together with their matched non-parents at $\tau = -1$) with an age at first birth between 20–50 in all years of the pooled ATUS-CPS data.

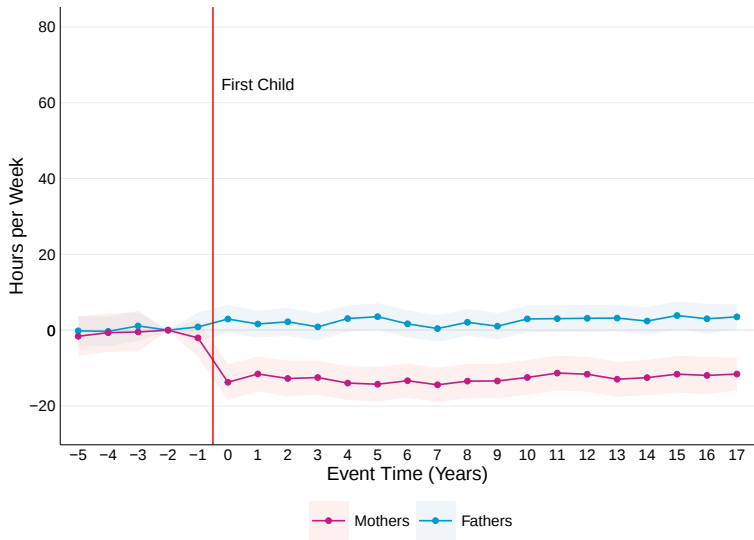
Parental Time Investment - Mothers



Parental Time Investment - Fathers



Paid Work Hours



Parental time investments can explain the Motherhood Penalty in work hours

	Age 0	Age 5	Age 10	Age 16
% Primary Childcare	72%	41%	36%	23%
% On-Call Parental Time Investment	44%	47%	35%	30%
% Total Explained	116%	88%	71%	53%

Parental time investments can explain the Motherhood Penalty

- **State of the Art:** Parental time investments in primary childcare increases when children are born, then drops to negligible levels as children age. Do not explain the paid work hours gap between men and women.
- **New Paradigm:** On-call parental time investments spikes at birth, stay high as children age. Explain between 50%-100% of the paid work hours gap between men and women.

Parental time investments can explain the Motherhood Penalty, How?

- In the first two years, the gender gap in paid work hours is mainly explained by primary childcare (72% vs. 44%).
- By age 16, on-call parental time investments contribute more to the gender gap in work hours than primary childcare (23% vs. 30%).

How do we move forward: New Economic Models

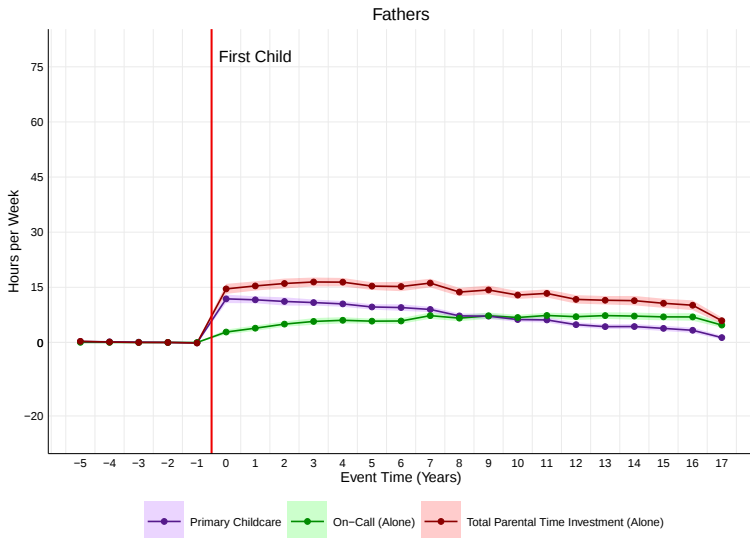
- New economic models:
 - Human Capital Formation Models: Ex. Dynamic complementarities [Heckman, 2007] [Cunha and Heckman, 2007]
 - Household Resource Allocation Models: Ex. Transferable utility, Substitutability of mother's and father's time (and the market provision) in the production function [Becker, 1965] [Chiappori, 1992] [Lundberg and Pollak, 1993]
 - Being on-call at work and at home [Goldin, 2021]
- New empirical analysis: ATUS vs HETUS (Harmonised European time use surveys)

How do we move forward: New Policy Approach

Recognize the on-demand nature of parental time investments to better support women's work-family balance and reduce the gender pay gap:

- Support remote work: Invest in robust digital infrastructure to provide necessary tools and resources for effective **home-based work**.
- Establish community support networks for parents: Foster local community initiatives, including **youth clubs**.

Remote work as a policy solution? Parental Time Investments -Fathers (Alone)



Community support for older children as a policy solution?

Youth clubs in Britain have been vanishing

Their impact is hard to measure, but can be profound



See the difference PHOTOGRAPH: GETTY IMAGES

Thank You!

References I

- Ashraf, N., Bandiera, O., Minni, V., and Quintas-Martínez, V. (2022). Gender roles and the misallocation of labour across countries. Working paper.
- Bandiera, O., Parekh, N., Petrongolo, B., and Rao, M. (2022). Men are from mars, and women too: A bayesian meta-analysis of overconfidence experiments. *Economica*, 89(355):544–575.
- Becker, G. S. (1965). A theory of the allocation of time. *The Economic Journal*, 75(299):493–517.
- Bertrand, M. (2017). Gender in the twenty-first century. *American Economic Review: Papers and Proceedings*, 107(5):1–24.

References II

- Bertrand, M., Cortes, P., Olivetti, C., and Pan, J. (2021). Social norms, labour market opportunities, and the marriage gap between skilled and unskilled women. *The Review of Economic Studies*, 88(4):1936–1978.
- Borra, C. and Sevilla, A. (2019). Competition for university places and parental time investments: Evidence from the united kingdom. *Economic Inquiry*, 57(3):1325–1346.
- Chiappori, P.-A. (1992). Collective labor supply and welfare. *Journal of Political Economy*, 100(3):437–467.
- Cunha, F. and Heckman, J. (2007). The technology of skill formation. *American Economic Review*, 97(2):31–47.
- Cunha, F. and Heckman, J. J. (2009). Human capital formation in childhood and adolescence. *CESifo DICE Report*, 7(4):22–28.

References III

- Dahl, R. E. (2004). Adolescent brain development: A period of vulnerabilities and opportunities. keynote address. *Annals of the New York Academy of Sciences*, 1021(1):1–22. Source: PubMed.
- Dahl, R. E., Allen, N. B., Wilbrecht, L., and Suleiman, A. B. (2018). Importance of investing in adolescence from a developmental science perspective. *Nature*.
- Doepke, M., Sorrenti, G., and Zilibotti, F. (2019). The economics of parenting. *Annual Review of Economics*, 11:55–84.
- Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic Literature*, 50(4).
- Folbre, N. and Yoon, J. (2007). What is child care?: Lessons from time-use surveys of major english-speaking countries. *Review of Economics of the Household*, 5(3):223–248.

References IV

- Folbre, N., Yoon, J., Finnoff, K., and Fuligni, A. S. (2005). By what measure? family time devoted to children in the united states. *Demography*, 42:373–390.
- Gamage, D. K., Sevilla, A., and Smith, S. (2020). Women in economics: A uk perspective. *Oxford Review of Economic Policy*, 36(4):962–982.
- Gimenez-Nadal, J. I. and Sevilla, A. (2012). Trends in time allocation: A cross-country analysis. *European Economic Review*, 56(6):1338–1359.
- Gimenez-Nadal, J. I., Sevilla-Sanz, A., and Fernández, C. (2010). Gender roles and the division of unpaid work in spanish households. *Feminist Economics*, 16(4):137–184.
- Goldin, C. (2021). *Career and family: Women's century-long journey toward equity*. Princeton University Press.

References V

- Guryan, J., Hurst, E., and Kearney, M. S. (2008). Parental education and parental time with children. *Journal of Economic Perspectives*, 22(3):23–46.
- Heckman, J. J. (2007). The economics, technology, and neuroscience of human capability formation. *Proceedings of the National Academy of Sciences*, 104(33):13250–13255.
- Hsieh, C., Hurst, E., Jones, C. I., and Klenow, P. J. (2019). The allocation of talent and US economic growth. *Econometrica*, 87(5).
- Hyde, J. S. (2005). The gender similarities hypothesis. *American Psychologist*, 60(6):581–592.
- Kleven, H., Landais, and Søgaaard, E. (2019). Children and gender inequality in denmark). *American Economic Journal: Applied*.

References VI

- Kleven, H., Landais, C., and Leite-Mariante, G. (2023). The child penalty atlas. Technical report, National Bureau of Economic Research.
- Kleven, H., Landais, C., Posch, J., Steinhauer, A., and Zweimüller, J. (2020). Do family policies reduce gender inequality? evidence from 60 years of policy experimentation (no. w28082). *National Bureau of Economic Research*.
- Kleven, H. J. (2023). *The geography of child penalties and gender norms: A pseudo-event study approach*. National Bureau of Economic Research.
- Lundberg, S. and Pollak, R. A. (1993). Separate spheres bargaining and the marriage market. *Journal of Political Economy*, 101(6):988–1010.

References VII

- Morris, A. S., Criss, M. M., Silk, J. S., and Houltberg, B. J. (2017). The impact of parenting on emotion regulation during childhood and adolescence. *Child Development Perspectives*, 11(4):233–238.
- Ramey, G. and Ramey, V. A. (2010). The rug rat race. *Brookings Papers on Economic Activity*, 2010(1):129–199.
- Ryan, R. M., Kalil, A., and Corey, M. (2012). Diverging destinies: Maternal education and the developmental gradient in time with children. *Demography*, 49(4):1449–1473.
- Tinsley, C. H. and Ely, R. J. (2018). What most people get wrong about men and women: Research shows the sexes aren't so different. *Harvard Business Review*, 96(3):114–121.