

Life Cycle of Female Labor Supply, Marriage and Divorce ^{*}

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Abstract

This paper documents novel findings that Black women experience only half the child penalties as white women, using the Panel Study of Income Dynamics. The racial gap is driven by married Black women with high wages returning to the labor market almost immediately after childbirth. The gap remains after exhaustively controlling for the distribution of all variables in PSID. Motivated by the fact that Black women have a much higher divorce rate over the life course, I estimate a life cycle model of female labor supply, consumption, and savings with uncertainty in divorce shock. Only allowing the marriage rate to be race-specific, the model generates child penalty results similar to empirical estimates. The structural model illustrates that Black women stay in the labor market to prevent human capital from depreciating to self-insure against marriage shocks.

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1 New draft

Divorce Risk and Economic Insecurity: Divorce can lead to significant income loss, especially for women who may not have accumulated enough wealth or human capital to sustain their consumption levels after separation. If Black women perceive a higher divorce risk, they may be more likely to enter the labor force or work more hours to build economic security. Precautionary Labor Supply: If the risk of divorce is higher, women might work more to accumulate savings or increase their earnings potential (through human capital accumulation) in case they need to support themselves in the future. Human Capital Accumulation: In a higher divorce-risk environment, women might also invest more in their human capital to increase their future wage potential, which would influence their current labor supply.

Higher divorce risk could lead to more precautionary savings and labor force participation. In your model, this would manifest as higher labor supply when the expected value of future consumption is lower (due to potential divorce).

2 Appendix

2.1 Data Appendix

MARITAL STATUS 1 This version of marital status is comparable to 1968-1976 data (Are you married, single, widowed, divorced, or separated?), in which no distinction was made between those legally married and those who merely cohabited.

So my definition is Married or permanently cohabitating; spouse may be institutionalized and therefore not in the FU (cohabitor who has lived with Head for 12 months or more).

2 The values for this variable indicate the total number of marriages reported for this individual as of the wave indicated in ER32033. For a detailed description of the types of people about whom marital history information was gathered, see the 1985-2021 Marriage History File Documentation, Section I.

Total labor income This is the sum of the actual amounts of labor part of farm income and business income, bonuses, overtime, commissions, professional practice,

trade.

This variable is the sum of several labor income components from the raw data, including, in addition to wages and salaries (ER20425), any separate reports of bonuses (ER20427), overtime (ER20429), tips (ER20431), commissions (ER20433), professional practice or trade (ER20435), market gardening (ER20437), miscellaneous labor income (ER20439), and extra job income (ER20441).

Childbirth The values for this variable indicate the total number of children born to this individual as of the wave indicated in ER32021. For a detailed description of the types of people about whom birth history information was gathered, see the 1985-2021.

3 Introduction

Following childbirth, mothers experience a significant decrease in their labor market income, while fathers tend to remain unaffected. This phenomenon, often referred to as the 'child penalty,' contributes to approximately two-thirds of the overall gender earnings gap in the United States (Cortés and Pan, 2020). Several studies by (Kleven et al., 2019, 2020, 2021) have examined factors such as comparative advantage, biology, and parental leave policies, but have found them insufficient in explaining the child penalty. Instead, the recent literature considers preferences, gender norms, and labor market discrimination as lead candidates (Andresen and Nix, 2022; Cortés and Pan, 2020; Kleven, 2023; Kleven et al., 2021).

Despite norms and discrimination being potential mechanisms, it is surprising that little is known about the racial difference in child penalties. There are three reasons that we may expect that child penalty may differ between Black and white populations. First and most importantly, racial difference in female labor supply has been a puzzle in economics and sociology literature. Goldin (1977) first and later Boustan and Collins (2014) find that Black women had a higher labor force participation than white women and the striking racial difference in female labor supply remains after controlling for environmental, economic, demographic, and family variables. Sociologists suggest that Black households may have more progressive gender attitudes than white counterparts (Scarborough et al., 2021). Historians suggest

some untested hypotheses that this racial difference in gender norms for work may be potentially due to slavery (Davis, 1981) or discrimination in masculinity identity construction (Bederman, 1995).

References

- Martin Eckhoff Andresen and Emily Nix. What causes the child penalty? evidence from adopting and same-sex couples. *Journal of labor economics*, 40(4):971–1004, 2022.
- Gail Bederman. “civilization,” the decline of middle-class manliness, and ida b. wells’s. *We Specialize in the Wholly Impossible: A Reader in Black Women’s History*, 17: 407, 1995.
- Leah Platt Boustan and William J Collins. The origin and persistence of black-white differences in women’s labor force participation. In *Human capital in history: The American record*, pages 205–240. University of Chicago Press, 2014.
- Patricia Cortés and Jessica Pan. Children and the remaining gender gaps in the labor market. Technical report, National Bureau of Economic Research, 2020.
- Angela Y Davis. *Women, Race, & Class*. Vintage Books, 1981.
- Claudia Goldin. Female labor force participation: The origin of black and white differences, 1870 and 1880. *The Journal of Economic History*, 37(1):87–108, 1977.
- Henrik Kleven. The geography of child penalties and gender norms: Evidence from the united states. Technical report, National Bureau of Economic Research, 2023.
- Henrik Kleven, Camille Landais, and Jakob Egholt Søgaaard. Children and gender inequality: Evidence from denmark. *American Economic Journal: Applied Economics*, 11(4):181–209, 2019.
- Henrik Kleven, Camille Landais, Johanna Posch, Andreas Steinhauer, and Josef Zweimüller. Do family policies reduce gender inequality? evidence from 60 years of policy experimentation. Technical report, National Bureau of Economic Research, 2020.
- Henrik Kleven, Camille Landais, and Jakob Egholt Søgaaard. Does biology drive child penalties? evidence from biological and adoptive families. *American Economic Review: Insights*, 3(2):183–98, 2021.
- William J Scarborough, Joanna R Pepin, Danny L Lambouths III, Ronald Kwon, and Ronaldo Monasterio. The intersection of racial and gender attitudes, 1977 through 2018. *American Sociological Review*, 86(5):823–855, 2021.

A Appendix

A.1 Data

Sample selection. 1) We drop sample with missing or incomplete data on birth year of first children; no birth history was collected for this individual in 1985-2021; no children; 2) we keep if first childbirth is between 20 and 45. After the sample selection. In this sample, average age of first childbirth is 25.04, 25.64 for white and 23.93 for black.

Table 1: Racial difference in hourly wage rate

	(1)	(2)	(3)
	Wage	Wage	Wage
Childbirth	-0.230*** (0.029)	-0.167*** (0.029)	-0.135*** (0.030)
Black X Childbirth	0.245*** (0.052)	0.213*** (0.052)	0.196*** (0.053)
Hisband labor income		-0.000*** (0.000)	-0.000*** (0.000)
Hisband wage		0.013* (0.008)	0.018** (0.008)
Married		-0.340*** (0.034)	-0.335*** (0.034)
Non labor income			-0.000*** (0.000)
year FE	Yes	Yes	Yes
age FE	Yes	Yes	Yes
N	42060	41682	39669
R^2	0.009	0.014	0.013

Notes: Sample: PSID individuals first child between the ages of 20 and 45. Standard errors are in parentheses. PSID Longitudinal weights applied. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: PSID.

Table 2: Racial difference in annual employment

	(1)	(2)	(3)
	Employment	Employment	Employment
Childbirth	-0.298*** (0.008)	-0.292*** (0.011)	-0.293*** (0.011)
Black X Childbirth	0.190*** (0.011)	0.110*** (0.019)	0.116*** (0.020)
Hisband labor income		-0.000*** (0.000)	-0.000*** (0.000)
Hisband wage		-0.003 (0.003)	-0.003 (0.003)
Married		-0.032*** (0.012)	-0.028** (0.013)
Non labor income			-0.000 (0.000)
year FE	Yes	Yes	Yes
age FE	Yes	Yes	Yes
N	43107	22306	21908
R^2	0.048	0.054	0.053

Notes: Sample: PSID individuals first child between the ages of 20 and 45. Standard errors are in parentheses. PSID Longitudinal weights applied. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: PSID.

A.2 Event Study Decomposition: Child Penalties

A.3 Age profile by gender and race

A.4 Inital condition

In the PSID, total household assets are constructed by summing the values of six key asset types and adjusting for liabilities and home equity. These asset types include ownership in any farm or business, liquid financial assets such as money in checking and savings accounts, money market funds, certificates of deposit, government savings bonds, treasury bills, and retirement accounts. Additionally, the value of any real estate other than the primary home, such as second homes, land, or rental properties, is included. Shares in publicly held corporations, mutual funds, investment trusts, and stocks held in retirement accounts are also factored into the total. The net

Table 3: Racial difference in annual labor income

	(1)	(2)	(3)
	Labor income	Labor income	Labor income
Childbirth	-1487.787*** (46.832)	-1262.568*** (46.853)	-1259.395*** (46.962)
Black X Childbirth	982.783*** (83.759)	835.814*** (82.174)	847.043*** (82.762)
Hisband labor income		-0.033*** (0.006)	-0.035*** (0.006)
Hisband wage		-38.929*** (12.837)	-36.569*** (12.826)
Married		-778.385*** (53.194)	-766.066*** (53.412)
Non labor income			-0.036*** (0.004)
year FE	Yes	Yes	Yes
age FE	Yes	Yes	Yes
N	41798	40397	40091
R^2	0.035	0.055	0.056

Notes: Sample: PSID individuals first child between the ages of 20 and 45. Standard errors are in parentheses. PSID Longitudinal weights applied. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: PSID.

value of vehicles and recreational assets like cars, motor homes, trailers, and boats, after subtracting any remaining debt on them, is added to the calculation, along with other savings or assets such as bond funds, cash value in life insurance policies, valuable collections, or rights in trusts or estates. After summing all these assets, the household's total debt, including credit card balances, student loans, medical debts, and other personal liabilities, is subtracted. Lastly, home equity is added, calculated as the difference between the current market value of the primary residence and the outstanding mortgage balance. This process results in a comprehensive measure of total net wealth, incorporating various assets, debts, and real estate equity.



Figure A.1: Racial differences in the child penalties

Notes: The sample consists of individual having their first child between 20 and 45. Source: Panel Study of Income Dynamics, 1967 to 2017.

Table 4: Racial difference in annual labor income

	White %	Black %	Total %
Zero asset	5.21	2.71	4.54
Positive asset	94.79	97.29	95.46
Total	100.00	100.00	100.00
Observations	2469		

Notes: % = Column Percent. Women at aged 20 and 21. Assets after demean by year and state fixed effects. Source: PSID.



Figure A.2: Racial differences in the age profiles

Notes: The sample consists of individual having their first child between 20 and 45. Weightes for PSID Longitudinal Weight used. Source: Panel Study of Income Dynamics, 1967 to 2017.

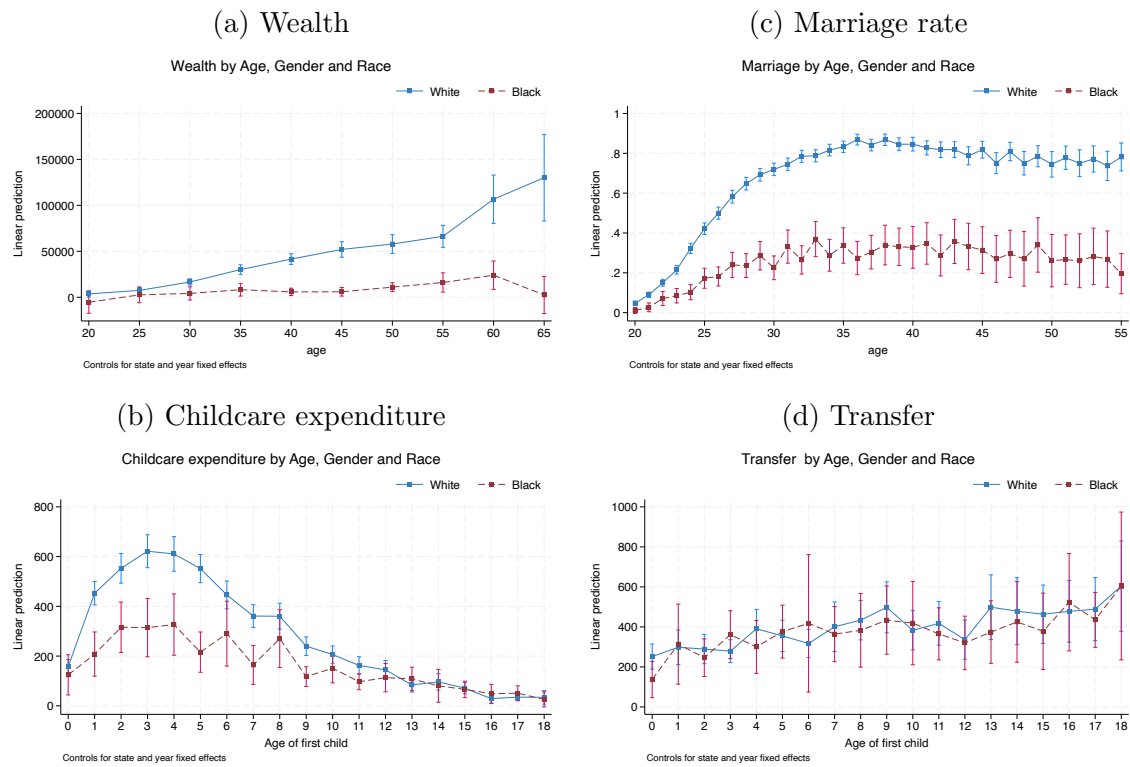


Figure A.3: Racial differences in the age profiles

Notes: The sample consists of individual having their first child between 20 and 45. Weightes for PSID Longitudinal Weight used. Source: Panel Study of Income Dynamics, 1967 to 2017.