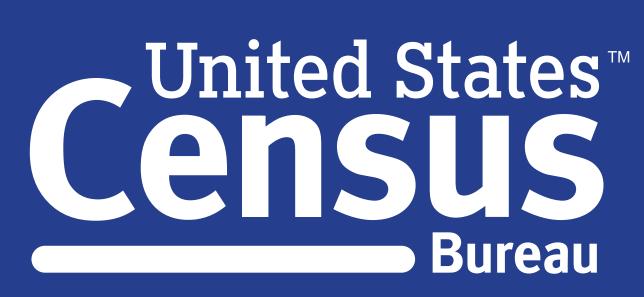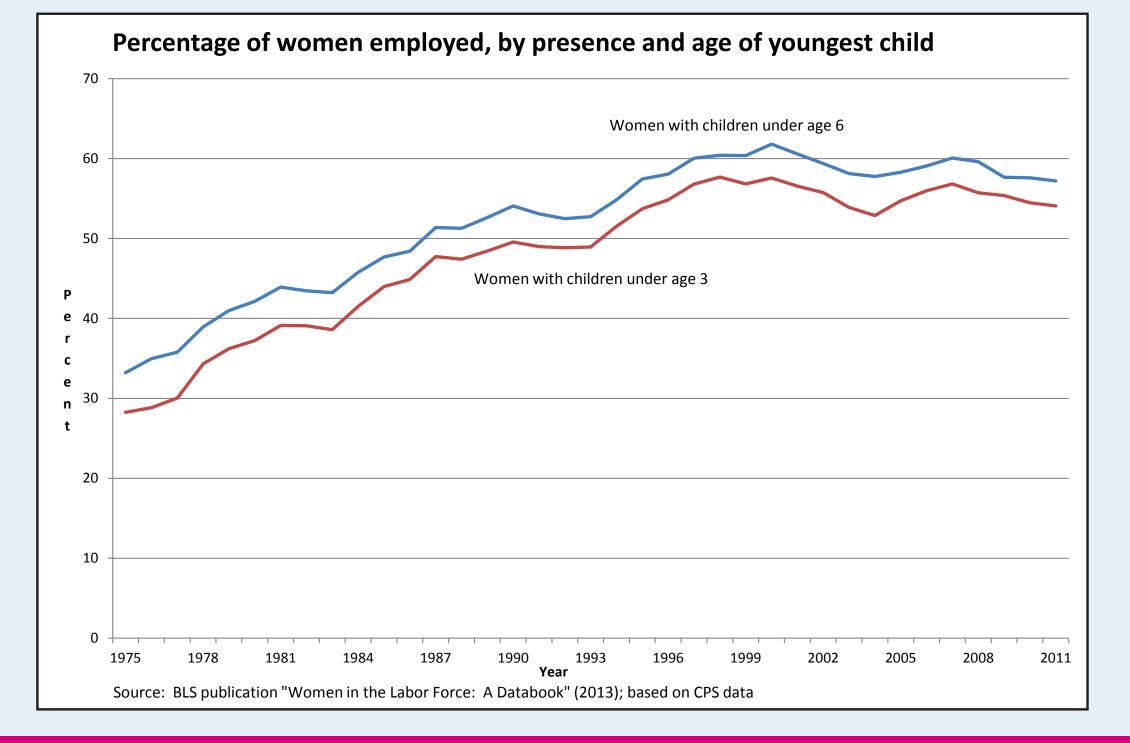# Is there an advantage to working? The Relationship between Maternal Employment and Intergenerational Mobility.

By Martha Stinson, U.S. Census Bureau, and Peter Gottschalk, Boston College

Motivation

Women with children who have entered the workforce in increasing numbers which has altered how young children spend their time.

Percentage of women employed, by presence and age of youngest child

Source: BLS publication "Women in the Labor Force: A Databook" (2013), based on CPS data

Research Questions

What is the relationship between maternal employment and the long term economic outcomes of children?
— Does the money a woman earns purchase substitutes for her time that are sufficient to mitigate the impact of less parental time?

Are maternal employment choices a mechanism through which parents transmit economic advantage?
— If some of the family income is earned by the mother as opposed to all earned by the father, does this effect the child's rank in the earnings distribution or change the correlation between the parents' and the child's rank?

Child Outcomes of Interest
- Earnings at age 30+
- Employment at age 18+
- Rank in the earnings distribution
- Mobility: correlation with family rank

Research Design Problems

Endogeneity
- High ability mother more likely to work and have high ability children
- Effect of mother working will be biased upward

Outcomes
- Child outcomes take time to observe. Most surveys are not sufficiently long or the sample is very small

Solutions
Endogeneity
- Control for mother and father characteristics using survey reports and long administrative earnings histories
- Instrument for mother work using both survey and administrative data
- Sibling model/parent fixed effects

Outcomes
Use linked survey and administrative data to follow children from birth to age 30+

Survey of Income and Program Participation

- Longitudinal Household Survey
- Panels conducted since 1984
- Collect detailed family relationships, labor force participation, program participation, income sources, and marital, education, and fertility histories
- Ask for consent to link to administrative data

Survey of Income and Program Participation (SIPP)
- Child-Parent link
- Child-Sibling link
- Race
- Parent education
- Birth order

Detailed Earnings Record (DER) Extract from SSA Master Earnings File
- W-2 Employer and Schedule C Self-Employment data
- Presence of earnings 1978-2012
- Annual total uncapped earnings 1978-2012

Link via Employer Identification Number

Business Register/ Longitudinal Business Database
- Geography of employer: state
- Industry and firm size of employer
- Child care establishment information by state

SSA Numident File
- Child date of birth
- Mother and father date of birth

Link via Protected Identity Key

Sample of children

Surveyed in 1984, 1990, 1991, 1992, 1993, 1996 SIPP panels
Living with both biological parents at the time of the survey
Born between 1978 (beginning of DER) and 1982 (turn 30 by 2012)

Collection Timeline

Child is born 1978-1982
Mom chooses employment status at child ages 1-5 1979-1987

Family is surveyed
SIPP 1984, 1990, 1991, 1992, 1993, 1996 panels
Mom chooses employment status at child ages 5-18
Child lives with both biological parents
Obtain permission to link administrative data to parents and children

Child reaches age 30 2008-2012
If working, observe earnings
No further information about child

Child Adult Earnings

OLS Regression with Parental Controls
- Parent education
- Statistical summary of whether the parent earned above or below average during their working years, conditional on observed characteristics
- Random effect estimated from parent mixed effects earnings model
- Average total earnings of both parents
  — Years child was age 1-5, 6-10, 11-13, 14-18.
- Child age, age squared, race, mother's age at child's birth, oldest child in family, youngest child in family, year indicators (2008-2011, 2012 base year)
- 6,080 sons, 16,731 son-years

Results
- Once controls are included, mother work indicators are not significant
- No change when sample is divided by mother education
- No significant effect when sample restricted to oldest children or mothers working the year before the child was born
- No change once industry and firm size of maternal employers when child was preschool age are included

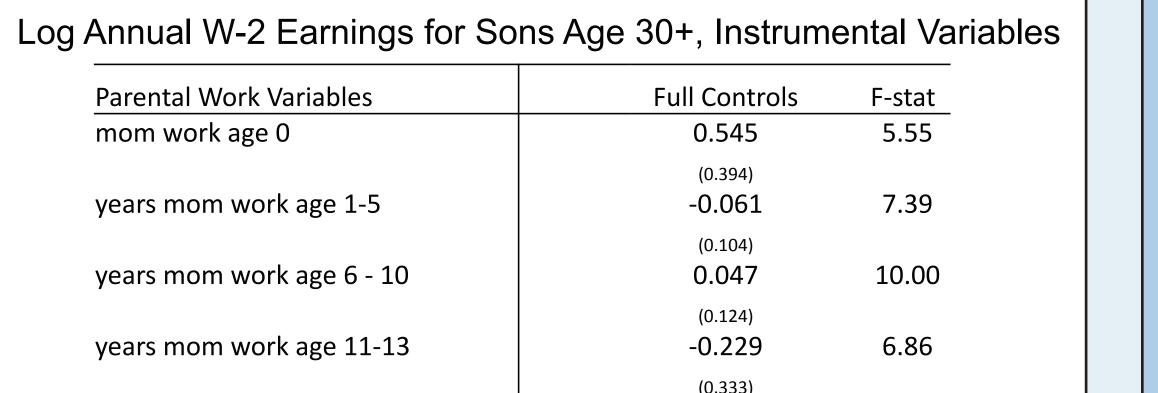### Log Annual W-2 Earnings for Sons Age 30+, Parental Controls

Parental Work Variables	(1) Simple	(2) Full Controls
mom work age 0	0.028	0.016
	(0.058)	(0.058)
mom work age 1	-0.034	-0.022
	(0.061)	(0.061)
mom work age 2	-0.019	-0.019
	(0.049)	(0.049)
years mom work age 3-5	0.009	0.015
	(0.046)	(0.046)
mom work age 6	0.080*	0.063
	(0.047)	(0.048)
years mom work age 7 - 10	-0.026	-0.020
	(0.014)	(0.014)
years mom work age 11-12	0.010	0.011
	(0.026)	(0.026)
mom work age 13	-0.067	-0.051
	(0.051)	(0.051)
mom work age 14-18	0.027*	0.016
	(0.015)	(0.015)
years dad work age 1-5	0.047***	0.019
	(0.013)	(0.015)

Source: Survey of Income and Program Participation , 1984, 1990, 1991, 1992, 1993, 1996 panels, and Detailed Earnings Records Extract from SSA Master Earnings File

Child Adult Earnings (Con't)

Instrument for Mother's Employment
- Female employment culture where family lives
- State female labor force participation rates
- Presence of another child under age 5
- Cost of obtaining child care where family lives
  — State average payroll per worker at child care establishments
  — Availability of child care where family lives
  — Number of child care establishments in the state per capital
- Family location assigned by state where mother is employed or state where father is employed if mother does not work
- 6,080 sons, 16,731 son-years

Results
Mother work indicators are not significant
F-test for weak instruments is borderline

Log Annual W-2 Earnings for Sons Age 30+, Instrumental Variables

Parental Work Variables	Full Controls	F-stat
mom work age 0	0.545	5.55
	(0.394)	
years mom work age 1-5	-0.061	7.39
	(0.104)	
years mom work age 6 - 10	0.047	10.00
	(0.124)	
years mom work age 11-13	-0.229	6.86
	(0.333)	
mom work age 14-18	-0.022	4.27
	(0.204)	
years dad work age 1-5	0.017	
	(0.008)	

Source: Survey of Income and Program Participation , 1984, 1990, 1991, 1992, 1993, 1996 panels, and Detailed Earnings Records Extract from SSA Master Earnings File

Sibling Model/Parent Fixed Effects
- Use sibling of same gender also born 1978-1982
- 1,170 sons, 571 mothers

Results
- Mother work indicators are not significant

Log Annual W-2 Earnings for Sons Age 30+, Mother Fixed Effects

Parental Work Variables	Full Controls
mom work age 0	-0.262
	(0.135)
mom work age 1	0.015
	(0.134)
mom work age 2	-0.183
	(0.141)
years mom work age 3-5	-0.109
	(0.089)
mom work age 6	-0.117
	(0.141)
years mom work age 7 - 10	-0.050
	(0.082)
years mom work age 11-12	-0.202
	(0.108)
mom work age 13	-0.187
	(0.175)
mom work age 14-18	0.004
	(0.086)
years dad work age 1-5	0.237
	(0.151)

Source: Survey of Income and Program Participation , 1984, 1990, 1991, 1992, 1993, 1996 panels, and Detailed Earnings Records Extract from SSA Master Earnings File

Child Employment

Logistic Regression
- Longitudinal model – all years from age 18 till 2012
- Same controls as in linear regressions
- 6,986 sons, 104,715 son-years

Results
- Mother working when son is between age 14 and 18 is significant and positively correlated with probability of son working
- No statistically significant correlation between mother working at any other age and probability of son working

Annual Labor Force Participation for Sons Age 18+, Parental Controls

Parental Work Variables	(1) College or more	(2) Some Work	(3) High School or Less
mom work age 0	-0.026	0.097	-0.064
	(0.133)	(0.100)	(0.083)
mom work age 1	-0.033	-0.067	0.017
	(0.155)	(0.122)	(0.100)
mom work age 2	-0.050	0.176	-0.002
	(0.167)	(0.117)	(0.092)
years mom work age 3-5	-0.035	-0.001	-0.008
	(0.071)	(0.050)	(0.036)
mom work age 6	0.105	-0.081	0.031
	(0.187)	(0.129)	(0.080)
years mom work age 7 - 10	0.038	-0.043	-0.024
	(0.056)	(0.044)	(0.027)
years mom work age 11-12	0.054	0.096	0.028
	(0.101)	(0.080)	(0.062)
mom work age 13	-0.104	0.259	-0.170
	(0.213)	(0.161)	(0.112)
mom work age 14-18	0.053	-0.018	0.084***
	(0.048)	(0.040)	(0.025)
years dad work age 1-5	0.040	-0.044	0.066
	(0.080)	(0.066)	(0.041)

Source: Survey of Income and Program Participation , 1984, 1990, 1991, 1992, 1993, 1996 panels, and Detailed Earnings Records Extract from SSA Master Earnings File

Daughters Very Similar to Sons

- No statistically significant effect of mother working on daughter earnings
- Positive correlation between mother and daughter working for mothers with high school degree or less

Child Rank and Mobility

Son Rank
Average own earnings for age 28-30
Rank all men born 1978-1982
Assign son rank as place in this distribution

Daughter Rank
Average own earnings for age 28-30
Rank all women born 1978-1982
Assign daughter rank as place in this distribution

Father Rank
Average total own and spouse earnings for age 43-47
Rank all men who ever had children, born 1923-1966, split into 7 cohorts
Assign father rank as place in cohort distribution

Regress Child Rank On:
- Father rank
- Father and mother education
- Child race
- Mother work status during years child was age 1-5
  — No years work (baseline), some years work, all years work
- Mother work status when father was age 43-47
  — No years work (baseline), some years work, all years work
- Interaction between father rank and mother work status when father was age 43-47

Correlation between Son and Couple Earnings Rank

Source: Survey of Income and Program Participation , 1984, 1990, 1991, 1992, 1993, 1996 panels, and Detailed Earnings Records Extract from SSA Master Earnings File

Correlation between Daughter and Couple Earnings Rank

Source: Survey of Income and Program Participation , 1984, 1990, 1991, 1992, 1993, 1996 panels, and Detailed Earnings Records Extract from SSA Master Earnings File

Conclusions

- Mother working when son or daughter is in high school is positively correlated with child adult employment
  — Mother with high school degree or less

- Mother working (any age) is not significantly correlated with son or daughter earnings

- Mother working is correlated with lower rank for sons, insignificant for daughters

- Mother working increases correlation between parent earnings rank and son earnings rank, insignificant for daughters

SIPP Contact Information

Website: http://www.census.gov/sipp
Email: Census.SIPP@census.gov
Email: martha.stinson@census.gov