Lecture 12
Women, family and work

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History of Economic Growth and Crises
17 February 2022

Feedback and exam

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- How to prepare?
  - go through the lectures and make sure you understand them
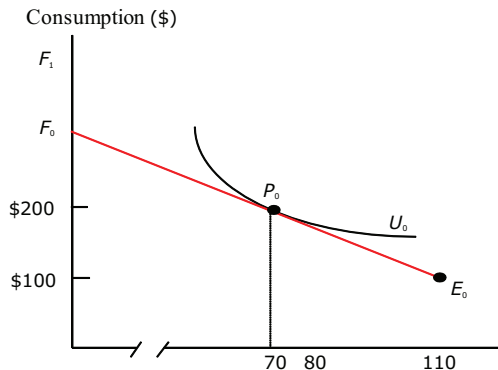 - see how to get a good grade at the course website for more

A simple model of labor force participation

- Goldin (2006): changes in female labor force participation can be explained with (exogenous) changes in two parameters
  - income elasticity
  - own-wage (compensated) elasticity
- These parameters determine
  - reservation wage $\rightarrow$ labor force participation
- Next: simple model to define these concepts

Consumption ($)

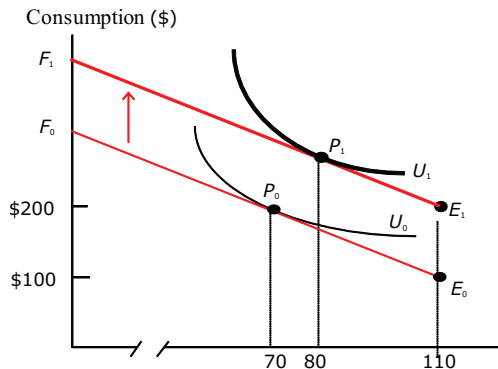y-axis: consumption, x-axis: hours outside market work. Note that the slope of the budget constraint corresponds to hourly wage (i.e. the rate at which non-market time can be exchanged to money)

- Workers value
  - consumption
  - time outside of market work (leisure + home production)

- Maximize utility
  - by choosing hours of work
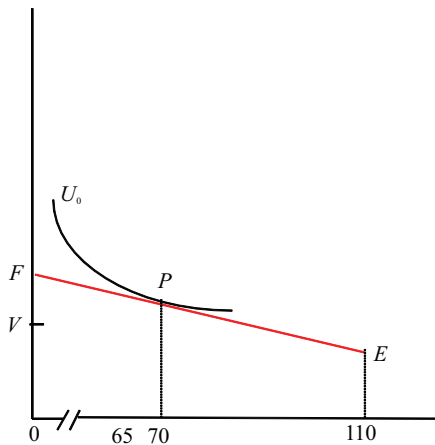 - subject to a budget constrain

Consumption ($)

y-axis: consumption, x-axis: hours outside market work.

- Increase in non-labor income
  - pure income effect $\rightarrow$ labor supply decreases if leisure is a normal good
- **income elasticity** = percentage change in hours worked divided by the percentage change in non-labor income

Consumption ($)

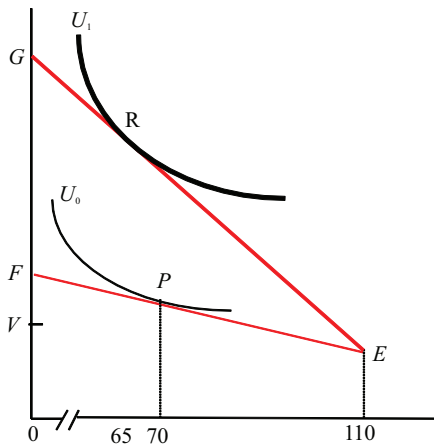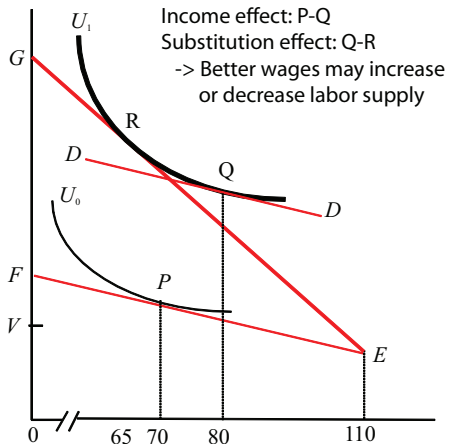y-axis: consumption, x-axis: hours outside market work

Consumption ($)

y-axis: consumption, x-axis: hours outside market work

Consumption ($)

Income effect: P-Q
Substitution effect: Q-R
-> Better wages may increase
or decrease labor supply

y-axis: consumption, x-axis: hours outside
market work

- Income effect
  - the worker can afford to consume more leisure
- Substitution effect
  - leisure becomes more costly
- **Own-wage (compensated) elasticity =** percentage change in hours divided by the percentage change in wages *after subtracting the income effect of the wage change* (i.e. keeping utility constant)

Reservation wage
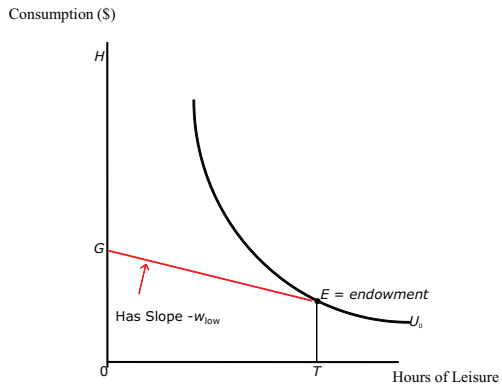
Consumption ($)

y-axis: consumption, x-axis: hours outside
market work

Consumption ($)

H — Has Slope $-w_{high}$

Y

G — Has Slope $-w_{low}$

U_n

E = endowment

U_0

Slope = reservation wage

0   *T*   Hours of Leisure
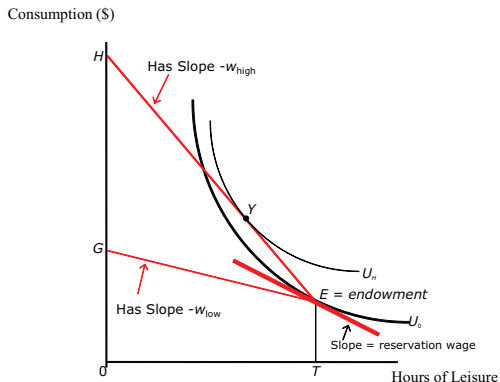
y-axis: consumption, x-axis: hours outside market work

- Reservation wage: worker is indifferent between working a little and not at all
- Depends on non-labor income and preferences (curvature of the indifference curve at zero hours)

The phases:

1. **Independent female worker** (late 19C to 1920s)

2. **Working married women** (1930s to 1950)

3. **Roots of the revolution** (1950s to 1970)

4. **The quiet revolution** (1970s to today)
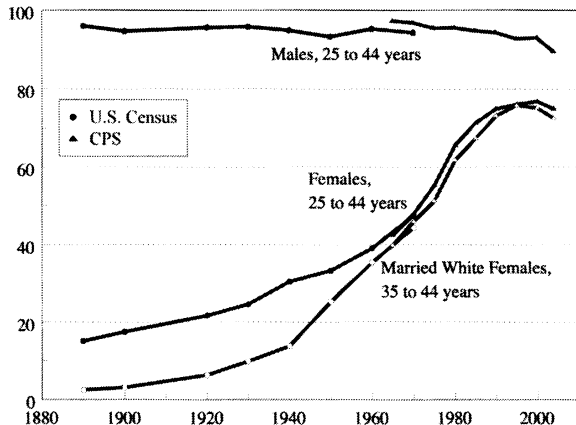
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"those in the evolutionary phases married early enough that their adult identity was formed *after* marriage [...] [the revolution] was a change from passive actors, who take the income and time allocation of other members as given, to active participants who bargain somewhat effectively in the household and the labor market."

- Female workers generally young and unmarried
  - piece workers in manufacturing, domestics, laundresses...
  - very few professionals, typically teachers and clerical employees
- Women almost always exited the workforce at marriage
  - except in the poorest and some of the most educated homes

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- High income effect
  - low productivity home production + social stigma
    $\rightarrow$ high willigness to exchange consumption to non-market time

- Low substitution effect
  - unpleasant jobs $\rightarrow$ % increase in wages leads to low % increase in hours
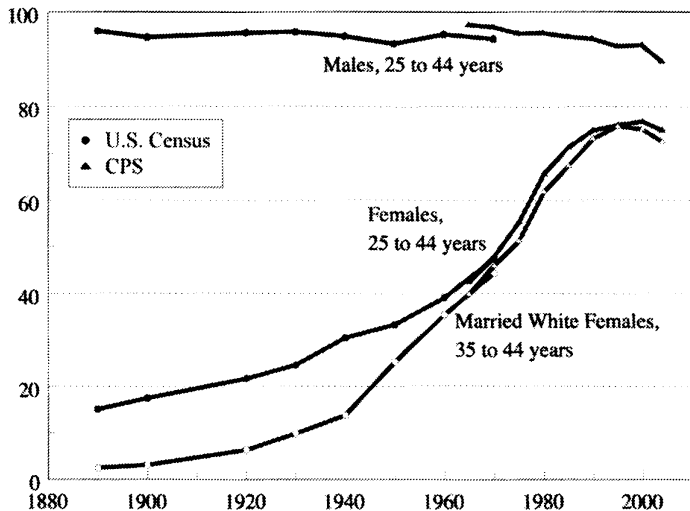
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Working married woman, 1930s to 1950
Goldin (2006)

- Jobs for unmarried women become more "respectable"
  - increased demand for clerical work
  - growth in high school enrollment and graduation in 1910–1930

- Income effect declined
  - work for women became more accepted
    (e.g. marriage bars almost entirely eliminated after the early 1940s)

- Substitutions effect rose
  - part-time work became more common
    → lower fixed-cost of participation
    (note that fixed-costs omitted from the model above)
  - i.e. female labor supply comes more responsive to wages

- Reservation wage declined
  - new household technologies (refrigerator, washing machine)
  - diffusion of basic facilities such as electricity, running water

The phases:

1. Independent female worker (late 19C to 1920s)

2. Working married women (1930s to 1950)

3. **Roots of the revolution** (1950s to 1970)

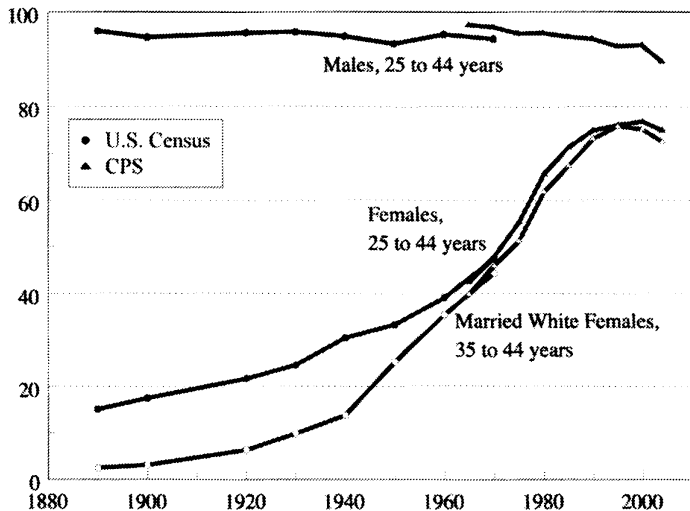4. The quiet revolution (1970s to today)

- Income effect continues to decline
  - work for married women becames more acceptable
- Substitution effect continue to rise
  - further rise of part-time employment
- But: married women were still the secondary earners
  - take the labor supply decisions of their husbands as given
  - tied stayers at times and tied movers at others
  - human capital continue to increase
  - ... but the investments occur mainly *off* the job
  - ... and are based on low expectations (next)

"Some advancement was possible in offices and elsewhere, but not much [...] Interviews for first jobs, even those of women with college degrees, often began with the straightforward question: How well do you type?"
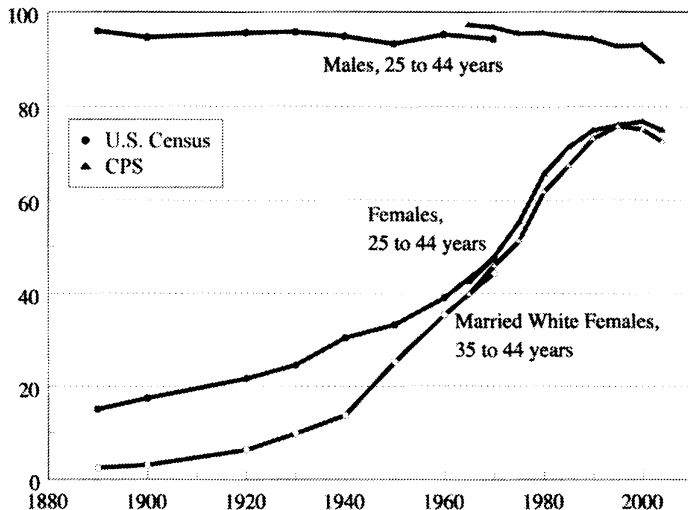
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- Participation rates do not suggest a *revolution* in the 1970s
- Goldin argues that the revolution occured along three dimensions
  - expanded horizons
  - altered identitites
  - decision making
- Next: time-series describing each of these factors

Employment expectations of female youth by age

Goldin (2006)
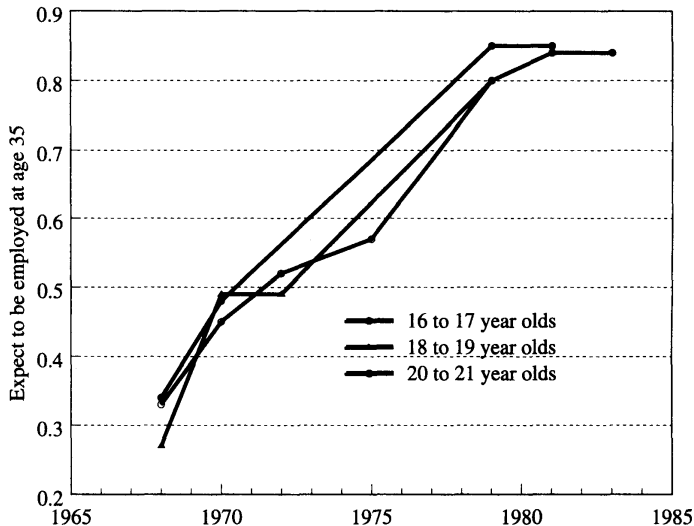
In the late 1960s, women "began with expectations similar to the actual participation of their mothers' generation (their prediction was around 0.33 whereas their mothers' actual rate was about 0.3). But in the next ten years young women began to correctly anticipate, and in fact slightly overstate, their future labor force participation rates"

"That is, they could plan for careers rather than jobs"

Data from the National Longitudinal Survey (NLS) of Young Women beginning with 14–24 year old women in 1968 and the NLS of Youth beginning with 14–21 year-olds in 1979. Both surveys asked about expectations of having paid employment at age 35.

Gender gap in college attendance and graduation
Goldin (2006)
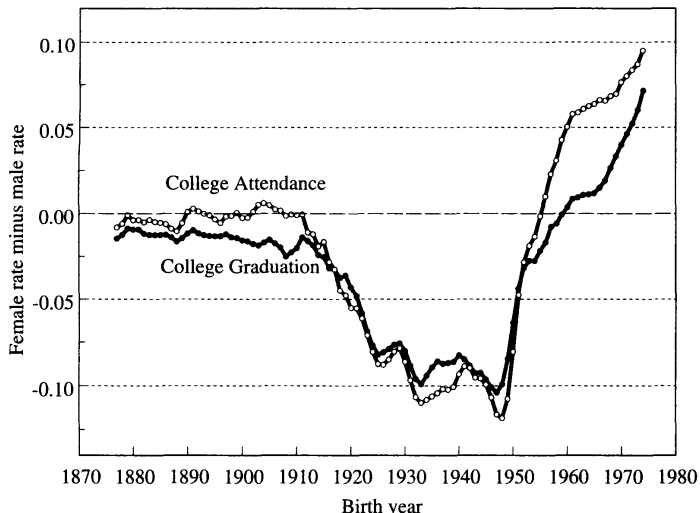
"In the 1970s and 1980s, girls began to take more college preparation courses [and] increased their math and reading scores by nearly one-fifth of a standard deviation, so that in 1992 girls who were high school seniors were just slightly behind boys in math and considerably ahead in reading. As a consequence, females greatly increased their college attendance and graduation rates relative to males beginning with birth cohorts in the late 1940s."

Data from the IPUMS public use microdata samples of Population Censuses from 1940 to 2000. College attendance/graduation rates are similar in an era when very few people went to college and diverge when men increase their educational attainment. From 1950 birth cohorts onwards, women increase their college attendance much fastern than men.

Median age at first marriage plotted against birth year (1930–1970), comparing "Some college" and "College graduate".
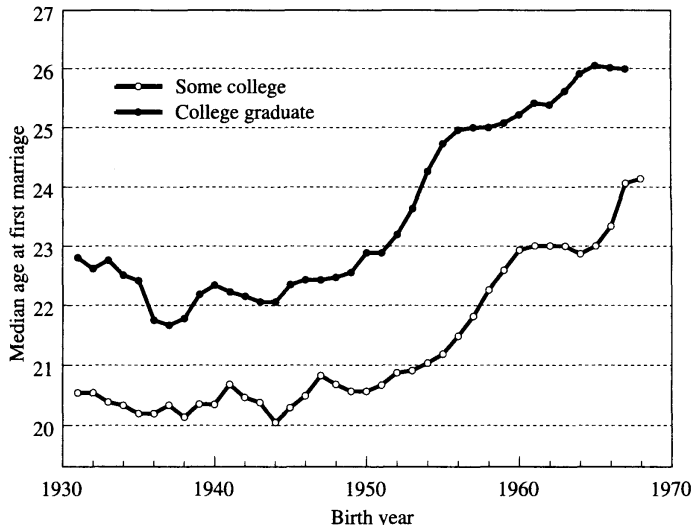
At the same time, "the median age at first marriage increased by an astounding 2.5 years for female college graduates born between 1949 and 1956 [...] With a later age at first marriage, women could take college more seriously. [...] Although some aspects of college social life did not differ much across these generations, the pressure to meet a spouse while in college diminished considerably."

Data from the Current Population Survey's Fertility and Marital History Supplement, 1990 and 1995.

% women in professional programs

Goldin (2006)
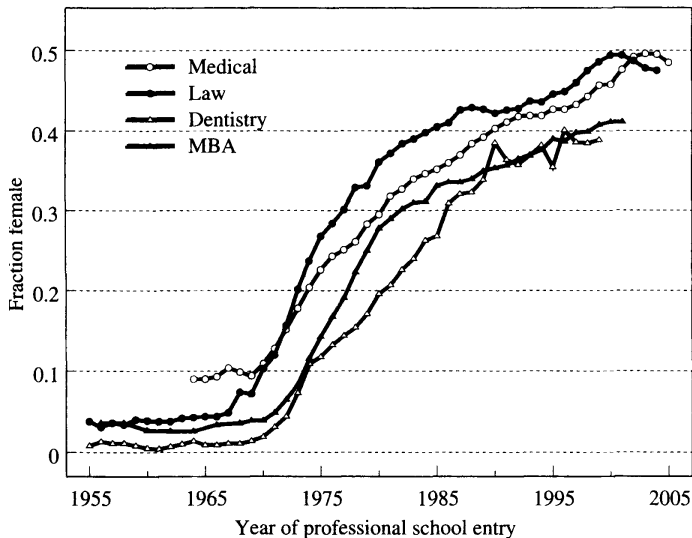
Women "also began to close the gap with men with regard to college majors [which] shifted from those that were "consumption" related to those that were "investment" related. Women also began to further their education in professional and graduate schools around 1970."

Gender differences in personal satisfaction factors
Goldin (2006)
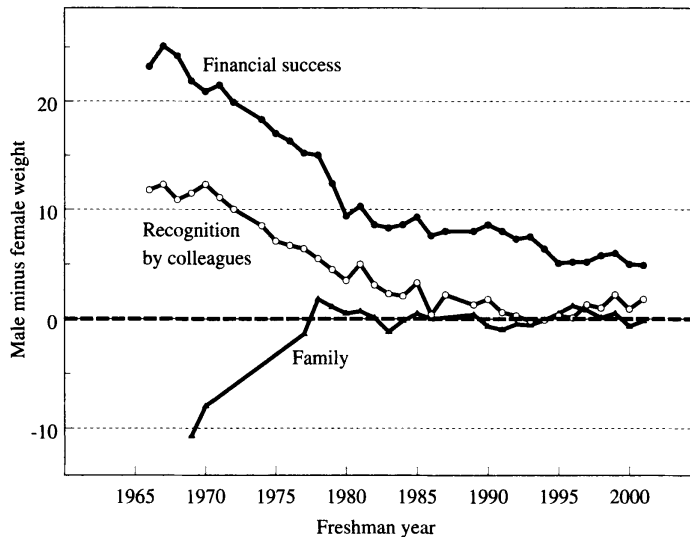
"The revolution can also be seen in the changed outlook of women concerning their individual identities [...] In the Survey of American Freshmen, females increased the weight they placed on recognition by colleagues and financial success; males increased their relative weight on family. By the early 1980s men and women gave about equal weight to recognition and family" [...] "Women have added identity to their decision about whether to work or not to work given changes in wages and incomes. As a consequence women have become stickier in their labor force attachment"

Data from the Survey of American Freshmen
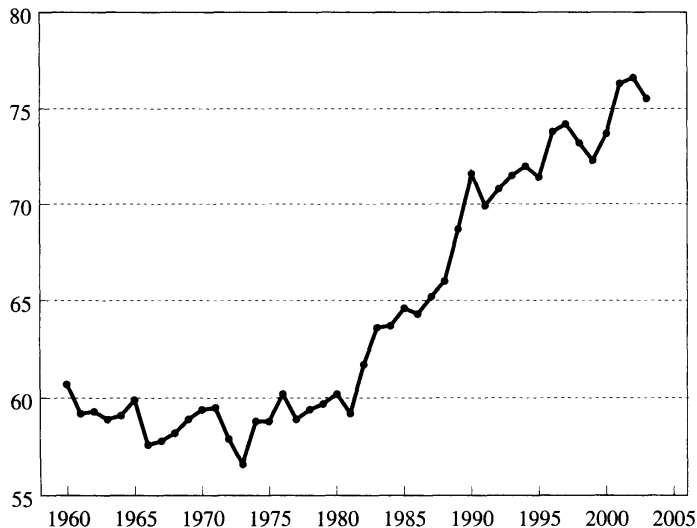
"The result of expanded horizons and altered identities was that younger cohorts of women were considerably better prepared to enter the labor market and were determined to have careers. These changes are reflected in their occupations and earnings relative to those of men"

Based on median earnings of full-time, year-round workers 15 years old and over.
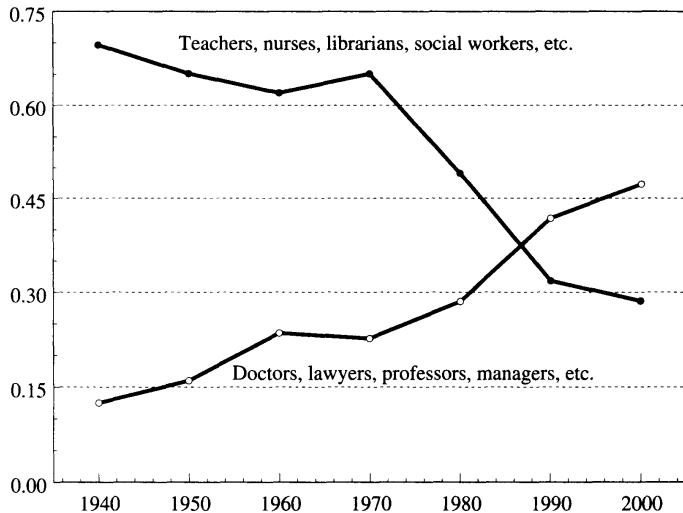
"Occupations shifted, not surprisingly, from those that had been considered traditional ones for women, such as teacher, nurse, librarian, and social worker, to a varied group of professions including lawyer, physician, professor, and manager"

Data from the Integrated Public Use Micro-data Sample Census and CPS.

Fraction of years spent married
Goldin (2006)
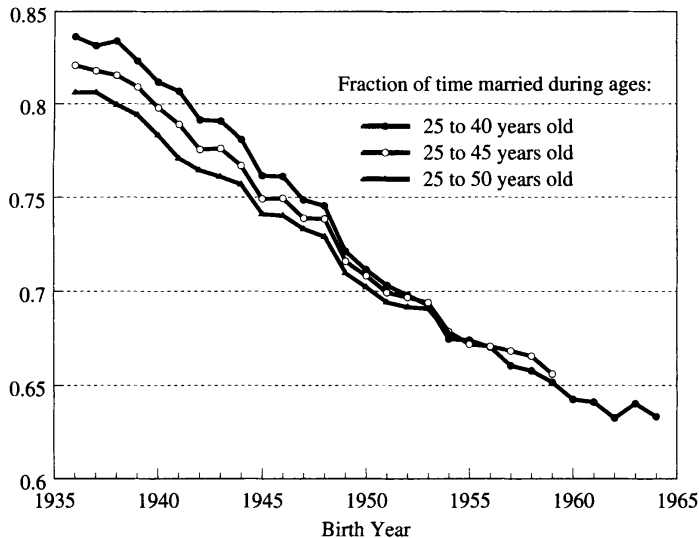
"Marriage delay enabled women to take formal education more seriously and led to changes in their relationship to work. The period divorce rate began to increase in the 1960s. The combination of the increase in divorce and the later age at first marriage for all women meant that the fraction of their lives they would spend married plummeted and economic independence became more valuable [...] One of the reasons for the increase in the age at first marriage was the introduction of the contraceptive "pill"

Data from CPS.

Has the Quiet Revolution Stalled?
Goldin (2006)

- Participation rates have leveled off since around 1990
  - participation for women with infants may even have declined
  - many wonder if some type of "natural rate" of female labor force participation has been reached

- Goldin: changes in demographics explain these trends
  - later age at marriage $\rightarrow$ delay of childbearing $\rightarrow$ more women in their 30s have small children than 25 years ago
  - "despite this greater child burden, participation rates for women in their thirties are higher today than in the early 1980s"

- For the rest of the story, see Goldin's Presidential Address to the 2014 AEA Annual Meeting: A Grand Gender Convergence: Its Last Chapter

The Power of the Pill
Goldin, Katz (2002)

- Question
  - did the availability of effective birth control alter women's career plans and their age at first marriage?
- Research design
  - the pill became available for young, single women at different times across states $\rightarrow$ dif-in-dif
- Results
  - later age at first marriage
  - greater representation in nontraditional, professional occupations among college educated women

TABLE 2
STATE LAWS REGARDING CONTRACEPTIVE SERVICES TO MINORS AND THE AGE OF
MAJORITY, 1969–74

	AGE OF MAJORITY			EARLIEST LEGAL AGE TO OBTAIN CONTRACEPTIVE SERVICES WITHOUT PARENTAL CONSENT		
STATE	1969 (1)	1971 (2)	1974 (3)	1969 (4)	1971 (5)	1974 (6)
Ala.	21	21	21	21	17	17
Alaska	19	19	19	19	19	14 or 19*
Ariz.	21	18	18	21	18	18
Ark.	18†	18†	18†	18	14	14
Calif.	21	21	18	15	15	15
Colo.	21	21	21	21	14	14
Conn.	21	21	18	21	18	18
Del.	21	21	18	21	21	18
D.C.	21	21	21	21	14	14
Fla.	21	21	18	21	21	14
Ga.	21	21	18	14	14	14

- Access to nonrestrictive birth control at age 18 leads to
  - more women using the pill
  - less women marrying before age 23
  - more women becoming lawyers or doctors
    - ▶ results on other nontraditional professional occupations mixed
  - less women ever marrying ... and divorcing
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- Legalized abortion has broadly similar effects
  - Mayers (2017) argues that increased access to abortion (rather than the pill) actually drove the delay in family formation in the 1970s
  - contraception vs. abortion clearly important for policy debate
  - ... but does not alter the argument that ability to postpone childbearing affected the career prospects of women

- Why? Reduced the cost of professional education
  - women did not have to pay the penalty of abstinence or cope with considerable uncertainty regarding pregnancy
  - indirect effect: everyone could delay marriage $\rightarrow$ created a "thicker" marriage market for career women

- "Other factors were involved in these changes, to be sure. No great social movement is caused by a single factor."

- Question
  - impact of the pill on the timing of first births and extent and intensity of women's labor-force participation *among all women*
- Research design
  - same as Goldin and Katz (2002) $\rightarrow$ Mayers (2017) critique relevant
- Results
  - reduced the likelihood of a first birth before age 22
  - increased the number of women in the paid labor force
  - raised the number of annual hours worked

- Unlikely that innate talent differ across genders, ethnic groups
  $\rightarrow$ misallocation of talent because women and non-whites
  historically not allowed to pursue their comparative advantage
  - this paper: how large is the effect on aggregate productivity?
  - estimate an augmented Roy model embedded in general
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- Take-away
  - 1/4 of growth in aggregate output per person in 1960–2010 can
    be explained by the improved allocation of talent
  - "Our general equilibrium Roy model assumed no correlation between an individual's
    absolute advantage and their comparative advantage, and that comparative advantage
    or preferences followed a Fréchet distribution. These assumptions aided tractability,
    but we hope they can be relaxed in future work."

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  - history provides us with many examples of remarkable persistence ... and changes (e.g. Lecture 3 vs. today)

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  - financial crises: this time is (probably) not different!
  - *how* to learn from data (and models)

- This was a very short course about a very **BIG** topic
  - most of all, I hope it made you curious to learn more

- Acemoglu, Author, Lyle (2004): Women, War, and Wages: The Effect of Female Labor Supply on the Wage Structure at Midcentury. *JPE* 112: 497-551
  - In states with greater mobilization of men, women worked more after the war and in 1950, though not in 1940. These induced shifts in female labor supply lowered female and male wages and increased earnings inequality between high-school and college-educated men.
- Fernandez, Fogli, Olivetti (2004): Mothers and Sons: Preference Formation and Female Labor Force Dynamics. *QJE*, 119(4)
  - Using variation in the WWII mobilization rates across the US, this paper argues that the growing presence men brought up in working-mother families has been a significant factor in the increase in female labor force participation over time.