Principles of Applied Microeconomics

Ross Summer Connection (2022)
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Welfare Theorems + Cortes & Pan (2017)

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Explaining Gender Wage Gap Δ_G

- Discrimination still exists, but is shrinking
- Part of the remaining wage gap due to motherhood penalty
- Women still have primary responsibility for housework and childcare around the world, which implies penalties (direct + indirect)

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- Discrimination still exists, but is shrinking
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- Long term: easier for women to combine work/family + greater share of household production done by men
  - Δ_G should shrink more!
  - **Cortes & Pan (2017)**: "low skilled" immigration is one reason why!

Return to Supply + Demand model

- Goal: develop theoretical tools to assess “normative” predictions
  - Is the equilibrium a good thing?
  - How “well off” are people by allocating resources in this way?
  - This way = competitively in a free market with zero barriers to entry

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- Use these tools to think about **welfare gains** from women's increased labor force participation in recent decades!

Competitive Market

1. There are many producers and consumers
2. Everyone in the market is a price-taker
3. There is a homogenous good or service
4. There is free entry and exit

- Consumers, behavior is summarized by the demand curve
  - Aggregates individual demand curves, from people's "willingness to pay"
  - Slopes downward by diminishing marginal utility

- Producers, with a supply curve
  - Aggregates individual supply curves, derived from firms' marginal cost curves
  - Slopes upward due to increasing marginal costs of production (decreasing MPL)

Consumer Surplus

- The total net benefit derived from consuming a given unit of a good is called consumer surplus and defined as

$$CS(Q) = p(Q) - \overline{p}$$

- The total consumer surplus from consuming Q units of a good is the sum of all the individual consumer surpluses

Consumer Surplus

- The total consumer surplus in a market is one way to measure the welfare of consumers participating in that market

- We can use consumer surplus to prove that consumers are generally better off when there are price decreases in two ways
  1. Existing buyers get a lower price, so have more surplus
  2. There are new buyers we enter the market and get surplus

Producer Surplus

- The total net benefit derived from producing a given unit of a good is called producer surplus and defined as

$$PS(Q) = \overline{p} - MC(Q)$$

- The total producer surplus from producing Q units of a good is the sum of all the individual producer surpluses

Producer Surplus

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- Questions: What's the **best** way to allocate our scarce resources?
- Also, how should we define **best**?

Market Efficiency

- First Welfare Theorem (**FWT**): a competitive equilibrium is efficient

- Efficient: we say that an allocation is efficient if there is no way to make someone better off without making someone else worse off
- No "Pareto improvements" exist ⇔ no waste in use of resources

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- Alternative: an allocation is efficient if it maximizes total surplus

$$TS = CS + PS$$

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- The **FWT** guarantees that a competitive equilibrium will be efficient
- However, efficient outcomes aren't necessarily good for everyone…

- Also, there are times when markets are not even efficient!
  1. Externalities
  2. Market power
  3. Non-private goods
  4. Asymmetric information

- **Second Welfare Theorem**: any efficient allocation can be achieved as a competitive equilibrium given sufficient transfers

Break

- See you in 10mins!
- We study **Cortes & Pan (2017)**

Gender Wage Gap Δ_G

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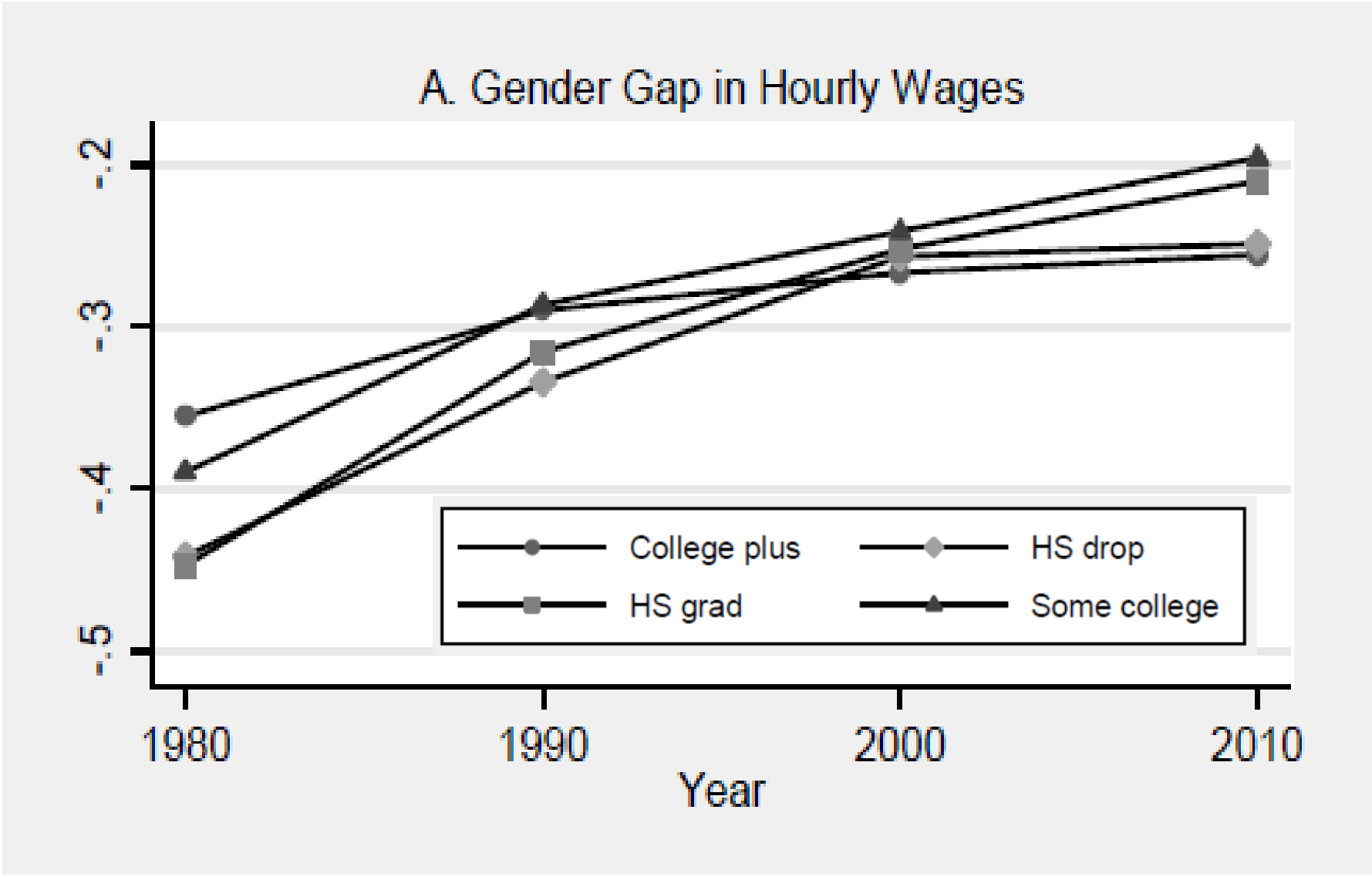
- Remaining gap concentrated at top of wage distribution + mostly due to
  1. Less hours worked by women
  2. Weaker continuity of labor force participation by women

Motivation

- Clear convergence since 1980s
- But gender pay differences remain persistent
- Particularly true for “highly skilled” workers today…



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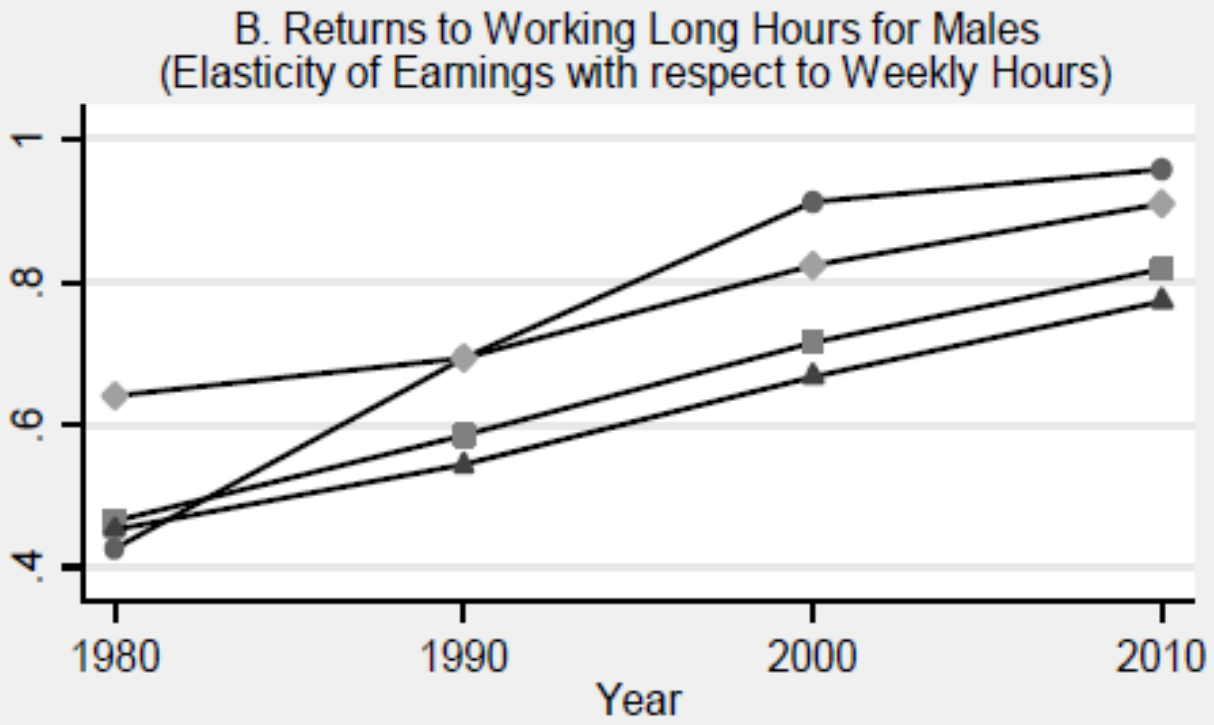
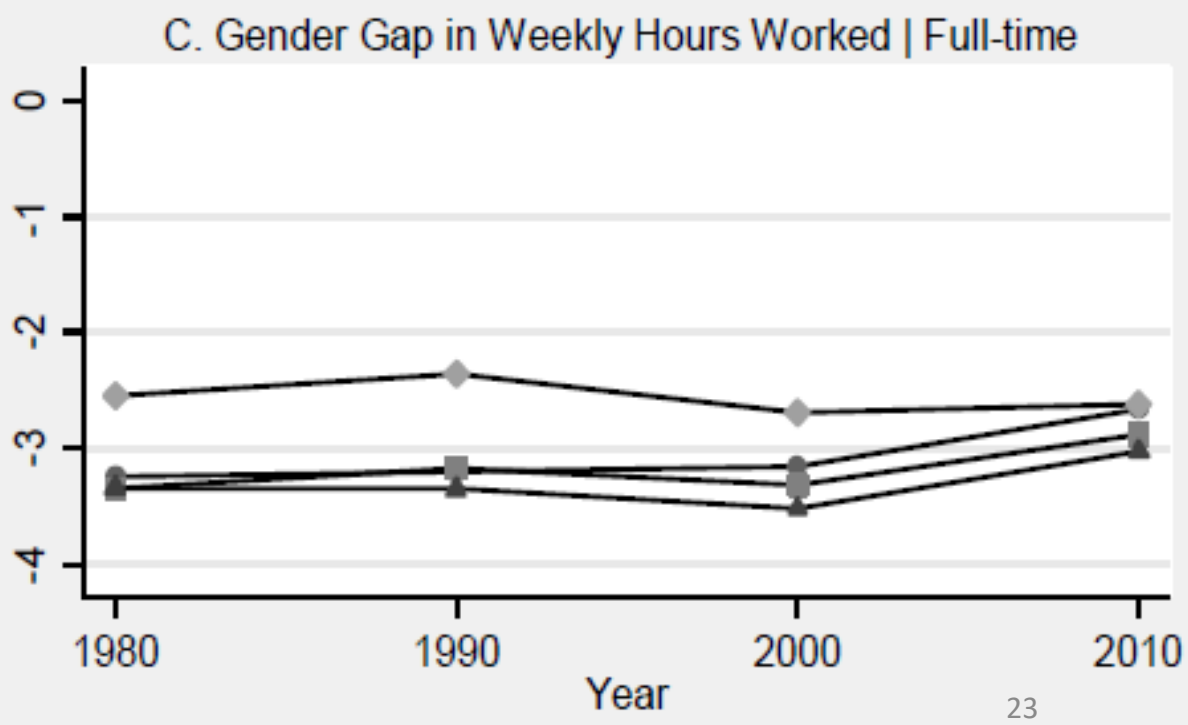
- Need to look within high skilled occupations to understand how jobs are organized and compensated by employers

- Hypothesis: the demand for temporal flexibility among high skilled or professional jobs explains the persistence of $\boldsymbol{\Delta_G}$
  - Relative to women, men are better able and/or willing to work longer hours
  - So, men get more on-the-job training, promotion offers, salary raises etc.
  - Recall the Michigan law school study from the Netflix doc!

Motivation

- Changes in the returns to working long hours explain part of the relative slow-down in the convergence of $\boldsymbol{\Delta_G}$ among the highly skilled





Obstacles to increased female labor supply

1. Social norms dictate that married women should “stay at home”
2. Women place a higher value on time with children and/or the returns to maternal child inputs in the production of child’s human capital
3. Firms discriminate, refuse to promote women to jobs with longer hours
4. Women are constrained by a lack of affordable substitutes for household production (fancy words for childcare and/or housework)

- Goal: provide empirical evidence for the existence of 4

Research Question

- What would empirical evidence for constraints on childcare look like?

- If demand for long hours is why Δ_G persists among high skilled women, then relaxing this constraint should benefit women in occupations with high returns to long hours more than women in other occupations

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- Example: increase in "low skilled" immigration… What happens?
  - Migrants concentrate in certain occupations, like childcare/housekeeping
  - Influx of low skilled migrants should reduce price* of childcare (Cortes, 2011)
  - (Native) women in high skilled occupations stand to gain the most from this

Data

- Dataset: 1980/1990/20000 US census + 2009/2010/2011 American Community Survey (ACS)… probably all from IPUMS!*

- Sample restrictions: natives, 25-64, college degree, working full time
- Generated: returns to hours ($\hat{\beta}_{o,80}$) and occ-city-time wage gaps ($\hat{\lambda}_{oct}$)

* On the use of their data: USE IT FOR GOOD -- NEVER FOR EVIL!

Table 1. Descriptive Statistics

	Panel A. Micro Data							
	1980		1990		2000		2010	
	Mean	SD	Mean	SD	Mean	Std. Dev	Mean	SD
	i. Females							
Age	36.30	(10.19)	37.60	(9.44)	40.13	(9.99)	41.55	(11.06)
Masters	0.33	(0.47)	0.25	(0.43)	0.27	(0.44)	0.29	(0.46)
Doctorate & Professional Degree	0.15	(0.35)	0.08	(0.27)	0.09	(0.28)	0.09	(0.29)
Black	0.11	(0.31)	0.11	(0.32)	0.11	(0.32)	0.13	(0.34)
Hispanic	0.02	(0.13)	0.03	(0.16)	0.04	(0.19)	0.06	(0.24)
Asian	0.02	(0.13)	0.02	(0.13)	0.02	(0.13)	0.03	(0.17)
Never Married	0.29	(0.45)	0.29	(0.46)	0.28	(0.45)	0.30	(0.46)
Hours Worked per Week	42.05	(5.78)	43.48	(6.83)	44.66	(7.63)	44.19	(7.36)
Works 50+ hours	0.11	(0.32)	0.19	(0.40)	0.27	(0.44)	0.25	(0.43)
Hourly Wage	12.37	(6.34)	15.45	(8.99)	17.65	(12.77)	18.96	(13.14)
No. Observations	105249		180561		261312		214290	

Table 2. Broad Occupation Characteristics for Full-time College-Educated Workers in Skilled Occupations

	Elasticity of Annual Income to Weekly Hours - Males				Share of Sample (College Educated Workers in Skilled Occupations)	
	Continuous		Terciles			
Broad Occupational Category	1980	2010	1980	2010	1980	2010
Business and Financial Operations	0.66	1.19	High	High	0.09	0.12
Lawyers	0.39	1.11	Mid	High	0.04	0.04
Economists and other Social Science Occs	0.64	0.96	High	High	0.01	0.01
Skilled Sales Occs	0.37	0.94	Mid	High	0.08	0.06
Executive, Administrative, and Managerial Occs	0.36	0.76	Mid	High	0.24	0.24
Arts, Design, Entertainment, Sports, and Media	0.53	0.75	High	Mid	0.03	0.03
Computer and Mathematical Occs	0.36	0.69	Mid	Mid	0.03	0.06
Health Assessment and Treatment	0.39	0.60	Mid	Mid	0.04	0.07
Police and Detectives	0.43	0.42	High	Mid	0.01	0.01
Architects and Engineers	0.35	0.42	Mid	Mid	0.07	0.05
College Instructors	0.22	0.41	Low	Mid	0.03	0.03
Technicians, Paralegals and Pilots	0.85	0.39	High	Low	0.00	0.01
Teaching (except college) and Library Occs	0.04	0.23	Low	Low	0.22	0.19

Results: hours gap

- High skilled women in cities with larger inflows of low skill immigration increased hours worked + probability of working overtime

Table 4. Predicted Low-skilled Immigration flows and High Skilled Female Labor Supply

	A. Micro Data, Female Sample		B. City Level Data			
	Indicator for Working 50+ hrs	Usual Weekly Hours	Gender Gap (Female-Male) for Working 50+ hrs		Gender Gap (Female-Male) in Weekly Hours Worked	
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(Predicted LS Immigration)	0.012***	0.198***	0.015***	0.012***	0.289***	0.193**
	[0.004]	[0.074]	[0.004]	[0.004]	[0.084]	[0.086]
Weights	Person	Person	Unweighted	Cell size	Unweighted	Cell size
Controls						
Demographic controls	X	X				
City FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Observations	760,066	760,066	236	236	236	236
R-squared	0.041	0.043	0.759	0.806	0.755	0.793

Results: gender wage gap $\boldsymbol{\Delta_G}$

- Reducing gender gap in 50+ hours/week worked by 1SD reduces $\boldsymbol{\Delta_G}$ by about 0.5SD more in occupations with highest returns (top tercile) relative to occupations with lowest returns (bottom tercile)

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- This decline is about 30% of the average gender gap across occupations in 1980

- Such large gains imply **job-mobility** and **occupational-mobility**, not just longer hours in the same jobs as before!

Quantity vs quality?

- Migrants don't just reduce the prices of household services
- They also increase the quality by providing more flexibility in hours

- Census data show that compared to natives, foreign childcare workers
  1. Work 9 hours more per week on average
  2. Twice as likely to work 45 hours a week or more
  3. 25 percent more likely to report leaving house for work before 7 am

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- What about the migrants? $\boldsymbol{\Delta_M}$ and the "progressive moral quandary"

Conclusion

- Potential role for policies that reduce the cost of outsourcing household production, particularly during non-standard times… like COVID-19

- Increasing trend towards more time flexible employment, thereby reducing the now-very-high returns to working long hours
  - Work from home???

- Should shrink the gender wage gap too!
- Answer depends on $\boldsymbol{\Omega_{G,t}}$

Next time

- HW 2 is available and due Monday August 1st at 11:59pm

- Next week we study the racial wealth gap in America
- Conclude by reading **Cook (2014)**