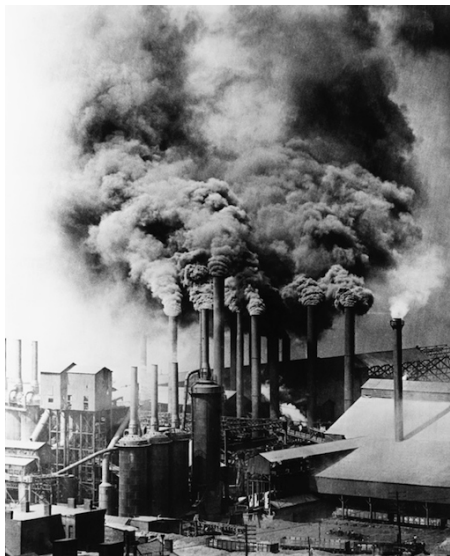
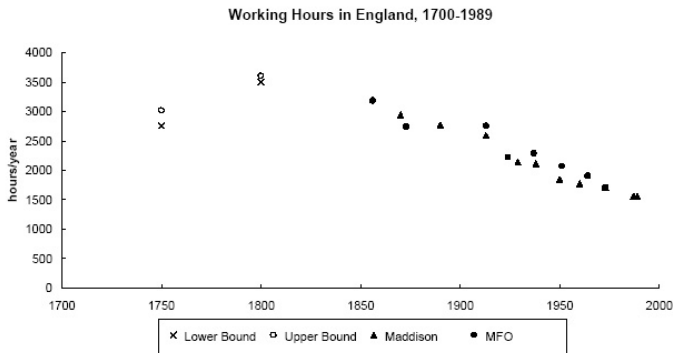


# The Industrial Revolution



# Work Hours, 1700-1989



# Modern Work Hours

**Work hours per week in the United States, 2003**

Time use category	Males		Females	
	High school grad or less	College educated	High school grad or less	College educated
Total market work	37.5	43.4	22.8	29.8
Total non-market work	13.7	13.9	24.1	21.4
Leisure	114.0	107.2	116.5	112.0
Annual hours of market work	1952.1	2256.3	1186.1	1550.6
Annual hours of total work	2661.9	2979.6	2438.8	2661.4

# The Industrious Revolution

Basic model of the household as an economic unit  
(pioneered by Becker):

- Households combine store bought goods with their own labor to create consumption goods
- Time is divided between labor supplied to the market (for wages), labor used in household production (for example, cooking), and time spent for leisure
- Household utility comes from leisure and the final consumption goods (purchased goods + home labor)

# The Industrious Revolution

So what parameters are changing over time in this model?

- The range of goods available for purchase is expanding
- Formal labor sector opportunities for women and children are rising
- Marginal utility of money income is rising

What would economists then predict about the allocation of household time?

# The Industrious Revolution

Let's think of a very, very simple version:

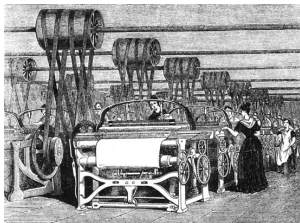
- You like eating pizza but there is no pizza parlor in town
- You can make a decent pizza but it takes a lot of time (kneading the dough, slicing toppings, baking, dishes, etc.)
- So a pizza requires you to work at your job to earn enough to buy the ingredients and then use your time to make the pizza
- Now a pizza parlor opens up selling pizzas and hiring drivers to deliver that pizza

How does this affect your work, consumption and time allocation decisions?

# Jan de Vries - The Industrious Revolution



=



# The Industrious Revolution

With this framework in mind, we can think of the Industrious revolution as two major transformations occurring between the mid-17th century and the early 19th century:

- Reduction in leisure time as the marginal utility of money income rose
- Reallocation of labor from goods and services for direct consumption to marketed goods

This does more than just increase working hours, it fundamentally changes family and economic relationships.



# Effects of the Industrious Revolution

- Greater labor force participation of household members
- Shift from self-sufficiency to market-oriented production
- Greater importance of economic alliances with outsiders
- Females become autonomous earners

# Female Labor Force Participation

**Female Labor Force Participation, Britain, 1851**

Occupational Category	Males (thousands)	Females (thousands)	Percent Female
Domestic Services	193	1135	85.5
Commercial	91	0	0
Transportation & Communications	433	13	2.9
Agriculture	1788	229	11.4
Metal Manufactures	536	36	6.3
Bricks, Cement, Pottery, Glass	75	15	16.7
Chemicals	42	4	8.7
Leather & Skins	55	5	8.3
Paper & Printing	62	16	20.5
Textiles	661	635	49
Clothing	418	491	54
Food, Drink, Lodging	348	53	13.2
Total Occupied	6545	2832	30.2
Total Unoccupied	1060	5294	83.3

# The Industrious Revolution

- This notion of the Industrious Revolution requires a more nuanced view of growth during the Industrial Revolution
- Growth in productivity wasn't just better machines and smarter workers, it was also getting more people to work and each worker to work longer
- Think about how this relates to our growth accounting
- The Industrious Revolution also highlights the role of demand-side changes - industrialization wasn't simply a supply-side event

# Was the Industrious Revolution a Permanent Shift?

So was the Industrious Revolution a permanent shift?

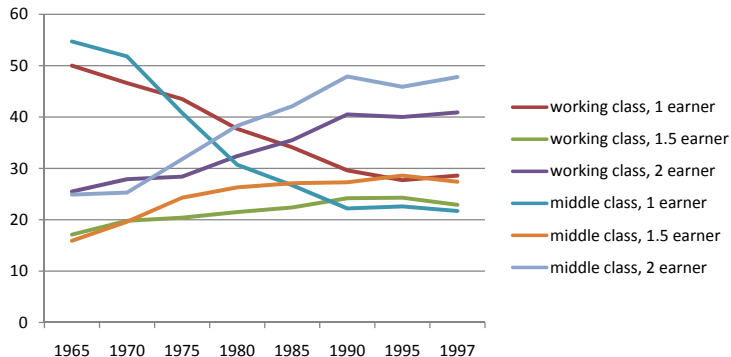
- Not necessarily
- Later in the 19th century, households reverted back to breadwinner-homemaker structure
- Wages and industry were still going up, so why didn't this just further Industrious Revolution trends?

# Was the Industrious Revolution a Permanent Shift?

- New set of consumption goods emerged that required household time (think hygiene, nutrition, health and education of children, demand for enjoying the comforts of home)
- No real market good substitutes for these things (did increase demand for complementary goods: plumbing, furniture, etc.)
- As male wages rose, women and children withdrew from the labor force
- May be going through another change in the latter half of the 20th century, back toward two-earner households and greater reliance on market goods than household time-intensive goods

# Back to dual-earner households

## Single and dual earner households, 1965-1997



# Back to dual-earner households

September 19, 1951

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# Back to dual-earner households

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