

# Announcements

- Don't forget about your first referee report, due February 15 at **5pm**
- You should email your referee report to me as a pdf
- The midterm is coming in a couple of weeks (March 1), we'll talk about details next week
- We will talk about the empirical project (due April 14) in the lecture before the midterm

# Readings for the Next Lectures

- De Vries, Jan (1994), “The Industrial Revolution and the Industrious Revolution”, *Journal of Economic History*
- North and Thomas (1970) “An economic theory of the growth of the Western World.” *Economic History Review*
- Acemoglu, Johnson and Robinson (2001) “The colonial origins of comparative development.” *American Economic Review*

# The Industrious Revolution

- The Industrial Revolution wasn't all just changes in technology
- There were fundamental changes in the way people worked
- There were changes to the nature of paid work, unpaid work, the division of time and relationships within the household
- Not only did what workers produced change, what they bought also changed
- First, let's think about how much people worked

# Work Hours Across Societies

<b>Annual Work Hours Over 800 Years</b>		
Period	Type of worker	Annual hours
13th century	Adult male peasant, UK	1620 hours
14th century	Casual laborer, UK	1440 hours
Middle Ages	English worker	2309 hours
1400-1600	Farmer-miner, adult male, UK	1980 hours
1840	Average worker, UK	3105-3588 hours
1850	Average worker, U.S.	3150-3650 hours
1987	Average worker, U.S.	1949 hours
1988	Manufacturing workers, UK	1855 hours
2000	Average worker, Germany	1362 hours

*The Middle Ages observation corresponds England in the 1400s.*

# Changing the Way We Work

- Before industrialization there were irregular work hours and significant household production
- By 1700, mills started imposing stricter regulation of work hours, machines added even more structure to the work day as the Industrial Revolution progressed
- Forces creating time-discipline: division of labor, supervision of labor, fines, bells, clocks, money incentives, preaching, schooling, suppression of fairs and sports
- There is a general retraining of workers to adhere to a rigid work day

*The weavers, 't is common with them to be drunk on Monday, have their head-ache on Tuesday, and their tools out of order on Wednesday. As for the shoemakers, they'll rather be hanged than not remember St. Crispin on Monday...and it commonly holds as long as they have a penny of money or pennyworth of credit.*

*–John Houghton, Collection of letters, 1681*

*Every one but an idiot knows that the lower classes must be kept poor or they will never be industrious; I do not mean, that the poor of England are to be kept like the poor of France, but, the state of the country considered, they must (like all mankind) be in poverty or they will not work.*

*–Bernard Mandeville, Fable of the Bees, 1714*

William Temple, an advocate of workhouses for poor children, 1770:

*There is considerable use in their being, somehow or other, constantly employed at least twelve hours a day, whether they earn their living or not; for by these means, we hope that the rising generation will be so habituated to constant employment that it would at length prove agreeable and entertaining to them...*



*The poor know little of the motives which stimulate the higher ranks to action - pride, honor and ambition. In general, it is only hunger which can spur and goad them onto labor.*

– Joseph Townsend, 1786

*Instead of being as before, idle, careless, indolent, envious, dissatisfied and disaffected, the fruits of their former depraved, helpless and wretched condition, they become careful and thrifty both of their money and time, and soon begin to imbibe fresh notions respecting themselves and others and are happily found to be better fathers, better husbands and more respected members of the community...*

*-1802 description of Cornish miners*

Richard Wakefield, on the irrationality of parents, 1802:

*Parents in general from whom to take for time the idle, mischievous, least useful and most burdensome part of their family to bring them up without any care or expense to themselves in habits of industry and decency is a very great relief; are very much adverse to sending their children to the houses of industry; from what cause, it is difficult to tell.*

# How Do We Learn About Time Use?

Modern time use data:

- Electronic pagers - write down what you're doing when your paged
- Time use diaries - keep a journal of everything you did
- Random hour recall - asked to recall everything you did in one randomly chosen hour of a previous day

What's available in the 1700's?

- No 18th century pagers
- No sociologists to gather time use diaries
- We do have some diaries (for an extreme case, see Samuel Pepys)
- We also have the Old Bailey

*Two Legerdemain Ladies of profound experience in the mysteries of Shoplifting; one of them having been whipt at the Carts tail but the very last Sessions, were convicted for stealing two pieces of Callicoe, under pretence of buying o kerum . The Goods were taken before they got out of sight in one of their aprons, who alleadged a very civil excuse, assuring the Court that she was drunk with Brandy, and knew not what she did; but that Plea was overrul'd, and both of them found guilty.*

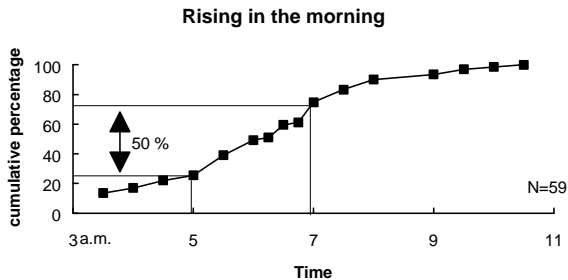
<http://www.oldbaileyonline.org>

*Thomas Wale. I am a Carpenter: I was at work at a building in Queen Anne's-street, near Marybone; I locked up my tools in my chest, on the 20th of January at night, being a Saturday night in that house, and on Monday the 22d when I went to work in the morning, I found my chest had be brook open...*

*Q. What time did you go there in the morning?*

*Wale. About six o'clock.*

<http://www.oldbaileyonline.org>



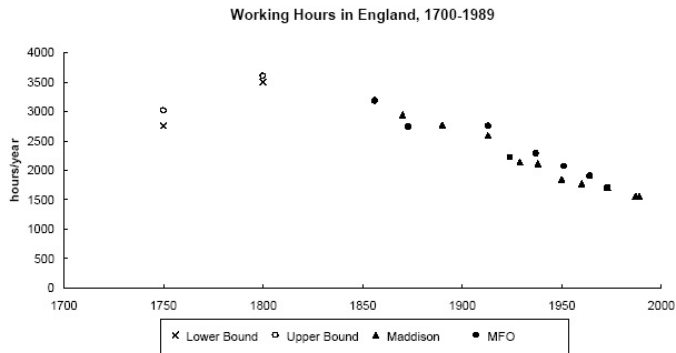
# Work Hours during the Industrial Revolution

Table 4: Working hours/year, 1760 and 1800

	<i>1760</i>	<i>1800</i>	$\Delta$
<i>Lower Bound</i>	2,288	3,366	1,078
<i>Upper Bound</i>	2,631	3,538	907



# 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:

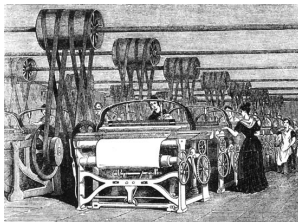
- You like eating pizza but there is no pizza parlor in town
- You can make a decent pizza but it takes a lot of time (kneading the dough, slicing toppings, baking, dishes, etc.)
- So a pizza requires you to work at your job to earn enough to buy the ingredients and then use your time to make the pizza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

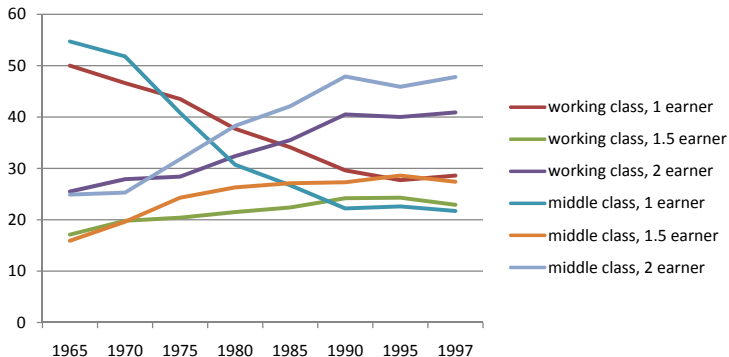
- Not necessarily
- Later in the 19th century, households reverted back to breadwinner-homemaker structure
- Wages and industry were still going up, so why didn't this just further Industrious Revolution trends?

# 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, 1957

PUSH A BUTTON... AND GALORE!  
RECIPE HEAT UNITS GIVE YOU HEATS  
AS ACCURATELY  
MEASURED AS  
THE INGREDIENTS  
OF ANY RECIPE!

Electric Recipe perfection needs the precision of Recipe Heat units and controls. This unique recipe-perfect electric cooking is more accurate than any other. It's the Hotpoint feature on a handsome Hotpoint Electric Range.

The new Hotpoint electric range has a lift-off door for easy cleaning. Open Recipe Heat compartments that operate when heat is done exactly as you like it. And the all Hotpoint Electric, in built-in, built-in, built-in, and built with portable convenience. "Recipe Heat".

With Recipe you have automatic controls for all your cooking. From the built-in Surface Burner to the Recipe Heat unit, you can adjust your cooking precisely. Hotpoint's exclusive Recipe Heat units are available in built-in, built-in, built-in, built-in, and built with portable convenience. "Recipe Heat".

Model KR-20


**Hotpoint**  
electric ranges  
with exclusive  
"Recipe Heat"

Model KR-20

# Back to dual-earner households


## Swanson Night

*When everybody gets a good meaty meal, (like this chopped beef that's all sirloin) and the evening is free for a good time.*



*"How often, kids—your blueberry muffins won't run away..."*


**NEW** Only Swanson gives you a Pepperidge Farm recipe blueberry muffin as an extra "bonus" meal!



SWANSON FROZEN CHOPPED SIRLOIN BEEF DINNER

- Chopped sirloin beef.
- Sweet green peas in seasoned butter sauce.
- Potatoes fried golden crisp and extra light.
- All topped off with a blueberry muffin from a Pepperidge Farm recipe.

Have a Swanson Night soon!



*Trust Swanson*

©1997 and "©" © 2007. All Rights Reserved. Swanson's of Swanton, New York.