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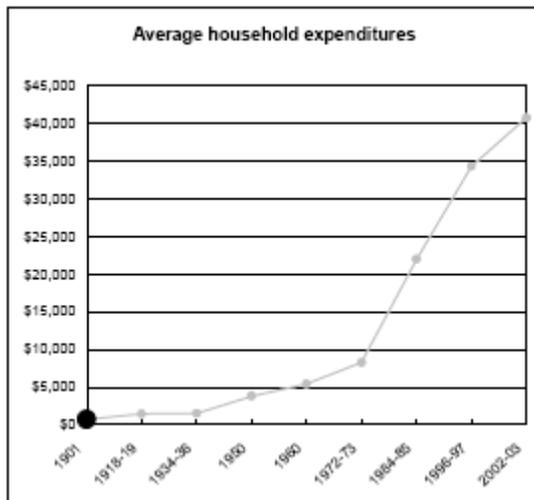
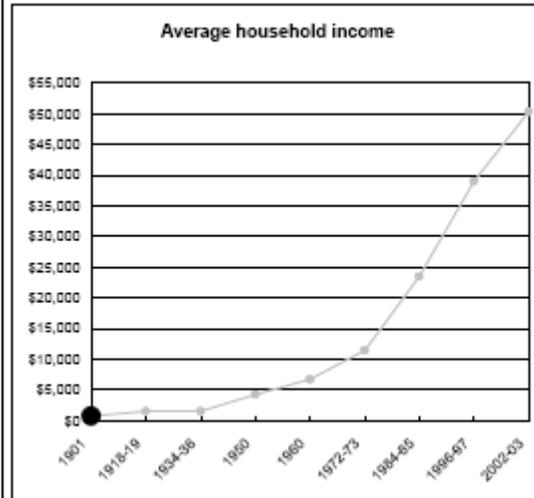
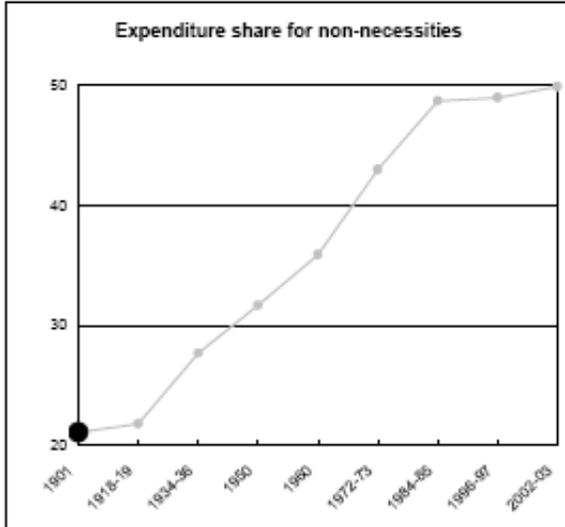
How New Technology and Ideas Could Have Led to
Shorter Work Days for Low Income Earners

The time period from 1890-1991 saw a huge shift in the length of work day vs. wage for workers in the United States (Costa, 2000). In 1890, low income earners worked longer days than high income workers and by 1991, these two groups had switched positions. Costa presents several arguments for this phenomenon, including increased coordination of work activities within and across firms and a labor supply response in which workers take a shorter workday because income effects were larger than substitution effects. In this paper, I will look at one reason why this labor supply response was higher for people earning lower incomes than it was for people with high incomes.

Over the last century, the ways in which Americans spend their leisure time has changed drastically. Most of this change is technological based change that has been a result of mass produced consumer goods. Some of it comes from new ideas such as new sports, music, and dances. These consumer goods have been widely available to people across all incomes. This paper is based on the assumption that in 1890, the leisure available required more money and therefore was biased more towards high income people.

We see the trend of more widely available leisure in the graph in figure 1. Between 1900 and 1970, the share of income spent on non-necessities in the US increased from 20% to 50%. This increase was likely a result of the combination of

increasing overall incomes and a decrease of prices of necessities compared to non-necessities.



Source: U.S. Department of Labor. U.S. Bureau of Labor Statistics. 100 Years of U.S. Consumer Spending. May 2006.

To understand how the changing prices of consumer goods can affect labor supply, we look at a simple labor supply model. Consider a model where consumption is based on total income

$$c = wl + i$$

where c is consumption, w is wage, l is hours worked, and i is income not associated with labor. Plugging this boundary condition into the Slutsky equation, we get:

$$\frac{\partial l}{\partial w} = \frac{\partial l}{\partial w} \Big|_{U=U_0} + l \frac{\partial l}{\partial n}$$

The left side of the equation is the change in work hours with a change in wage. The first term on the right is the change in work hours with a change in wage holding utility constant. This is the substitution effect. The second term on the right side of the equation is the change in work hours given a change in non labor income. This is the income effect. As wage goes up, working hours go up in the substitution effect and as non labor income goes up, working hours go down in the income effect. Thus the substitution effect is positive and the income effect is negative.

We will consider a change in the availability and price of consumption goods equivalent to an increase in non labor income. Consumers feel richer, but not as a direct result of increased wage or longer work hours. According to this equation, if non-labor income increases, the number of hours worked will decrease. Thus we expect that if the price of consumption goods drops, people will end up working less and spend more time on leisure. However, if wage alone increases, then we would expect in to see workers work more hours. The increase in wage and decrease in working hours over the last

hundred years therefore points to an income effect dominated the substitution effect in the Slutsky equation.

The Morris County Library provides data on different the prices of different recreation and amusement goods from 1900 to 2009. We can assume that most recreational goods advertised for in a newspaper are goods that are supposed to appeal to the mass public. In 1900, the advertised recreation and amusements are camera products and a meal ticket at a restaurant. It is difficult to imagine someone running home from work to use his camera. In 1920, we see that there are more amusements available to the general public, including movies, dancing, and music. Going through the century, we see that more and more consumer goods become available, including televisions, sports, and most recently, video games, ipods, and sophisticated home entertainment.

1900

Recreation & amusements

Camera plate, Eastman, 4"X5", .44/doz

Camera tripod, 1.00-1.75/each

Restaurant, Louisa Vismara, 2.50/meal ticket

Toning solution (camera film developing), .25/8 oz bottle

1920

Recreation & amusements

Belgian hares (rabbits), 10.00/each

Bicycle, girl's, 10.00

Business supper, YMCA, .60/ticket

Cigars, Ms. J. Noltz, .10-.15/each

Concert, Enrico Caruso & others, 10.00/ticket

Dance, Elks Entertainment, 1.00-3.00/ticket, includes war tax

Horse show, Far Hills, .50/admission

Movies, Liberty Theatre, .17/matinee; .22/evening

Piano, 50.00

Scarf pins, 10.50/each

Steeplechase & pony races, Whillany River Club, 2.00/admission

1940

Recreation & amusements

Barn dance, Mt. Kemble Fire Dept., .40/admission
Book, *How to Win Friends and Influence People*, Dale Carnegie, Pocketbook paperback, .25/each
Bus trip, New York World's Fair, Flushing Queens, 1.50/roundtrip ticket
Card party, New Vernon Unit First Aid Squad, .25/admission
Dance lessons, square and modern, .44/lesson
Movie Camera, Cine-Kodak Eight, 97.50/each
Movies, New Palace Theatre [Morristown], .15-.20/matinee ticket; .20-.25/evening ticket
Radio, Emerson, tabletop model, 9.95/each
Sunday Dinner, Master's Drug Store [Morristown], .45/person
Turkey Supper, Brookside Engine Company No. 1, Mendham Twp., .50/child; 1.00/adult

1960

Recreation & amusements

Christmas tree, flameproof vinyl, 6', 4.99-10.00/each
Golf clubs, set of 7, 14.99-55.00/set
Halloween costumes, .99-2.69/each
Hifi stereo console, Motorola, 4 speakers, 99.95/each
Movies, Drive in, 1.00/car
Piano, grand, 395.00/each
Radio, transistor, 19.95/each
Television, Mahogany cabinet, 21", 119.95/each
Train set, Lionel, "Santa Fe," 5 car with diesel engine, 24.66/est

1980

Recreation & amusements

Basketball, 9.99/each
Basketball backboard, 29.99/each
Bicycle, Saxon Gemini, 10 speed, 26", 69.88/each
Breakfast, IHOP, .99-1.95/person
Dinner, Larison's Turkey Farm, 3.75/children under 8; 7.50/adult
Game, Milton Bradley, Hangman, 6.97/each
Movies, Rockaway 6, 1.25/ticket
Record album (music), 4.49/each
Television, color, 19", 379.95/each
Toy, Etch-a-Sketch, 4.97/each
Toy, Lego, Duplo Village, 17.43-21.79/set
Toy, Rubick's Cube puzzle, 9.99/each
Toy, Tonka truck, "Mighty Dump," 10.38-12.97/each

2000

Recreation & amusements

Camcorder, Sharp, 249.00/each
Coin display unit, "50 States Quarters," 10.00

Computer, Dell, Dimension, 64 MB, 15" monitor, 899.00/each
Dish network, 10 channels, 10.99/month
Hayride, Alasted Farms [Chester], 10.00/adult; 6.00/children
MP3 Player, Samsung, 399.00/each
Playstation, Sony, 299.00/each
Snowboard, 299.00/each
Sunday Brunch, Jimmy's Bar and Restaurant [Morristown], 14.95/adults; 7.95/children
Telephone, Verizon, digital, 39.99/each
Television, Sony, 53" screen, 1,999.99-2,299.99/each
VCR, Sharp, Hi Fi stereo, 49.00/each
Walkman, Sony, 99.99/each

2008

Recreation & amusements

Backpack, JanSport, 29.99-49.99/each
Bicycle, Schwinn, adult, 198.00/each
Blu-ray player, 399.99/each
Blu-rays (movies), 29.99/each
Camcorder, Sony, 40 GB, 999.99/each
Camera, Sonny, 10 megapixel, 399.00/each
Computer, Hewlett Packard, laptop, 3 GB, 899.99/each
DVD player, Samsung, 99.99/each
DVDs (movies), 12.99-19.99/each
Golf balls, Callaway, 39.99/dozen
Golf clubs, Wilson, 159.00-189.00/set
iPod, 4GB, 149.99/each
Luggage, American Tourister, 4 pieces, 89.99/set
Sidewalk chalk, Crayola, 1.99-2.49/20 ct container
Swim membership, Lake Hiawatha Swim Club, 179.00/adult
Telephone, Verizon LG Dare, 199.99/each (+ 2 yr activation)
Television, Samsung, 50" LCD HDTV, 2,499.99-2,999.99/each
XBox 360 game system, 279.99/each
XBox games, 49.99/each

Source: Morris County Library <http://www.mclib.info/prices/> 6 July 2008

The conclusion that more widely available leisure goods led to lower income earners working fewer hours than higher income earners is based on the assumption that in 1900, most leisure goods were only available to the rich and therefore were not advertised in the newspaper. These leisure goods could have included activities such as

hunting, horseback riding, and human chess sets, activities that required a lot of capital and also took up time (preventing the rich from working more). It must be noted that the conclusions reached in this paper do not necessarily provide a causal relationship between working hours and the availability of consumption goods. To find such a relationship, more rigorous consumption data and statistical analysis would be necessary.