A Theory of Allocation of Time

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III. Applications

Hours of Work

If full income increased solely because of an increase in non-ernings income, there would simply be a parallel shift of the opportunity curve, with no change in commodity prices. The consumption of most commodities would have to increase. If all did, hours of work would decrease, for the total time spent on consumption must increase if the output of all commodities did, and the time spent at work is inversely related to that spent on consumption. Hours of work could increase only if relatively time-intensive commodities were sufficiently inferior.

A compensated uniform rise in earnings would lead to a shift away from earnings-intensive commodities and toward goods-intensive ones. Since earnings and time intensiveness tend to be positively correlated, consumption would be shifted from time-intensive commodities. This would however result in a reduction in the total time spent in consumption, and thus an increase in the time spent at work.

The effect of an uncompensated increase in earnings on hours worked would depend on the relative strength of the substitution and income effects. The former would increase hours, the latter will reduce them.

Usually, rise in income tax induces at least a substitution effect away from work and toward leisure. But if a rise in the income tax were combined with an appropriate excise (consumption tax) on the goods used in time-intensive commodities or subsidy to the goods used in other commodities, there need be no change in full relative prices, and thus no substitution away.

The Productivity of Time

Assume a uniform increase only in the productivity of consumption time. The demand for goods will increase, but since the productivity of working time does not change, one has to work more. The productivity of working time has probably advanced more than that of consumption time, since this will make one work less (which is what happened).

Income Elasticities

Traditional view is that family size will get smaller as income rises. If, however, birth control knowledge and other variables were held constant, economic theory suggests a positive relation between family size and income, and therefore that the traditional negative correlation resulted from positive correlations between income, knowledge, and some other variables. But the elasticity of family size with respect to income is though positive, pretty low. Increased expenditures on children largely take the form of increased expenditures per child, while the increase in number of children is very modest.

Transportation

Simple view: value of an hour equals average hourly earnings.

A rise in income resulting at least in part from a rise in earnings would increase the cost of commuting a given distance because the forgone value of the time involved would increase. This increase in commuting costs would discourage commuting in the same way that the increased demand for space would encourage it.

The Division of Labor within Families

Members who are relatively more efficient at market activities would use less of their time at consumption activities than would other members. Moreover, an increase in the relative market efficiency of any member would effect a reallocation of the time of all other members toward consumption activities in order to permit the former to spend more time at market activities.

IV. Substitution Between Time and Goods

Since hours worked have declined secularly in most developed countries, and so-called leisure has increased. A natural expectation is that "free" time would be more abundant, and be used more "leisurely". But time is used more carefully today. If there was a secular increase in the productivity of working time relative to consumption time (which probably happened as mentioned above), there would be an increasing incentive to economize on the latter because of its greater expense. Americans are supposed to be much more wasteful of food and other goods than persons in poorer countries, and much more conscious of time.

A rise in income due to a rise in earnings would increase the quality of goods purchased not only because of the effect of income on quality, but also because of a substitution of goods for time. An increase in a mother's time may induce her to enter the labor force and spend less on cooking by using precooked foods, or wealthier section's barber charge more and provide quicker service than those in poorer sections, because waiting by barbers is substituted for waiting by customers.