Are Income and Leisure Complements?

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It is well established that leisure time varies negatively with income in the U.S., implying that income- or expenditure-based measures of inequality overstate true inequality in wellbeing (Aguiar and Hurst 2007, 2009; Attanasio and Pistaferri 2016; Han et al. 2020). However, if income enhances leisure enjoyment, total leisure consumption—as the composite of leisure time and the level of enjoyment during that time—could well depend positively on income. Accordingly, inequality in wellbeing could even be greater if leisure consumption was considered alongside income levels. We are interested in the question of whether income enhances the utility derived from leisure and investigate why that is, using data on momentary well-being from the American Time Use Survey (ATUS).

We propose three nonexclusive reasons for a positive income-leisure utility relationship. (i) The marginal utility of leisure is decreasing: As high-income earners work more (and devote less time to leisure), they also benefit more from enjoying an additional hour of leisure. (ii) Earning more income allows workers to 'buy' particularly enjoyable leisure activities (e.g., leisure products). (iii) Increasing income creates a spillover effect in that it allows individuals to enjoy any leisure activity more as they are less preoccupied with making ends meet.[1]

In particular, if income makes leisure time more enjoyable because it alleviates financial worries (iii), traditional income-based or expenditure-based indicators of inequality will be inaccurate. Estimates of inequality incorporating the value of leisure, valued at the market wage (the "full-income approach") do exist (e.g., Han et al. 2020), but are vulnerable to the criticism that individual wages may not approximate the shadow price of leisure (Schreyer and Diewert 2014). Using experienced utility to approximate leisure consumption offers a novel approach to the problem of inequality and leisure time.

The distinction between leisure time and the consumption of leisure is key to our argument: when we refer to leisure time, we mean the time that the individual devotes to all leisure activities (here defined as socializing, watching TV, listening to music, reading, relaxing, arts and entertainment, participating in sports, exercise, and recreation, and attending sports/recreational events). However, the consumption of leisure is the utility value of all time devoted to leisure. We rely on measures of 'experienced utility,' known in psychology as emotional (or, affective) wellbeing (Diener 1984, Kahneman et al. 1997, Kahneman and Krueger 2006). Experienced utility is a time-weighted measure of the 'momentary utilities' experienced at each point in time. These momentary utilities are the difference between positive emotions and negative emotions, such as happiness,

[1] We build this argument to some extent on the research arguing that scarcity of income limits people's ability to engage in cognitive tasks (Mani et al. 2013, Shah et al. 2019). In contrast, "abundance means freedom from trade-offs. When we buy something under abundance, we do not feel we have to give anything up. Psychologically, this is pleasing." (Mullainathan and Shafir 2013, p. 96). We suspect that this effect might matter especially during free-time activities, which is when people have time to spend their money.

pain, or sadness. This means the overall utility value of leisure depends both on momentary utilities during leisure activities, as well as the total hours devoted to leisure.

We use data from the ATUS's Wellbeing Module on people's feelings of happiness, pain, sadness, stress and fatigue elicited for a random subset of activities using the 'day reconstruction method' (DRM).[2] In a first step, we focus on the momentary utilty during leisure episodes. In line with our reasoning (i)-(iii), we find a positive effect of income on feeling happy during leisure activities. Likewise sadness, stress and pain reduce with income, however there is no effect on fatigue. 'Net affect' (Bradburn 1969) during these activities, which aggregates all emotion ratings, therefore increases with income. Importantly, this is not the case for non-leisure activities. Except for the effect of income on pain, all of these results continue to hold in an individual fixed-effects regression where the effect of income on leisure enjoyment is computed relative to other activities pursued by the same individual (work, household production). This means we can rule out that our finding reflects a generally positive association of income and emotional wellbeing which could originate from personality or other traits.

We then consider various explanations for the positive income effect on momentary utility from leisure along the lines of (i) and (ii). A Gelbach (2016) decomposition shows that high marginal utility of leisure in earners of high incomes contributes little to the effect of income on leisure enjoyment. More of that effect can be explained by differences in the kind of activities individuals pursue during leisure time. This implies that income enables individuals to engage in more pleasurable leisure activities, possibly because these more pleasure activities are costly. A relatively large fraction of the effect of income on leisure enjoyment remains unexplained. This could be seen as a pure spillover effect in keeping with our explanation (iii) according to which income promotes peace of mind especially during leisure activities. In a final step of our empirical analysis, we combine momentary utility during leisure activities with the time devoted to leisure activities to compute the overall experienced utility value of leisure. We do not find an effect of income on experienced utility from leisure, implying that the greater enjoyment that richer people derive from leisure offsets the less time they have available to devote to leisure.

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[2] The experience sampling method (Hektner et al. 2007) and the day reconstruction method (Kahneman et al. 2004) are best suited to assess emotional wellbeing. Alternative methods entail retrospective summary assessments of emotions over several days or weeks, which are subject to substantial recall bias (Dolan et al. 2017).

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