

# Measuring the willingness to work more than expected:

## Experimental evidence

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**Abstract:** Since the seminal work by Kahneman and Tversky (1979), there has been much evidence that individual preferences are not only affected by outcomes but also by how much these outcomes diverge from some reference point. More recently, Koszegi and Rabin (2006) developed a theory of reference-dependent preferences that is more general than Kahneman and Tversky (1979) and they modeled reference points as shaped by expectations. Their approach is mainly dedicated to the study of income as a reference point and is intuitively appealing compared to a model of exogenous targets because in their case reference income is allowed to adapt to expected shifts in wages. In the labor supply literature, a series of studies have found evidence consistent with a target reference income. Labor supply is such that it attains some reference income level (Camerer et al., 1997; Fehr and Goette, 2007; and Farber, 2008).

According to Koszegi and Rabin (2006), individual preferences reflect both the standard utility of income and leisure and reference dependent utility impacted by gains and losses. Furthermore, a worker has a target both in terms of hours and income; and both working longer than the hours target and earning less than the income target generates a loss (Crawford and Meng, 2011). These targets are assumed to be rational expectations of working hours and income, reflecting the beliefs that workers have.

In this paper we rely on a real-effort lab experiment to estimate the impact of individual reference points with respect to work time and income. We manipulate the rational expectations with respect to work time and income in order to check how it affects our subjects' effort provision. In our experiment, we let subjects work for a given amount of time on a repetitive and boring task. The effort provided during the task is rewarded according to a targeted performance compensation scheme. Subsequently, subjects can rest and enjoy leisure for a given amount of time. The income is also given, provided that subjects achieve a feasible target. This establishes reference points with respect to work time and income. Across one set of treatments, we will let time reference points vary, conditional on income. Across a second set of treatments, we will let income reference levels vary, conditional on work time. This will allow us to separate the effects of time and income reference levels. At the end of each treatment, subjects can decide to work (and earn additional money) instead of enjoying leisure (which is no longer mandatory). The expectation is that subjects are more willing to work after treatments with high work time and income reference levels.

Furthermore, each set of treatments is characterized by varying wages, in order to obtain crossing budget lines. This will allow us to adopt a revealed preference approach (Samuelson, 1938; Afriat, 1967; Diewert, 1973 and Varian, 1982) to analyze our data. Revealed preference axioms jointly test the hypotheses of utility maximization and preference homogeneity. These axioms are consistent with standard substitution and income effects, but not with exogenous variation in reference levels. Conditional on the assumption of utility maximization, violations of the revealed preference axioms will detect preference heterogeneity that stems from variation in time and income reference points. We are currently collecting the data in Luxembourg (LISER-LAB).

**Keywords:** Real effort experiment, Reference-dependent preference, Labor supply, work-leisure trade-off, revealed preference.

**JEL Classifications:** C91, J22, J31, M50

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