A Labor Supply Model with Overtime Work: 
The Case of Single-Earner Families

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Abstract

(extended abstract) Estimating labor supply elasticities is important for several reasons, for instance, for finding the optimal tax rate, calculating national tax revenue from a new tax system, or evaluating the effects of employment-enhancing policies. Consequently, there are a number of empirical studies that focus on the estimation of labor supply elasticity.

However, most of the existing literature ignores restrictions on the number of hours employees can choose to work. That is, hours worked that researchers include in data are usually determined a priori by employers or by labor laws in a specific country; hence, in reality, workers may have limited discretion over how long they work. Prediction based on a model in which workers have full discretion over their hours of work may lead to overestimation of labor supply elasticities in response to policy changes.

In this paper, we propose a labor supply model where, at the moment of being offered a job, the worker observes nominal work hours and understands that accepting the job offer immediately implies that he should remain in accordance with the nominal work hours. In our model, therefore, workers have limited discretion only over how long they work overtime. We believe that considering some of the fixed (i.e., nominal) work hours a priori is reasonable since ‘‘overtime’’ work itself assumes that there exist normal work hours, and if workers work more than the normal work hours, it is described as ‘‘overtime.’’

We explain two main features of our model and why they are important in understanding the real labor market. First, workers face restrictions on their
hours of work, as mentioned earlier. Because of this, we can explain the possibility that some male heads of households do not increase their earning even under decent wage rates. A structural model without the limited discretion over work hours and with heterogeneous disutility from work may explain such cases by saying that such male heads have a stronger preference for leisure. With social welfare calculations based on such a structural model, researchers may fail to underestimate the importance of public policies solving underemployment.

The second main feature of our model relates to the fact that male heads may face different job offers with different hour-related restrictions, depending upon their own characteristics. Therefore, our model can capture the probability that male heads with low education and low work experience are likely to have part-time jobs rather than full-time jobs; in other words, they are likely to receive job offers with considerable restrictions on work hours. This feature of our model helps to explain why some male heads hold part-time jobs and earn less, even though it seems that they earn more household income.

A data set that includes detailed information regarding nominal and overtime work hours as well as wage rates or employment types was needed to create our structural model. In addition, a longitudinal data set may be more desirable to, for instance, control for endogeneity (when finding instruments for endogenous covariates). The Korean Labor and Income Panel Study (KLIPS) is the data set that fits this research purpose best when one wishes to understand the Korean labor market. KLIPS is a longitudinal survey of households and individuals residing in urban areas. The survey is conducted annually by Korea Labor Institute. The first wave of KLIPS was done in 1998, and its 19th wave is the latest available. We confined our sample population to male heads of single-earner families. It is possible that the male head constitutes a one-person household, neither married nor living with other family members. In the process of determining our sample population, we included those who do not participate in the labor market or those who are wage workers. We excluded those who participate in the labor market as self-employers. We believe that this exclusion of self-employers is appropriate because it is difficult to assume that self-employers face the same labor supply decisions as wage workers do, both in terms of extensive and intensive margins. When the self-employer decides whether to participate in the labor market, he needs to consider how many people to employ or the magnitude of fixed or sunk cost relating to opening and maintaining this business, along with his own labor supply decisions. In addition, for self-employers, distinguishing nominal work hours or overtime work hours would not be meaningful since "nominal" or "fixed" work hours do not exist for these individuals. Finally, we considered those male heads aged 30 to 55 in order to avoid the presence of either education or retirement decisions.

The structural model is estimated by the simulated method of moments. Then, the estimated model is utilized to conduct two counterfactual experiments. The first policy is to increase the amount of EITC that is independent of labor income and other variables, while letting the subsidy also to economically inactive households. The second policy is to raise the labor-income tax by ten percent. For the first policy, households associated with low wage rates tend to

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work longer, while those with middle wage rates tend to decrease work hours and even exit the labor market. Responding to the second policy, those with low wage rates tend to work for longer hours, while those with relatively high hourly wage rates tend to work for fewer hours.

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