

Underemployment

A Proposal Submitted to the NBER Macro Annual Conference

Geng Li*

Federal Reserve Board

July 21, 2011

*The views presented in this paper are those of the author and are not necessarily those of the Federal Reserve Board and its staff.

In a frictionless economy, full employment is achieved when everyone who wants to work has a job and everyone who works can work as many hours as the individual wants to, i.e., there is no *unemployment* and there is no *underemployment*.¹ That said, students of labor market fluctuations (and their relationship to business cycles) have long focused on changes of employment status (the extensive margin of labor inputs), while leaving variations on the number of hours worked (the intensive margin of labor inputs) largely under explored.² Similarly, most policy and media discussions have focused on unemployment and relatively little attention is directed to underemployment.

In the research proposed, we present evidence that variations on the intensive margin of labor input are quantitatively important in understanding the overall labor market and macroeconomic fluctuations. One of our key observations is that, although some variations in working hours are attributable to individuals' optimization, there are a large number of employed people who involuntarily work fewer hours than their desired levels. The share of underemployed workers tracks the unemployment rate closely and exhibits a strong cyclicity.³ Despite the high correlation between variations on the extensive and the intensive margin, we argue that studying the latter presents new perspectives for understanding labor market institutions, frictions, corresponding household reactions, and welfare implications.

Underemployment can be detected in survey data in two forms. First, in the Current Population Survey (CPS), respondents who work part time are asked why they work part time. Underemployment arises among those who work part time “for economic reasons” and cannot find a full time job. Second, even people who work full time can potentially be underemployed. For example, one who wants to work 10 hours each day will feel underemployed if he can work only 7 hours. These people can be identified in the Panel

¹The term “underemployment occasionally is also used to describe a situation where high skilled workers are employed for jobs that require only low skills, which is not the focus of this paper.

²Some recent studies began exploring variations on the intensive margin. See, for example, Rogerson (forthcoming) and Chang et al. (2011).

³For example, during the Great Recession the share of the employed working part time for economic reasons more than doubled from 3 percent to above 6.5 percent, while the unemployment rate also doubled from below 5 percent to above 10 percent.

Study of Income Dynamics (PSID) and the Health and Retirement Study (HRS). In these surveys, people were asked whether they wanted to work more hours than they did but were not able to in the past year. Indeed, the CPS, PSID and HRS are the three main data sources of the empirical study of the research proposed.

We begin with documenting the incidence of underemployment and its occupation, industry and demographic compositions, a thorough treatment of which, to our knowledge, is lacking in the current literature. We find that underemployment is a fairly common phenomenon. For example, in the PSID data, each year about 20 percent survey respondents reported that they cannot work as many hours as they wanted to. Such a situation also tends to be rather persistent—50 percent of the underemployed in one year in the PSID data remained so in the next year.⁴

We then study the reasons of underemployment. Exploiting the longitudinal structure of the PSID data, we examine the differences in income, spouse employment status, wage structure, wealth, health status, union membership, and employer characteristics as underemployment status changes to infer who, under what situations, are more likely subject to hours constraints. We particularly are interested in the role played by nominal wage stickiness and rigidity, noticing that underemployment is least likely to arise if a continuous wage-hours menu is offered to workers.

Next, we study how households react to restriction on work hours.⁵ We focus on two potential reactions. First, underemployment may trigger separations. If the hours restriction is expected to continue for a sufficiently long period of time, the underemployed worker will leave the current employer for a different job than provides longer hours. Second, underemployment may affect home production. The key insight is that a worker who sees himself underemployed has higher marginal utility on consumption than on leisure, therefore will increase hours input in home production to narrow the wedge. Consistent

⁴In contrast, the phenomenon of *overemployment*, where the respondent was unable to work fewer hours, was much less common in the data and tended to last no more than a year.

⁵Altonji and Paxson (1988, 1992), Paxson and Sicherman (1996), and, more recently, Charles and Decicca (2007) comprise the small literature addressing this topic.

with this intuition, we find that the underemployed workers on average spend 20 percent more time on home production than other workers (and reduce time on vacation).

While filling important gaps in the empirical literature, our results also serve to inform the design and calibration of an array of widely used theoretical models. We plan to revisit some of these models to conclude the study. For example, one important implication of our results is that changes in the aggregate labor hour reflect, in addition to labor force participation and unemployment variations, the extensiveness and degree of hours constraints in the labor market. Models of indivisible labor in the spirit of Hansen (1985) can be expanded to allow for quasi-indivisible labor to match the moments related to underemployment. Moreover, the macroeconomic models of home production pioneered by Benhabib, Rogerson and Wright (1991) can be enriched to match the relationship between market labor input and home production revealed in our results. Furthermore, underemployment can be interpreted as a kind of matching inefficiency. To the extent that unemployment triggers separations, our results also provide useful insights to the rapidly growing search and matching literature.

References

- [1] Altonji, Joseph and Christina Paxson (1992), “Labor Supply, Hours Constraints, and Job Mobility,” *Journal of Human Resources* vol. 27, pp. 256-78.
- [2] Benhabib, Jess, Richard Rogerson and Randy Wright (1991), “Homework in Macroeconomics: Household Production and Aggregate Fluctuations,” *The Journal of Political Economy* vol. 94, pp. 1166-87.
- [3] Chang, Yongsung, Sun-Bin Kim, and Richard Rogerson (2011) “Interpreting Labor Supply Regressions in a Model with Full and Part-Time Work,” *American Economic Review Papers and Proceedings*, vol. 101, 476481.

- [4] Charles, Kerwin and Philip DeCicca (2007), “Hours Flexibility and Retirement,” *Economic Inquiry* vol. 47, pp. 251-67.
- [5] Hansen, Gary (1985), “Indivisible Labor and the Business Cycle,” *Journal of Monetary Economics* vol. 16, pp. 309-27.
- [6] Paxson, Christina and Nachum Sicherman (1996), “The Dynamics of Dual Job Holding and Job Mobility,” *The Journal of Labor Economics* vol. 14, pp. 357-93.
- [7] Rogerson, Richard (forthcoming), “Individual and Aggregate Labor Supply With Coordinated Working Times,” *Journal of Money Credit and Banking*.