Employment Adjustment and Part-time Jobs: The U.S. and the U.K. in the Great Recession

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The separation of adjustment in total hours worked in adjustments in employment (the extensive margin) and hours per worker (the intensive margin) is a central distinction in modern business cycle analysis. By using micro-data on labor market flows, recent research has significantly advanced our understanding of the macro-behavior of the extensive margin. In contrast, our understanding of the intensive margin remains largely informed by the behavior of aggregate time series of hours per worker calculated among the stock of employed workers. A limitation of analyses based on stocks and aggregate data is that they are unclear about the sources of variation in the variable of interest. In this paper, we overcome this limitation by showing how to cast the intensive margin in a stock-flow framework, and use it to study the sources of short-run variation in hours per worker. The picture that emerges from applying our method is a rich and novel characterization of the dynamics of the intensive margin.

I. Hours per worker and part-time employment

To cast the intensive margin within a stock-flow framework, we start by documenting a new fact. Using labor force survey micro-data for the United States (U.S.) and the United Kingdom (U.K.), we document that fluctuations in part-time employment play a major role in movements in hours per worker, especially during cyclical swings in the labor market. Conversely, hours per worker in part-time and full-time jobs vary relatively little and hence they explain but a small part of the fluctuations at the intensive margin.

Understanding changes in hours per worker therefore amounts to understanding the dynamics of the part-time employment share (the number of part-time workers among

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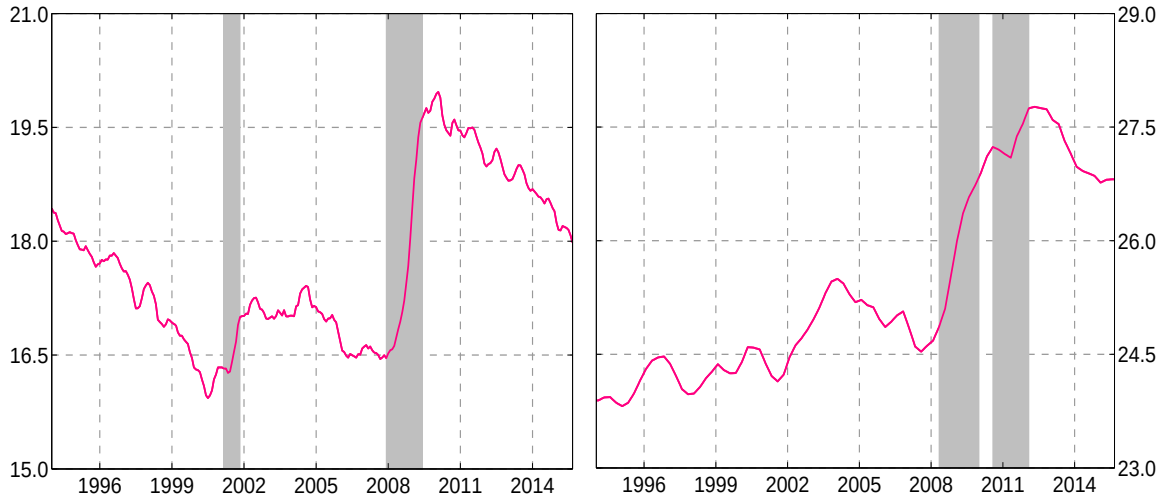
those employed), which is very strongly countercyclical. Figure 1 tracks the evolution of the part-time employment share in the U.S. and the U.K. over the past two decades.



(a) United States **(b)** United Kingdom

Figure 1: Part-time Employment Share

Notes: The plot shows the share (in percent) of private-firm salaried workers in part-time employment. Gray-shaded areas indicate recessionary periods.

II. The cyclical dynamics of part-time employment

Building on this new fact, in a subsequent step we operationalize a representation of the intensive margin based on a Markov chain model. We draw on a vast literature that uses this modeling framework to describe the dynamics of unemployment/employment by the behavior of transition probabilities across labor market states. This representation allows us to accurately decompose the sources of fluctuations at the intensive margin and, by extension, quantify the role played by the extensive margin in those dynamics. Our main finding is that the bulk of fluctuations in hours per worker is attributable to movements in transition rates directly between part-time and full-time employment in private-sector salaried jobs.

We then use the wealth of auxiliary information available in the labor force surveys of both countries to uncover the mechanisms underlying the dynamics of these transitions. Strikingly, we find that transitions between full-time and part-time employment occur overwhelmingly at the same employer and entail large changes in individuals' working hours. The cyclicality of changes from full-time to part-time work at the same employer, moreover, is to a large extent due to transitions that are deemed involuntary from the workers' perspective.

We summarize our empirical results in a hypothesis of variable labor utilization. In a nutshell, this hypothesis posits that firms adjust the intensity with which they utilize their labor force in response to shocks to their environment.

III. Implications for macroeconomic analysis

Our findings can be distilled into several strands of the literature that have been building explicitly on micro-data facts to understand aggregate labor-market dynamics:

- The first implication concerns the mapping between time allocated to market work and labor services, which is key to understand labor-supply responses to aggregate changes such as productivity shocks and tax reforms. Our findings can provide guidance on the parametrization and micro-foundations of this mapping.

- The second set of implications relates to the fact that changes in hours are concentrated on a small fraction of employed workers rather than uniformly distributed among them. This feature can affect the calibration of heterogeneous agents models, as well as change the way the performance of these models is assessed.

- Finally, several empirical results of our paper can be used to investigate quantitatively the joint movements in hours and employment predicted by search-matching models with aggregate shocks. The new generation of models featuring a notion of firm size provides an exciting avenue to undertake these investigations.