Report on "A New Keynesian Model with Unemployment: The Effect of On-the-job Search"

By

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Summary

Kantur and Keskin (2017) enrich a New-Keynesian search model (Galí, 2010) with wage dispersion and on-the-job (OTJ) search. The former is caused by differences in firm's bargaining power. Different wages for homogenous workers induce them to search while employed. The authors seek to find a resolution to Shimer's (2005) puzzle and argue that the incorporation of OTJ search helps to amplify the movement of unemployment and tightness over the business cycle. Furthermore, the authors aim to advance the data replication abilities of Gali's model regarding the sign of the impulse response function of employment towards a technology shock.

General Remarks

1. The motivation for the model extension is not clear:

    a) Is it to contribute to resolve the Shimer (2005) puzzle, i.e. to improve the standard MP model such that the theoretical volatilities of unemployment and tightness match the data? Why (intuition) is OTJ a promising extension of Galí (2010) regarding this issue? As argued by Shimer, the wage absorbs a large share of productivity fluctuations in the standard model.

    b) Is the purpose of the paper to contribute to the issue regarding the discussion of the impact of a technology shock on employment? If this is the case, the reader needs to be familiar with the problem in order to understand the motivation. Why is OTJ useful in this sense? The qualitative response of unemployment as depicted in Figure 1 is identical with and without OTJ. I suppose it is the formulation of hiring cost as in Blanchard and Galí (2010) which flips the sign of the impulse response function of a technology shock.

c) Is it both? In that case, a clear distinction between both streams of the literature would be beneficial for the reader.

2. What specification of Gali's (2010) model exactly do you refer to? Gali's model embeds labour market frictions, price rigidities as well as wage stickiness. In his analysis, he shuts down some of the features to discuss particular matters.

3. The solution strategy could be explained in more detail. The reader is left with a succession of equations, little explanation and intuition of the procedure is provided.

Specific Remarks

1. The motivation section needs re-structuring. The authors jump from justifying the use of OTJ search to Shimer's critique, discuss the literature that focuses on employment and technology before they briefly review recent OTJ literature. Furthermore, some aspects (e.g. intuition for the setup of the firms in the economy) could be moved to another section

2. Relevant literature (OTJ, wage dispersion), e.g. Burdett and Mortensen (1998), is missing. Furthermore, the review part that deals with Shimer's critique could be extended. This is necessary to point out why your approach is a useful alternative to existing studies.

3. Employment and technology shock: The review/motivation part is fuzzy. A careful differentiation regarding the nature of a technology shock (transitory vs. permanent) is important. The authors begin their summary of the employment-technology shock literature with a permanent shock, but use a transitory shock in their numerical exercise. It should also be stressed whether the focus is on the dynamic response of employment/unemployment rate or on the level of these variables reacting to changes in technology. Does a permanent technology shock increase unemployment temporarily or permanently? Furthermore, additional papers could be added to the discussion [e.g. Galí (1999); Christiano et al. (2003); Fernald (2007); Basu et al. (2006); Canova et al. (2013)]. Canova et al. 2013 differentiate between neutral and

investment-specific shocks; this should briefly be discussed. There is also a much more recent version of the Canova paper (Economic Journal, 2013).

4. There are some repetitions, e.g. footnote on page 2 and on page 11.

5. I suggest sticking to the term labor market tightness and avoiding "average" job finding rate as you already defined rates for both types of searchers.

6. The hiring cost could be explained in more detail. I understand that $Pool_t$ is a predetermined variable. The two types of firms share the same pool of workers, but their hiring cost only depend on their own hirings. Hence, if the aggressive firm hires a lot of workers, the hiring cost of the passive firm are unaffected. Is that a reasonable assumption?

7. It would be useful to explain at least one of the value function, especially V_t^{NA} is not straightforward to interpret. It seems to me that workers could loose their job and search a new job in the same period. Is that reasonable? Usually, workers loose their job and move into unemployment. Once unemployed, they start searching.

8. The calibration strategy partially seems arbitrary (e.g. "having no evidence..., we set γ to 0.5."). Are your results robust to different values of γ ?

9. Shimer's puzzle: How well does the improvement of the model fit the data? Is the difference quantitatively sufficient to match the data? As argued by Shimer, the model generated volatility of tightness is less than 10% compared to the data. However, the impulse response functions in Fig.1 only compare the model with and without OTJ. A comparison of the model's performance with the data seems necessary. The intuition why OTJ search helps to amplify the volatilities could be explained in more detail.

Conclusion

I understand that the main purpose of the paper is to address the shortcoming of the standard MP model highlighted by Shimer. There are various papers which propose changes to the standard model to account for the problem. It is not clear why your

approach is better than others. Additionally, it is hard to judge whether the paper's improvement is potentially significant at this stage. It depends on whether or not the improvement of the model is such that it matches the data as opposed to only slightly amplifying the variables movements over the business cycle. Given only the impulse response functions, it is difficult to evaluate whether OTJ is a sufficient extension to account for the problem noted by Shimer (2005). Furthermore, the economic intuition why OTJ is useful should be stressed. The employment-technology issue should be explained in more detail and the link to OTJ requires further explanation. As opposed to the hiring costs, OTJ seems unrelated to the employment-technology part. Perhaps the paper could focus on Shimer's puzzle only? To sum up, I recommend a thorough revision of the paper before its potential can be properly assessed.

References

Basu, S., Fernald, J. G., and Kimball, M. S. (2006). Are technology improvements contractionary? American Economic Review, 96(5).

Blanchard, O. and Galí, J. (2010). Labor Markets and Monetary Policy: A New Keynesian Model with Unemployment. American Economic Journal: Macroeconomics, 2(2).

Burdett, K. and Mortensen, D. (1998). Wage differentials, employer size, and unemployment. International Economic Review, 39(2):257–73.

Canova, F., Lopez-Salido, D., and Michelacci, C. (2013). The Ins and Outs of Unemployment: An Analysis Conditional on Technology Shocks. Economic Journal, 123(06):515–539.

Christiano, L. J., Eichenbaum, M., and Vigfusson, R. (2003). What Happens After a Technology Shock? Technical report, National Bureau of Economic Research, Inc.

Fernald, J. G. (2007). Trend breaks, long-run restrictions, and contractionary technology improvements. Journal of Monetary Economics, 54(8).

Galí, J. (1999). Technology, Employment, and the Business Cycle: Do Technology Shocks Explain Aggregate Fluctuations? American Economic Review, 89(1).

Galí, J. (2010). Monetary policy and unemployment. Working Paper 15871, National Bureau of Economic Research.

Shimer, R. (2005). The cyclical behavior of equilibrium unemployment and vacancies. American Economic Review, 95(1).