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Journal of  
MACROECONOMICS

Journal of Macroeconomics 29 (2007) 855–875

[www.elsevier.com/locate/jmacro](http://www.elsevier.com/locate/jmacro)

## Business cycle dynamics with duration dependence and leading indicators

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Received 23 June 2004; accepted 10 February 2006

Available online 21 May 2007

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### Abstract

Durland and McCurdy [Durland, J.M., McCurdy, T.H., 1994. Duration-dependent transitions in a Markov model of US GNP growth. *Journal of Business and Economic Statistics* 12, 279–288] investigated the issue of duration dependence in US business cycle phases using a Markov regime-switching approach, introduced by Hamilton [Hamilton, J., 1989. A new approach to the analysis of time series and the business cycle. *Econometrica* 57, 357–384] and extended to the case of variable transition parameters by Filardo [Filardo, A.J., 1994. Business cycle phases and their transitional dynamics. *Journal of Business and Economic Statistics* 12, 299–308]. In Durland and McCurdy's model duration alone was used as an explanatory variable of the transition probabilities. They found that recessions were duration dependent whilst expansions were not. In this paper, we explicitly incorporate the widely-accepted US business cycle phase change dates as determined by the NBER, and use a state-dependent multinomial Logit modelling framework. The model incorporates both duration and movements in two leading indexes – one designed to have a short lead (SLI) and the other designed to have a longer lead (LLI) – as potential explanatory variables. We find that doing so suggests that current duration is not only a significant determinant of transition out of recessions, but that there is some evidence that it is also weakly significant in the case of expansions. Furthermore, we find that SLI has more informational content for the termination of recessions whilst LLI does so for expansions.

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