

Endogenous Business Cycle with Labor Market Search

Salvador Ortigueira and Nigar Hashimzade

Cornell University

CU/PSU Macro Workshop, November 2001

Abstract

The purpose of this paper is to explore the implications of labor-market search in the context of business cycles. A wide range of real business cycle models, in which the source of economic fluctuations are random shocks to the production function, fail to generate high autocorrelation in macroeconomic variables, unless the underlying shocks to the economy are highly persistent. Because of a weak internal propagation mechanism, in real business cycle models the dynamics of output replicates the dynamics of inputs. An alternative approach are the endogenous business cycle models, in which the fluctuations are driven by *extrinsic* uncertainty, as opposed to *intrinsic* uncertainty in the real business cycle models. In this paper we consider a model of endogenous business cycle with random search and matching in the labor market. The model has two important features. Firstly, the labor market search creates a propagation mechanism for shocks to the economy, because of the slow adjustment of employment to the disturbances. Job match requires that firms allocate part of their resources to creating and maintaining job vacancies, and, on the other hand, re-

quires that the agents allocate part of their time endowment to seeking a job. Hence, employment at the time of production is pre-determined and responds slowly to the shocks. The market equilibrium in this economy is characterized by a non-zero unemployment level. Secondly, because of the existence of thin market externalities in an inefficient search equilibrium, there is a possibility of indeterminacy of the equilibrium (continuum of equilibrium paths converging to the stationary equilibrium characterized by sink-type stability). In this case business cycle phenomena can be generated by stochastic shocks to agents' beliefs (sunspots). Due to the internal propagation mechanism, i.i.d. shocks to the beliefs (in our model - workers' beliefs regarding the future tightness of labor market) generate serially correlated fluctuations in output, consumption, investment, hours, productivity, and unemployment. In contrast with the existing literature on endogenous business cycles, in our model indeterminacy does not require increasing returns to scale nor monopolistic competition. We calibrate the model to the U.S. data using first and second moments of the macroeconomic time series, and compare the results with the existing literature on the theory of business cycles. In terms of serial correlation and cross-correlation (comovement of economic variables), our model, with constant returns in production and perfect competition in the markets for consumption good and capital, performs at least as good as real business cycle models and endogenous business cycle models with increasing returns and monopolistic competition.