

Layoff risk, the welfare cost of business cycles, and monetary policy *

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Abstract

The single strongest predictor of changes in the Fed Funds rate in the period 1982–2007 was the level of the layoff rate (initial unemployment claims divided by total employment). This fact is puzzling from the perspective of standard monetary models because they typically imply that the welfare gains of stabilizing employment fluctuations are small. We argue that these welfare costs are small because standard models do not capture the fact that when people lose their jobs, they tend to experience large, permanent, and largely uninsurable income losses. We augment a standard New Keynesian model with a labor market featuring endogenous countercyclical layoffs by firms that are associated with permanent reductions in human capital. In our benchmark calibration, welfare may be increased by 4 percent of lifetime consumption when the central bank's policy rule responds to the layoff rate. This provides a quantitative rationale for the Federal Reserve's dual mandate.

Keywords: Cost of Job Loss, Monetary Policy, Dual Mandate, Incomplete Markets

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1 Extended Abstract

It has been well known since at least Lucas (1987) that business cycles in representative agent models have quantitatively trivial welfare costs. Average consumption is simply not very volatile. But a growing literature demonstrates that individuals face extremely large idiosyncratic risk, and the magnitude of that risk is distinctly countercyclical (Guvenen, Ozkan, and Song (2014)). We argue that a plausible source of welfare costs of business cycles is variation in the level of idiosyncratic risk.

A natural question is why individual income is so risky. One source of risk with a large body of empirical support is the chance that a person may lose their job. Drawing on a wide range of sources, including longitudinal surveys like the NLSY, special surveys of displaced workers like the BLS's Displaced Worker Survey, and administrative data from the Social Security Administration, it is now well established that there are large and permanent earnings losses following job loss.¹ Similar to Krebs (2007), we therefore argue that fluctuations in the layoff rate over the business cycle are a major source of welfare losses for households.

The Federal Reserve's statutory mandate includes stabilizing employment, but given the calculations in Lucas (1987), Schmitt-Grohe and Uribe (2007), and others, that part of the mandate is a mistake. On the other hand, if we are correct that fluctuations in the layoff rate are a major source of welfare losses over the business cycle, then the Federal Reserve's mandate appears much more natural. Furthermore, if it really is layoffs that matter for welfare, rather than, say, the output gap, we might expect the Federal Reserve to have historically responded to variations in the layoff rate in setting interest rates. We show that in fact, among a broad set of standard explanatory variables, the level of the layoff rate in the economy is the single strongest predictor of changes in interest rates. Historically, the Federal Reserve has tended to cut interest rates very strongly at the beginning of recessions, and that behavior tracks the pattern of the layoff rate very closely.

We next ask how large the welfare benefit from the Federal Reserve taking an active stance against layoffs might be. In our benchmark calibration, welfare can be increased by 4 percent of lifetime consumption when the nominal interest rate is set in response to layoffs compared to when it follows a more standard Taylor rule. That welfare increase is an order of magnitude larger than the variations observed across policy rules in past work (e.g. Schmitt-Grohe and Uribe (2007)).

From a modeling perspective, our work builds on the recent work of Constantinides and Ghosh (2015) and Schmidt (2015), who examine asset prices in models with uninsurable idiosyncratic risk.² Those papers use a modeling approach in the optimization problems of heteroge-

¹See the discussion and citations in Krebs (2007), including: von Wachter, Song, and Manchester (2009) (finding long-term wage losses of 30 percent); Jacobson, LaLonde, and Sullivan (1993) (25 percent long-term wage loss); Davis and von Wachter (2011) (10 to 20 percent loss); Ruhm (1991) (11–15 percent); and Kletzer and Fairlie (2003) (9–13 percent losses for young workers); among many others.

²See also Constantinides and Duffie (1996), and Storesletten, Telmer, and Yaron (2007).

neous agents scale in such a way that aggregation still takes place and Euler equations can be formed as though there is a representative agent, but with extra terms accounting for idiosyncratic risk.

Specifically, we examine agents who have Epstein–Zin (1991) preferences. Even though the preferences we examine imply that people have a relatively high willingness to substitute consumption over time (the elasticity of intertemporal substitution (EIS) is 1), they are relatively averse to shocks that affect lifetime consumption or its distribution. We show analytically that because of the high EIS, business-cycle frequency fluctuations in the level of aggregate consumption inevitably have quantitatively small welfare costs. But because risk aversion differs from the EIS, variation in the probability of job loss over the business cycle is costly – it would be worth 4 percent of lifetime consumption to eliminate observed fluctuations in the layoff rate in the post-war period (while leaving the average layoff rate fixed).

Moreover, it is straightforward to include Epstein–Zin preferences and idiosyncratic layoff risk in a standard New Keynesian setting. In order to generate endogenous layoffs, we build on the work of Blanchard and Gali (2010), who develop a stylized matching model of employment. We augment this framework with a model of wage insurance similar to that of Harris and Holmstrom (1982). In our setting, workers are subject to idiosyncratic productivity risk, which is partially insurable through contracts with firms. However, these shocks are only partially insured due to the inability of the worker to commit not to accept outside offers, which generates large endogenous wage losses following layoffs, and, in turn, substantially larger scope for monetary policy to affect welfare by changing firms’ incentives to fire workers in response to changing economic conditions.

In considering employment, idiosyncratic risk, and a New Keynesian model, our work is closely related to that of Challe et al. (2015). This paper differs from theirs in two important respects, though: our primary focus is on optimal policy, and our model is sufficiently simple that it can be easily linearized, which suggests that it will be relatively simple to estimate or modify in future work. On the other hand, our treatment of labor markets and idiosyncratic risk are less sophisticated than theirs. It is widely understood that models can generate much larger welfare costs when they account for the possibility that the pain of business cycles is focused on only a fraction of the population. But because such models are usually very difficult to work with, they are rarely used for policy analysis. An important contribution of this paper to the literature on optimal monetary policy is to extend a standard New Keynesian model of the business cycle to account for heterogeneous effects of business cycles on workers.

In addition to the literature discussed above, our work also builds on the New Keynesian business cycle literature, especially the branch that explores optimal monetary policy. The basic structure of our model is standard and similar to the work of Woodford (2003) and Christiano, Eichenbaum, and Evans (2005), among many others. The model includes sticky prices, a central bank that follows a Taylor rule, and consumers with Epstein–Zin (1991) preferences over consumption. It is then augmented with a labor market similar to that of Blanchard and Gali (2010)

to model endogenous layoffs.

Our analysis of the welfare effects of monetary policy builds on, among others, Coibion, Gorodnichenko, and Wieland (2012), Schmitt-Grohe and Uribe (2007), and Rotemberg and Woodford (1999).

The paper is organized as follows. In section 1 we briefly review the evidence on the long term earnings losses following a job displacement event. Next, in section 2 we examine a simple endowment economy in which consumers face rare but large uninsurable consumption risk and calculate the welfare costs of fluctuations in the layoff rate given observed dynamics of job loss in the US economy. We find that the welfare costs are large. Given that variation in the layoff rate has large utility costs, we hypothesize that the Federal Reserve might optimally respond to the layoff rate when setting interest rates. We show in section 3 that in a wide range of possible specifications, the layoff rate seems to outperform measures of inflation, the output gap, and the unemployment rate in explaining changes in the Fed Funds rate. Finally, with that evidence in hand, section 4 examines optimal monetary policy in a New Keynesian model and shows that the central bank can substantially improve welfare when it sets interest rates to strongly respond to the layoff rate instead of focusing on the output gap or inflation.