



Worker migration or job creation? Persistent shocks and regional recoveries



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ABSTRACT

Although a large body of literature has documented the role of household out-migration in the recovery from regional downturns, the role that firms play in the recovery process has remained a neglected topic of research. Firms may choose to locate new jobs in depressed regions, thereby reducing unemployment through the job creation channel. We present a new empirical model of regional adjustment that permits us to decompose recoveries into both household and firm responses to local economic conditions. The model features a set of auxiliary serial dependence parameters that are used to filter out persistency in the identified labor market shocks, so that changes in employment obtained from the fitted model only reflect the endogenous firm response of interest, and not the ongoing exogenous job destruction from the original downturn. We find that the labor demand response is two to three times larger than the labor supply response, meaning that local job creation—and not household out-migration—is the main driver of recoveries in the US. This result is robust to a variety of model specifications, identification strategies, and estimation methods.

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1. Introduction

Geographic regions of an economy are periodically subjected to adverse shocks. Although a large literature has examined how such shocks are absorbed through out-migration, unemployment and labor force participation,² the role that firms play in mitigating the effect of these shocks over the long run has remained a neglected topic of research. For example, while households may relocate to more prosperous regions of the economy, firms may also create new jobs in depressed regions, attracted by the surplus of labor and low wages. The job creation generated by this labor demand response therefore represents a parallel channel to out-migration through which the local labor market can recover.

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² See, amongst others, Marston 1985, (Blanchard and Katz, 1992; Topel, 1986) and (Bartik, 1991; 1993).

In this paper we provide a novel approach for measuring the contribution of the endogenous labor demand response to regional recoveries. Our approach builds on the structural vector autoregressions (VARs) that are often used to ascribe variation in regional employment, labor force and population levels to labor market shocks (see Blanchard and Katz, 1992; Decressin and Fatás, 1995; Tani, 2003; amongst others). In this literature, labor market recoveries are associated with the restoration of unemployment and participation rates over the long run.³ We begin by showing that persistency in the identified structural shocks is the primary impediment to measuring the effects of the endogenous labor demand response in these empirical models. Through the lens of the underlying economic model, changes in regional employment levels embody labor market shocks as well as the subsequent household and firm responses to those shocks. If the structural shocks identified in the empirical model are persistent—in the sense that the economic shock occurs over several time periods—it is difficult to disentangle the increase in employment due to the endogenous labor demand response from the ongoing exogenous decrease in employment due to the original downturn.

³ One might also characterize a recovery as the restoration of the local employment level after a downturn. While our empirical results also speak to this alternative definition of a recovery, we reserve the term “recovery” for measures of employment rates.

In order to estimate the effect of the endogenous labor demand response we suggest modelling the response to a one-period labor demand shock (i.e., a shock that exhibits no serial dependence). We show that this can be achieved by parameterizing serial dependence into the empirical model for the purposes of model estimation (as is also implicitly done in the SVAR literature), but “switching off” these auxiliary serial dependence parameters when using the fitted model to impute responses to labor market shocks. This means that subsequent changes in employment and population exclusively reflect the supply and demand responses of labor and firms—because these changes are not contaminated with persistence in the shock. Using this approach we find that the labor demand response is two to three times larger than the labor supply response, meaning that local job creation—and not household out-migration—drives the recovery.⁴ The recovery is however highly protracted, extending over a period in excess of twenty years. Taken together, these findings suggest that economic shocks can have large, long-lasting effects on local residents.

Our main finding of a highly protracted, largely firm-mediated adjustment process contrasts with earlier work by Marston 1985 and Blanchard and Katz (1992), who conclude that there is a comparatively large and rapid migration response to regional shocks. It is however consistent with a broader literature which concludes that migration plays a relatively small role in equilibrating regional unemployment rates, and that labor market shocks can have long-lasting effects on regional labor markets (see the discussion in Partridge et al., 2015). Our findings are of particular interest because our methodology is in the macroeconometric tradition of Blanchard and Katz (1992), but due to our judicious handling of shock persistency in the empirical model, our conclusions bear more similarity to the consensus.

The economic model of regional adjustment employed by Blanchard and Katz (1992) (which will be subsequently referred to as the “BK model”) provides the foundation of our analysis, and has been used in other contexts to model migration in response to regional labor market disparities (see Decressin and Fatás, 1995, and Tani, 2003, amongst others) The model is often empirically specified as a VAR (see Blanchard and Katz, 1992; Decressin and Fatás, 1995; Saks, 2008; Tani, 2003; Zabel, 2012, amongst others). However, a shortcoming of the (Blanchard and Katz, 1992) VAR in its present application is that the labor demand response can only be estimated under a rather restrictive condition on the structural shocks—they must be uncorrelated over time. Because the shocks identified in these models tend to in fact exhibit significant (positive) serial dependence, inferring the labor demand response based on changes in employment levels will lead us to understate the role of firms in the recovery—and to correspondingly overstate the contribution of migration to the recovery. We illustrate this weakness in more detail in Section 2.

To overcome this problem we start by specifying the BK model as a structural vector error correction model (VECM). Within the VECM the structural parameters governing the firm and worker responses are separate from the auxiliary parameters that capture any persistence in the underlying shocks. This means that the VECM presents a simple framework for untangling the endogenous responses of interest—embodied in the structural parameters—from the ongoing exogenous variation due to persistency in the shock. We can then obtain clean estimates of the endogenous responses

by “switching off” the serial dependence parameters when imputing impulse responses to the labor market shocks of interest.

One of the main contributions of the paper is therefore to provide a simple generalization of the BK model that explicitly addresses with the problems caused by persistent shocks in the empirical model. Indeed its inability to accommodate various forms of persistence has remained a widely perceived weakness of the original (Blanchard and Katz, 1992) method. Hall 1992 originally pointed out that we must assume that labor demand shocks are uncorrelated over time if we want to obtain the endogenous firm response from the fitted model,⁵ while (Bartik, 1993) and (Obstfeld and Peri, 1998) question the assumption that labor demand shocks cannot have a permanent effect on regional unemployment and participation rates. Two main pieces of evidence establish that the identified labor demand shocks exhibit persistence. The first is based on the original (Blanchard and Katz, 1992) and related results, in which labor demand shocks clearly exhibit inertia: After an initial negative shock, employment continues to fall for several periods. Because there is no mechanism within the BK model to generate this observed behavior, the inertia can only be rationalized as positive serial dependence in the initial shock (without serial dependence, employment can only start moving in the opposite direction of the shock, reflecting the endogenous labor demand response to the initial downturn). Second, a large literature shows that regional unemployment rates are highly persistent (even after conditioning on a national average), and are often indistinguishable from unit root processes (see the survey in Partridge et al. (2015)). One way to accommodate more dependence in relative unemployment rates within the BK model is to permit positive serial dependence in the underlying structural shocks.

Our findings hold up under an array of model specifications, estimation methods and identification strategies. Our baseline empirical model is based on a data set constructed from metropolitan statistical area (MSA) employment, labor force and working age population over the 1990 to 2012 period. We use MSA-level data because an MSA is (by definition) an approximation to a single regional labor market. To identify labor demand shocks we use the well-known (Bartik, 1991) shift-share instrument, and we estimate the model using ordinary least squares (OLS). Our robustness checks include alternative model specifications that incorporate household migration frictions such as wages, housing prices and housing supply elasticities, and a longer time series of MSA-level data (1975–2012). We also estimate the baseline model using an instrumental variables estimator (in order to circumvent potential bias in the OLS estimator), and we use recursive identification to identify labor demand shocks. All cases present a nearly identical picture, with the labor demand response playing a larger role than out-migration in a highly-protracted adjustment process.

This work relates to a number of literatures that focus on how regional economies absorb and recover from labor demand shocks, including (but not limited to) Marston 1985, Topel (1986), Greenwood et al. (1986), Blanchard and Katz (1992), Bartik (1991, 1993), and Lkhagvasuren (2012). The (Blanchard and Katz, 1992) approach has been replicated by Decressin and Fatás (1995) for the EU, who compare US and EU labor mobility. Debelle and Vickery (1999) apply the model to Australia, while Grimes et al. (2009) apply the model to New Zealand. A separate line of research has taken up the related question of whether amenities or job opportunities are the main driver of household migration (Greenwood and Hunt (1989); Partridge (2003, 2006);

⁴ Technically there is a distinction between the labor demand (supply) response, which describes a shift in the labor demand (supply) curve, and the effect of the response on observable employment (population). For brevity we will use the term “labor demand response” (“labor supply response”) to refer to the effect of the endogenous shift in the labor demand (labor supply) curve on employment (population).

⁵ See p. 65 of Blanchard and Katz (1992), where Hall states that “They seem to assume that demand shifts are inherently one-time random-walk shifts, so that the effects a year later and after are the result of endogenous responses. But no basis exists for this implicit assumption. The demand shift itself could have any form of persistence.”

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