Labor demand research: Toward a better match between better theory and better data

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\textbf{Abstract}

At first blush, most advances in labor demand were achieved by the late 1980s. Since then progress might appear to have stalled. We argue to the contrary that significant progress has been made in understanding labor market frictions and imperfections, and in modeling search behavior and heterogeneous preferences. Perhaps most notable have been the improvements in data, in the form of longitudinal matched employer–employee data, and in techniques and algorithms (e.g. for solving heterogeneous parameter models). In short, the Cinderella status of the field is frankly overdrawn. Nevertheless, a chief lacuna remains the need for a better match between theory and data. This paper provides a critical albeit eclectic assessment of these developments, along the dimensions of the static and dynamic theory of labor demand, wage formation, and estimation, noting advances and limitations. As is conventional, somewhat greater emphasis is placed on the latter.

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1. Introduction

For the general reader, research on labor demand may seem to have progressed little in the past 25 years especially when compared with other areas of research within labor economics. Thus, the static theory of labor demand has long been established; reliable estimates of the most relevant parameters have long been available; and the essential features of labor adjustment and the underlying micro-mechanisms were identified in the late 1980s. Yet we shall argue that significant progress has nonetheless been achieved in this research area.

On the theoretical front, the most important developments have stemmed from the recognition of the labor market frictions stemming from union presence and intervention, together with other imperfections that impart positive slope to the labor supply curve. To this mix one would need to add search frictions and heterogeneous preferences.

Furthermore, the importance of good data – especially longitudinal matched employer–employee data – to progress in labor demand studies cannot be overemphasized. In fact, benefiting from increasingly detailed data, most of the progress achieved in the recent years has come from empirical studies that have allowed for a finer characterization of the labor input and renewed interest in the study of interrelated factor demand, the interaction between the labor and product markets, and a richer description of the dynamics of labor demand.

Significant progress on the empirical front has involved new methods applied to better data, thereby advancing our knowledge of labor demand and our ability to predict the effects of policies that impact wages and employment. These new approaches include IV methods combined with panel data, quasi-experimental methods and other micro-evaluation techniques for policy interventions, and high-dimensional fixed-effects models or heterogeneous-parameter models. All became common practice in labor demand research.
In this article we provide a critical assessment of the major developments achieved in the past quarter-century and identify the most promising such developments, those that we consider to be most likely to ensure the vitality of labor demand research in the years ahead. The article is organized as follows. Section 2 reviews the results achieved by the empirical literature on the statics and the dynamics of labor demand. Section 3 reviews progress in the studies of wages and employment determination. Section 4 discusses empirical methods and corresponding estimation issues. Section 5 concludes.

2. The theory of labor demand

2.1. The static theory of labor demand

In its standard form, static labor demand theory focuses on employers’ decisions regarding the quantity of labor to be used in production and on how these desired quantities change in response to marginal changes in product demand and factor prices. It is essentially a branch of production theory, especially concerned with studying the transmission mechanism running from shocks to the product market and to the prices set in input markets to employment and wages, the structure of production being an essential component of the transmission mechanism. Labor demand is typically described as a derived demand even if occasionally we are reminded of the specific nature of the labor input. Unsurprisingly, most progress achieved in this domain simply mirrors progress made in production theory.

In its simplest version, the starting point of labor demand theory is a representative profit maximizing (cost minimizing) firm that is able to adjust the quantity of the labor input used in production at no cost. In the general case of n-inputs, and allowing all quantities to vary (long-run analysis), conditional and unconditional demand functions are derived by solving the firm optimization problem which requires the specification of the production function, assumed to be strictly increasing and strictly concave. From the labor demand curve the parameters of interest are derived.

Studies of static labor demand have produced a substantial amount of knowledge that is now instrumental for predicting the effects of policy changes on employment and wages. Given the close ties with production theory, it is not surprising that technology change is an essential component of the transmission mechanism. Labor demand is typically described as a derived demand even if occasionally we are reminded of the specific nature of the labor input. Unsurprisingly, most progress achieved in this domain simply mirrors progress made in production theory.

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