



# National estimates of gross employment and job flows from the Quarterly Workforce Indicators with demographic and industry detail

John M. Abowd\*, Lars Vilhuber

School of Industrial and Labor Relations, Cornell University, Ithaca, NY 14853, United States

## ARTICLE INFO

### Article history:

Available online 17 September 2010

### JEL classification:

J6  
C82  
C43

## ABSTRACT

The Quarterly Workforce Indicators (QWI) are local labor market data produced and released every quarter by the United States Census Bureau. Unlike any other local labor market series produced in the US or the rest of the world, QWI measure employment flows for workers (accession and separations), jobs (creations and destructions) and earnings for demographic subgroups (age and gender), economic industry (NAICS industry groups), detailed geography (block (experimental), county, Core-Based Statistical Area, and Workforce Investment Area), and ownership (private, all) with fully interacted publication tables. The current QWI data cover 47 states, about 98% of the private workforce in those states, and about 92% of all private employment in the entire economy. State participation is sufficiently extensive to permit us to present the first national estimates constructed from these data. We focus on worker, job, and excess (churning) reallocation rates, rather than on levels of the basic variables. This permits a comparison to existing series from the Job Openings and Labor Turnover Survey and the Business Employment Dynamics Series from the Bureau of Labor Statistics (BLS). The national estimates from the QWI are an important enhancement to existing series because they include demographic and industry detail for both worker and job flow data compiled from underlying micro-data that have been integrated at the job and establishment levels by the Longitudinal Employer-Household Dynamics Program at the Census Bureau. The estimates presented herein were compiled exclusively from public-use data series and are available for download.

© 2010 Elsevier B.V. All rights reserved.

## 1. Introduction

The measurement of gross flows of workers into and out of employment has occupied applied economists for more than thirty years. For decades the Bureau of Labor Statistics (BLS) has derived these measurements from the Current Population Survey (CPS) in the United States. In other countries statistical agencies use similar instruments, usually called labor force surveys, to measure gross worker flows.<sup>1</sup> The measurement of gross job flows has a much more recent history originating in work using American manufacturing establishments. The first direct simultaneous measurement of both worker and job flows using individual, establishment and job-level data integrated at the micro-data level were produced from French administrative and survey records.<sup>2</sup> Aggregate estimates of worker and job flows for the US have been produced by

integrating tabulated data from household surveys (CPS), establishment surveys (Job Openings and Labor Turnover Survey (JOLTS)), and establishment level micro-data (BLS measures based on the Quarterly Census of Employment and Wages (QCEW)).<sup>3</sup> Using data similar to those that form the basis for our work, integrated collections of worker and job flows have been produced for small groups of states<sup>4</sup> and for the state of Maryland<sup>5</sup> using Unemployment Insurance (UI) wage records as the micro-data basis.

A coherent aggregate story has emerged. Gross flows greatly exceed net flows. Furthermore, worker flows – accessions and separations – exceed job flows – creations and destructions. The magnitude of the “churning” depends upon the state of the economy, weakly, and the whether the employer is growing, staying constant, or shrinking.<sup>6</sup> Modeling these gross flows, especially during economic downturns and for different demographic groups, has been a goal of many individual and agency researchers. Such

\* Corresponding author.

E-mail address: [john.abowd@cornell.edu](mailto:john.abowd@cornell.edu) (J.M. Abowd).

<sup>1</sup> See Abowd and Zellner (1985) and Poterba and Summers (1986) for early discussions of the gross worker flow problem in the context of the Current Population Survey (CPS).

<sup>2</sup> Job flow data initiated with the work of Dunne et al. (1989) and Davis and Haltiwanger's earliest work (Davis and Haltiwanger, 1990, 1992; Davis et al., 1996). Integrated worker and job data were first produced by Abowd et al. (1999).

<sup>3</sup> See Davis et al. (2006), Boon et al. (2008) and Davis et al. (2010).

<sup>4</sup> See Anderson and Meyer (1994) and Burgess et al. (2000).

<sup>5</sup> See Burgess et al. (2001).

<sup>6</sup> Churning is defined in Burgess et al. (2000). See Abowd et al. (1999) and Burgess et al. (2001) for general summaries of flow magnitudes.

modeling forms the basis for recent work at the BLS<sup>7</sup> where the principle difficulty remains an inability to measure all of the flows at the same consistent microeconomic level – that of the job or employer. Only the estimates based on French employers and those using employers operating in the state of Maryland provide fully integrated microeconomic data approaches in which all of the relevant flows are measured using micro-data at the job level.

When the US Census Bureau began publishing the QWI in 2003, it marked the first time that an American statistical agency had attempted to provide labor force stock, flow, and earnings data from a consistent, integrated job-level source. The system is based on the integration of demographic, economic and job-level data using state-level UI and QCEW micro-data linked to Census Bureau censuses and surveys on households and businesses (Abowd et al., 2004). At first, there were only 18 participating states, representing about 30% of the US labor force. By 2009, all but two states (Massachusetts and New Hampshire) had joined the Local Employment Dynamics (LED) Federal/State Partnership that provides the data. Current published QWI data cover 92% of private non-farm employment. Since the system was designed to provide consistent stock and flow information at very detailed geographic, industrial and demographic detail, the fact that participation by states was not universal was not seen as a serious drawback. However, now that participation is essentially universal, this paper constructs national estimates, for the first time, using the same industrial and demographic detail that characterizes the original QWI publication. In addition, this paper provides evidence on the statistical reliability of the national QWI estimates and on their sensitivity to missing state data.

In Section 2, we describe the basic public-use data sources that form the core of our national gross flow estimates. Section 3 provides the formulae for our worker, job, and excess reallocation rates and their components. We also describe the series from the QCEW, Business Employment Dynamics (BED), and JOLTS that we use for comparison and imputation, where needed. Section 4 describes how we handled the incomplete QWI data in forming national rates. Section 5 presents our results in both tabular and graphical form. We conclude in Section 6.

## 2. Data sources and definitions

### 2.1. Quarterly Workforce Indicators

The Census Bureau publishes the QWI state-by-state at the beginning of each calendar quarter for data covering the quarter that ended nine months earlier, and all earlier quarters, at [lehd.did.census.gov/led/](http://lehd.did.census.gov/led/). The complete set of 30 QWI is available at the Cornell VirtualRDC for download at [www.vrdc.cornell.edu/qwipu/](http://www.vrdc.cornell.edu/qwipu/). In this article we consider only the series pertaining to private-ownership, and we use only state-wide totals disaggregated by NAICS sector, gender and age, fully interacted. We focus on six core variables: beginning- and end-of-quarter employment (which will be denoted by  $B$  and  $E$ , respectively), accessions  $A$ , separations  $S$ , job creations  $JC$ , and job destructions  $JD$ . To understand how the QWI relate to similar measures published by the BLS, we present a brief summary of the data integration methods and definitions here. Detailed definitions for other variables are available in Abowd et al. (2009) and online at the sites noted above. We will compare the similarities and differences between QWI and BLS measures from the JOLTS, QCEW and BED below.

The fundamental data integration is performed by the Longitudinal Employer-Household Dynamics (LEHD) Program to create

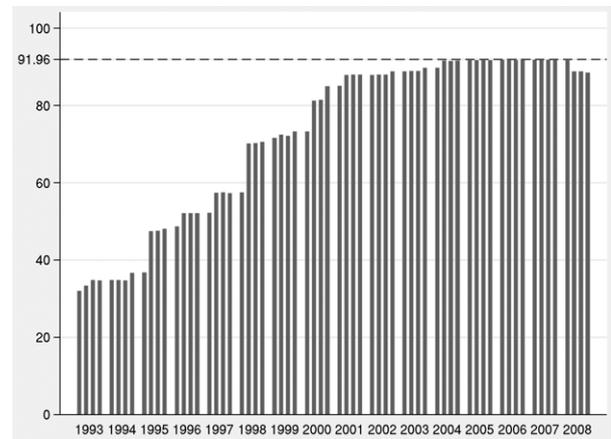


Fig. 1. QWI data availability.

its infrastructure file system, which is the core database used to create the QWI. The data are provided by the LED Federal/State partnership, which currently has 48 member states, the District of Columbia, Puerto Rico and the Virgin Islands (as of October 2009). The basic linking record is the state Unemployment Insurance (UI) wage record, which records for a particular individual and legal employer (state UI account) the total UI-covered earnings by that individual paid by the legal employer during the calendar quarter. The individual identifier used in this system (an encrypted form of the Social Security Number) permits longitudinal linking of the individual. The employer identifier used in this system – an employer's state-specific UI account number – is identical to the one used on the establishment-level summary collected by state labor market information offices currently called the Quarterly Census of Employment and Wages and formerly known as the ES-202 report. However, subsequent edits in the BLS's Longitudinal Business Database (LDB) and within LEHD's data infrastructure may differ. The UI wage records and QCEW micro-data are provided to the Census Bureau with a two-quarter lag (the same reporting lag as at the BLS) as part of the LED partnership.

Demographic data (age and gender) are integrated using the individual identifier linked to other Census Bureau demographic data, primarily a Census-enhanced version of the Social Security Number database (also with encrypted identifiers). Economic data (NAICS and geography) are integrated using the employer identifier linked to a Census-enhanced version of the QCEW data called the Employer Characteristics File. For state single-unit employers the linkage is exact. For employers with multiple work locations, the linkage is multiply imputed (Abowd et al., 2009).

QWI data are currently available for 47 states, but availability declines as one goes back in time. For the year 2000, only 38 states have provided the data. Fig. 1 shows QWI data availability expressed as a percentage of the QCEW month-one employment for all available states by quarter. In the earliest quarter we used (1993 : Q 1), about 30% of the QCEW private employment has data in the QWI. By the end of our analysis period, 92% of private QCEW employment is represented.

The QWI uses noise-infusion as its confidentiality-protection mechanism (see Abowd et al. (2006, 2009) for a fuller description). Using internally computed state-wide totals is highly accurate. Suppressions are rare even at the NAICS sector  $\times$  county  $\times$  gender  $\times$  age group level, with far less than 1% of data items suppressed because they do not meet the Census Bureau's data publication standards and less than 0.1% of the workforce in the relevant states subject to data suppression.

<sup>7</sup> See Spletzer et al. (2004) and Boon et al. (2008).

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات