

Could healthcare reform be a game changer for U.S. self-employment? Evidence from Massachusetts

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The U.S. self-employment rate—that is, self-employment as a proportion of total employment—has been declining since the 1990s. Although no single factor could fully explain this downward trend, researchers have pointed to the self-employed’s limited access to affordable health insurance as a key contributor. High insurance costs could either force workers to leave the self-employment sector or deter them from joining it. However, with the far-reaching reforms introduced by the Patient Protection and Affordable Care Act (PPACA), some think a change may be on the way.

In their article “[Does health-care reform support self-employment?](#)” (Federal Reserve Bank of Kansas City, *Economic Review*, third quarter 2014), economists Didem Tüzemen and Thealexa Becker share this view, suggesting that the expanded health insurance access secured by PPACA could put U.S. entrepreneurial activity on firmer footing. Because the act’s full implementation is still a year away, the authors use the Massachusetts Health Care Reform Act of 2006 as a test case, examining its effects on state self-employment and then drawing broader conclusions about the possible national implications of PPACA. Indeed, the two laws exhibit important similarities: both provide for individual and employer mandates, expansion of Medicaid, antidiscrimination rules for insurers, and health insurance exchanges with subsidized coverage options.

Tüzemen and Becker recognize that, in theory, the effects of these core legislative provisions on self-employment are not clear-cut. On the one hand, by lowering insurance costs and providing more health insurance options, subsidized exchanges and expanded public programs may encourage workers to join (or remain in) the ranks of the self-employed. On the other hand, the threat of financial penalty posed by individual and employer mandates may do the reverse, either by raising the costs for noncompliant business owners or by increasing the number of jobs with employer-provided health insurance. Since the net result of these opposing effects cannot be determined analytically, the authors treat the puzzle as an empirical one.

After examining data from the 1996–2013 Current Population Survey Annual Social and Economic Supplement, Tüzemen and Becker offer two main observations. First, they note that, following Massachusetts’ healthcare reform, the state’s labor market saw sharp declines in uninsured rates. From the pre-reform period (2000–2005) to the post-reform period (2008–2012), the average uninsured rate for the self-employed dropped by 10 percentage points statewide, compared with a 5-percentage-point increase nationwide and a 2-percentage-point increase for other Northeastern states combined. Likewise, between 2006 and 2012, the share of people ages 16 to 64 without insurance declined by 9 percentage points in Massachusetts and increased by 1 percentage point nationally.

The authors also observe that the healthcare legislation likely propped up the state's self-employment rate. While self-employment as a proportion of total employment declined by about half a percentage point at both the national and regional levels from 2004–2006 to 2010–2012, the share remained roughly unchanged in Massachusetts, at just below 6 percent. The same general pattern holds if the self-employment rate is calculated on the basis of the population ages 16 to 64, whose rate is less influenced by the business cycle.

Inferring from the experience of Massachusetts and taking into account the similarities between the two healthcare laws, Tüzemen and Becker expect that PPACA, once fully implemented, stands a chance of mirroring the patterns surrounding the state legislation. Specifically, they expect a decline in the uninsured rate among U.S. business owners and support for the national self-employment rate. Nonetheless, the authors are cautiously optimistic. They acknowledge that the relationships reported for Massachusetts are not conclusively causal and that further, more extensive empirical investigations should ascertain causation. In addition, differences between the two healthcare laws, along with continuing difficulties in reform implementation, may result in national-level outcomes different from those observed at the state level.

Measuring the generosity of employer-sponsored health plans: an actuarial-value approach

The actuarial value of a health insurance plan has long been used by plan administrators to appraise their company's probable outlay on health insurance claims. But the insured view the actuarial value as a measure of the generosity afforded by a health plan. This study estimates the actuarial values of employer-sponsored health insurance plans using survey data collected from the BLS National Compensation Survey (NCS) and the Medical Expenditure Panel Survey, which is administered by the Agency for Healthcare Research and Quality. These estimates, along with existing health-insurance provisions estimates published by NCS, could provide a more comprehensive assessment of employer-sponsored health insurance benefits offered to American workers if measures of statistical significance were applied to them.

The National Compensation Survey of the Bureau of Labor Statistics (BLS) publishes annually an online bulletin that provides the detailed provisions of employer-sponsored health insurance (ESHI) plans.¹ The published data include information on distributions of plan types, such as the percentage of employees enrolled in fee-for-service (FFS) plans or enrolled in health maintenance organization (HMO) plans. These publications also provide information on detailed features and characteristics of plans; this information includes the contractual cost-sharing features of health insurance. Cost-sharing features include deductible amounts, coinsurance rates, copays, and out-of-pocket expense maximums. These and other features of plans published by BLS describe, in part, the designs of ESHI plans offered to American workers. What have not yet been published, however, are actuarial values, a measure of the generosity of health plans. This article shows how reliable actuarial values could be useful to consumers—allowing consumers to compare one plan's value with another—if such measures were to become available in the future.

The actuarial value of a health insurance plan is the average total costs of covered healthcare expenses the insurer is contractually obligated to pay.² Actuaries have long used actuarial-value estimates to estimate payouts of plans.³ But from a policyholder's perspective, a plan's actuarial-value estimates the financial protection provided



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by the plan. This financial protection could be viewed as the generosity of the plan. The insurer typically computes the actuarial value of a specific plan by using the plan’s actual claim-payment experience. For instance, if an insurer pays 70 percent of costs that are defined as covered under the plan, the actuarial value of that plan equals 70 percent. Using this general concept of generosity, we take a more comprehensive approach by estimating the average actuarial value of a collection of ESHI plans that were gathered as part of the National Compensation Survey (NCS).

Because claims data from ESHI plans are typically not available to the survey or research community, our study estimates claim payments from a claims-payment model. This model uses healthcare utilization rates and expense levels of a simulated standardized population of healthcare users enrolled in ESHI plans. These utilization rates and expenses are derived from the household component of the Medical Expenditure Panel Survey, which is administered by the Agency for Healthcare Research and Quality. The actuarial values estimated from this claims-payment approach, along with the current NCS published benefit statistics, should provide a more robust picture of ESHI plans provided to American workers.

Construct of an actuarial-value calculator

There are several methods that can be used to construct an actuarial-value calculator. Each method attempts to estimate the percentage of covered health costs paid by an insurer. In its most simplistic form, an actuarial value can be expressed as

$$AV = \frac{\textit{insurance paid expenses}}{\textit{healthcare covered expenses}} \times 100$$

For this study, we use an approach that estimates the average expense coverage of groups of ESHI plans. This is an extension of an otherwise straightforward actuarial method that computes the percentage of covered expenses of a particular health plan.

Unlike the single-plan approach, the method used here calculates the average actuarial value across groups of plans by aggregating insurance expenses paid across each plan. To estimate the paid expenses of each plan, we generate microsimulations of claim payments from health expenses of a standardized population of healthcare users covered by ESHI plans. We then gather claims and total healthcare expenses across plans to compute an average actuarial value. Groups may include workers in the same industry or occupation, or who share similar characteristics, such as being employed in small-sized establishments or being members of unions. When we estimate across these groups, plans are sorted based on whether they are indemnity plans (FFS) or prepaid plans (HMO). Although indemnity and prepaid insurance plans mainly define how providers are paid—paid by service rendered or capitation fees—the type of plan also affects the way in which the insured can receive services. For instance, HMO plans typically require gatekeepers of healthcare—by way of selected primary-care physicians—who refer patients to practitioners within HMO healthcare network systems.

Certainly, the percentage that a particular plan pays will depend on several factors: the medical-care goods and services covered, the shared-cost responsibilities, the utilization rates of medical care by enrollees, and the corresponding prices. The medical-care goods and services covered are often particular to the specific plan. For this study, we follow the coverage stipulations of the 2010 Patient Protection and Affordable Care Act (ACA), in which the act lists 10 essential health benefits:⁴

1. ambulatory-patient services
2. emergency services
3. hospitalization
4. maternity and newborn care
5. mental-health and substance-use-disorder services
6. prescription drugs
7. rehabilitative and habilitative services and devices
8. laboratory services
9. preventive and wellness services and chronic-disease management
10. pediatric services

The utilization rates of healthcare will naturally vary across healthcare users as no two individuals or families are likely to have the same healthcare needs. For the actuarial-value calculator to be useful as a generalized measure of generosity, it must provide measurements that are meaningful across varying plan designs. In the strictest sense, this requires that the actuarial-value estimates of two health insurance plans covering the same services must be equal if they have the same cost sharing design and experience identical claims.⁵ Moreover, the actuarial values should have meaning over a broad spectrum of users rather than only for users who fall within select health status sets, such as those with chronic illnesses or particular healthcare needs such as prenatal and maternity care.

To generate comparable measures across plans, standardized levels of healthcare utilization and expenses are used to derive claim-payment estimates. To standardize usage and spending across plans, the principal practice among actuaries is to construct an artificial population of diverse healthcare users that is tailored to resemble the population of users of the plans being evaluated. For instance, ESHI plans cover largely the population at or under the age of 65, and so the artificial population should consist mainly, if not exclusively, of individuals at or under 65. Standardizing the population is a key principal because our interest is in how a plan compares with other plans that have different designs but the same usage and spending; our interest is not in how generous a plan might be to a particular healthcare user.

To be fair, using a standardized population does not purge all nondesign variance among plans. Because healthcare usage can, in part, be induced by how well plans cover categories of healthcare, the ease of access to care, and the availability of network providers and treatment options, reliance on a standardized level of usage and spending will likely fail to account for induced spending behavior differences among plans. For instance, some healthcare users may specifically choose plans for their relatively generous claims coverage for specific healthcare, such as the coverage level for prenatal and maternity care. An actuarial-value approach alone cannot account for such preselection insurance choices. Moreover, contractual prices paid to healthcare providers might vary among insurance carriers. That is to say, there is no prevailing rate for a particular service throughout the national healthcare system. These price differences are not captured explicitly in expenditure surveys, and thus quantity levels are lost within expenditure numbers. To adjust for such differences, an average payment rate for the many possible goods and services would have to be applied rather than using straight expenditure data.⁶ This would require adjusting expenses by price variation for the many different healthcare providers, a task that is simply not possible for this type of study.⁷ Moreover, two plans may cover the same care—such as maternity—but

the extent to which each plan covers that care may differ. For example, one plan may provide hospitalization for up to 48 hours following childbirth while another may provide the same for up to 72 hours.

Actuarial-value illustration

To see how spending level and plan design affect actuarial values, the following tables provide simplified examples of actuarial values under three different healthcare plan designs; these designs describe the deductible levels, coinsurance rates, and out-of-pocket maximums.⁸ For illustration purposes only, the plans are evaluated under 3 levels of family spending. For table 1, the actuarial value is lowest for the plan with the highest deductible (the insurer pays 54 percent of covered expenses), even though that plan requires from the healthcare user the lowest coinsurance rate. The low spending coupled with the high deductible limits the claims that are covered under this scenario. The generosity measures of these plans shift, however, as family healthcare spending increases. In table 2, using the same plan designs but doubling the covered healthcare expenses, we find the actuarial values of all 3 plans converge at 72 percent of total covered costs even though each has a very different cost-sharing design. Under this scenario and assuming all else is constant—such as network and provider access—healthcare users would be indifferent in their choices among these three plans. Pushing the expenses even higher, table 3 shows that the ordering of generosity among the three plans flips as the demand for healthcare increases. Plan 3, which was the least preferred when spending was lowest, becomes the most generous plan when costs escalate.⁹

Table 1. Actuarial-value calculations with identical expenses (\$2,500) under varying plan designs

Plan	Family-level spending (in dollars)	Cost-sharing parameter of plan			Shared cost		Actuarial value
		Deductible	Co-insurance rate	Out-of-pocket maximum	Participant share	Insurer share	
1	2,500	0	0.28	2500	700	1800	0.72
2	2,500	500	.2	2500	900	1600	.64
3	2,500	1000	.1	2500	1150	1350	.54

Source: National Compensation Survey, U.S. Bureau of Labor Statistics.

Table 2. Actuarial-value calculations with identical expenses (\$5,000) under varying plan designs

Plan	Family-level spending (in dollars)	Cost-sharing parameter of plan design			Shared cost		Actuarial value
		Deductible	Co-insurance rate	Out-of-pocket maximum	Participant share	Insurer share	
1	5,000	0	0.28	2,500	1,400	3,600	0.72
2	5,000	500	.2	2,500	1,400	3,600	.72
3	5,000	1000	.1	2,500	1,400	3,600	.72

Source: National Compensation Survey, U.S. Bureau of Labor Statistics.

Table 3. Actuarial-value calculations with identical expenses (\$10,000) under varying plan designs

Plan	Family-level spending (in dollars)	Cost-sharing parameter of plan design			Shared cost		Actuarial value
		Deductible	Co-insurance rate	Out-of-pocket maximum	Participant share	Insurer share	
1	10,000	0	0.28	2,500	2,500	7,500	0.75
2	10,000	500	.2	2,500	2,400	7,600	.76
3	10,000	1,000	.1	2,500	1,900	8,100	.81

Source: National Compensation Survey, U.S. Bureau of Labor Statistics.

These demonstrations illustrate that actuarial values will differ across designs and expenditure levels. Because we are interested in making comparisons across plan designs, we standardized spending to eliminate the major generosity variability demonstrated in these three examples. The utilization and expenses of a standardized population afford a fixed level of average spending. This allows the evaluation of generosity among the three plans designs to be purged, in large part, of spending variance (see tables 1, 2, and 3).

What can be said about the size of actuarial values? To give some perspective to the size of actuarial values, we note that the Internal Revenue Service reported that approximately 98 percent of individuals covered under an ESHI plan are enrolled in plans that pay at least 60 percent of covered healthcare expenses.¹⁰ Moreover, according to a report by the Consumers Union,¹¹ the typical preferred provider organization (PPO) plan sponsored by employers pays 83 percent of covered healthcare costs.

With a sketch of the actuarial-value calculator and the expected sizes of actuarial values, we now turn to the two sources of data for the study before we describe the claim payment program that will estimate the actuarial values of ESHI plans.

Data sources: National Compensation Survey and Medical Expenditure Panel Survey

Both the numerator and denominator of the actuarial-value expression shown earlier must be estimated. To estimate an actuarial value requires healthcare usage and expense data that are paired with the contractual cost-sharing parameters set within the claims-payment model. The usage and expense data come from the household component of the Medical Expenditure Panel Survey-Household Component, or the MEPS-HC. Values for the contractual cost-sharing parameters of the model come from information drawn from summary plan description brochures that are collected in the National Compensation Survey (NCS). Each of these data sources is briefly described below.

National Compensation Survey. The NCS, conducted by the Bureau of Labor Statistics, is an establishment-based survey that provides comprehensive measures of levels and trends in employer costs of employee compensation; it also gives us information about the incidence and provisions of employer-provided benefits. The survey supplies the data for the quarterly *Employer Cost Index* and the *Employer Cost for Employee Compensation* reports. The NCS also tabulates—on an annual schedule—the incidence and provisions of health, retirement and other employer-provided benefits. The provisions statistics include detailed estimates about the types of plans, such as the percentage of workers enrolled in different types of FFS plans and HMO plans. The provisions statistics also

provide features of health plans, such as the percentage of workers who pay part of premium costs, as well as supplying us with information on cost-sharing requirements of plans including the deductible amounts, copays, coinsurance rates, and out-of-pocket maximums.¹² These detailed provisions statistics are tabulated principally from information coded from Summary Plan Descriptions (SPD) brochures. An SPD provides a summary of the detailed provisions of plans that describe the expected and legal obligations of sharing costs between plan participants and health insurers. A full set of coded data from the SPDs provides the cost-sharing arrangements that are necessary to control payment schemes within the claims-payment model.

The NCS is designed to sample civilian workers employed in private industry establishments as well as workers in state and local governments. The survey excludes military personnel; workers in federal agencies, agriculture, private households, and unpaid jobs; and the self-employed and others who set their own pay. The survey data are collected from probability samples that canvass all 50 states and the District of Columbia. Establishments selected are commonly single economic units engaged in one, or predominately one, economic activity. For private industries, an establishment is a single physical location, such as a mine, a factory, an office, or a store.

Establishments are classified by their assigned North American Industry Classification System (NAICS) code.¹³ The number of occupations selected depends on the employment size of establishments. Large establishments can have as many as eight occupations selected while small establishments can have as few as one to four occupations selected. Occupations consist of individual workers or groups of workers who share the same job duties and job characteristics such as part- or full-time work schedules and payment methods—for example, commission pay as opposed to hourly pay or salary. Each sampled occupation is classified on the basis of the Standard Occupational Classification system, or SOC. An occupation is the unit of observation in the NCS.¹⁴

The NCS uses a sampling panel structure to rotate establishments in and out of the survey. A panel is a subset of all establishments sampled for the survey that begin their participation at the same time. Approximately one-third of the private industry sample is reselected each year. Establishments in each panel remain in the survey for 3 years. Because of the complexity of the survey, it takes 12 months to initiate a new survey panel. During that initiation period, establishments are asked to provide SPDs of all health plans that are offered to the occupations that are sampled. To reduce response burden, only during this initiation period are establishments asked to provide the SPDs of each plan offered. This study uses a single-sample panel that was initiated in 2011.¹⁵ The panel consists only of workers in private industry establishments. The following tabulations provide a summary of the number of plans analyzed from SPDs collected from this sample panel.

Total number of unique plans analyzed from the panel	4,300
Medical plans with drug coverage	2,578
Medical plans with drug coverage, less incomplete records	2,003
Occupational records mapped to unique plans	11,911

There were 4,300 unique health plans analyzed from the panel. These include any number of combinations of health insurance plans. Most, however, are medical plans that provide coverage for hospitalization, outpatient care, ambulatory services, and outpatient drug coverage. Of the 4,300 plans, 2,578 are medical plans with drug coverage. Many of the remaining plans are either medical-care plans that do not provide drug coverage, plans that provide supplemental coverage such as stand-alone drug plans, dental-care plans, or vision-care plans. This study evaluates only medical plans with drug coverage because its purpose is to assess the ability of the NCS survey to estimate generosity of ESHI plans that cover, in large part, the main components of medical-care goods and services; these components include outpatient drugs, as prescribed by the ACA requirements. Supplemental

coverage for dental and vision care are excluded from this study because dental and vision care are not evaluated in the claims-payment model. Of the 2,578 medical plans with drug coverage, 2,003 had sufficient information coded to use in setting the cost-sharing parameters within the claims-payment model.¹⁶ These 2,003 unique plans are joined with the appropriate 11,911 occupational records, which were the records used in analysis. Notice that there are more occupational records than unique plans—about 6 occupational records to each plan—because the same medical and drug plans are often offered to any number of workers within an establishment.

Because the cost-sharing parameters coded from the SPDs can vary by provider networks or drug-tier choice, the claims-payment routines of the model assume that participants choose the most generous options offered from the plans. For instance, if a plan offers a network of providers at lower deductible and copay rates, it is assumed that participants will access all health goods and services through that network. This extends to drug usage as well. If a plan offers multiple-tier copay or coinsurance rates such as generic, brand name, and formulary, it is assumed that the participant will select the lower price generic brands whenever available. Consequently, this modeling approach produces actuarial values that must be interpreted as upper-bound estimates.

The upper-bound approach would seem reasonable in most instances, but concerns do arise. For example, generic drugs are formulated to provide the same treatment responses as their related brand-name drug products. However, generic drugs are not universally available for all possible drug treatments; sometimes only the more expensive brand-name drug products are available. The claim-payment routines of the model look at only the incidence and numbers of prescriptions from the MEPS-HC data and not whether choices were made, when possible, between generic drugs and the more expensive brand-name drugs. A similar argument can be made for medical care treatments, such as when patients have no options aside from obtaining products or treatments outside of a health insurance network. Such instances would require the insured to pay the higher cost-sharing amounts, whether they be in deductibles, copays, or coinsurance rates. Without a data linkage between service and choice, therefore, the model approach cannot properly account for network or drug choice.¹⁷

*Medical Expenditure Panel Survey, household component.*¹⁸ The current MEPS, administered by the Agency for Healthcare Research and Quality, consists of two major components: a household survey of families and individuals (the household component, or MEPS-HC) and an establishment survey of private and public sector employers (the insurance component, or MEPS-IC).¹⁹ MEPS-HC gathers demographic information and a host of health-related information, from individuals, about such items as health status, insurance coverage, and medical care usage and expenses. Because of the difficulty of collecting from household respondents accurate and detailed information on the types of healthcare received and the corresponding costs, the MEPS-HC is supplemented, when possible, by the medical provider component (MPC) of MEPS. The MPC surveys hospitals, physicians, home healthcare providers, and pharmacies identified in the household survey component and, with the permission of the household respondents, collects the detailed usage and expenditure information from the providers. The MEPS-HC survey data with its demographic information, insurance coverage indicators, and usage and expense amounts provide the necessary set of data to construct a standardized population of healthcare users enrolled in ESHI plans.

The MEPS-HC is a representative sample of the U.S. noninstitutionalized civilian population. The sample is designed as an overlapping panel survey; a new panel of households is selected each year and interviewed over 2 full calendar years. The households selected for each panel are a subsample of households that participated in the previous year's National Health Interview Survey conducted by the National Center for Health Statistics.²⁰ To

construct a representative standardized population, the claims-payment model draws in survey data from MEPS-HC 2009 and 2010 survey years. These data are available from the annual releases of the Full Year Consolidated Data Files.²¹ Multiple survey years were used to provide a more consistent estimate of usage and expenditures for the model. Because 2009 and 2010 expenditure data are paired with insurance data from 2011, all dollar values are adjusted to 2011 dollars using the medical-component index of the Consumer Price Index. These full-year files provide annualized usage and expense data over a calendar year, and it is those annualized data values that are used in the analysis.

The usage and expenditure values cover the following medical care categories as they are itemized in the MEPS-HC data files:

- Office-based visits to physicians and nonphysicians, each measured separately
- Outpatient visits to physicians and nonphysicians, each measured separately
- Emergency room visits
- Inpatient hospital stays
- Home healthcare
- Prescription medicines

These usage and expenditure categories align well with the NCS ESHI plan data with which they must be paired for us to estimate the actuarial values. These expense categories also align quite well with the broadly defined 10 essential health benefits prescribed by the ACA.

In an effort to construct the standardized population to closely resemble the healthcare usage and spending patterns of ESHI plan enrollees, MEPS-HC individual records are selected based on several criteria. To reduce the influence that Medicare coverage may have on healthcare usage, only individuals age 65 or younger are included.²² Additionally, only individuals who are covered under an ESHI plan are included. This includes individuals covered under their own ESHI plans or covered as dependents of ESHI plans. Since annual utilization and expenditure data are used, only individuals with health insurance coverage for at least 6 months of the year are included. It is our hope that this 6-month selection criterion provides a smooth and representative pattern of healthcare usage over a year even though job switching or unemployment may cause short episodes of interruptions in coverage.

Because many health plans have family deductible and out-of-pocket limits, expenditures in the claims-payment model are analyzed at both the individual and family level. MEPS organizes the individuals represented in the survey into Health Insurance Eligibility Units (HIEU), thereby allowing for individual and family-level estimates. HIEU consists of families living together (including any students living away at school) that are related by blood, marriage or adoption. The HIEUs can be described as subfamilies, a category defined by the Current Population Survey. An HIEU is a subfamily of a CPS-defined family in that the former includes only those individuals of a CPS family who qualify under another family member’s insurance plan.²³

The following Medical Expenditure Panel Survey tabulations provide individual and HIEU records counts for the 2009 and 2010 full-year consolidated annual data files.

Total number of individual records, 2009	36,855
Individual records in scope of study	14,051

Health Insurance Eligibility Units in scope of study	7,111
Total number of individual records, 2010	32,846
Individual records in scope of study	12,271
Health Insurance Eligibility Units in scope of study	6,285
Total individual records in scope of study, 2009 and 2010 pooled	26,322
Total Health Insurance Eligibility Units in scope of study	13,396

With the source of data in hand, we can now turn to the actuarial-value estimates generated from the claims-payment model that uses these data jointly.

Actuarial-value estimates

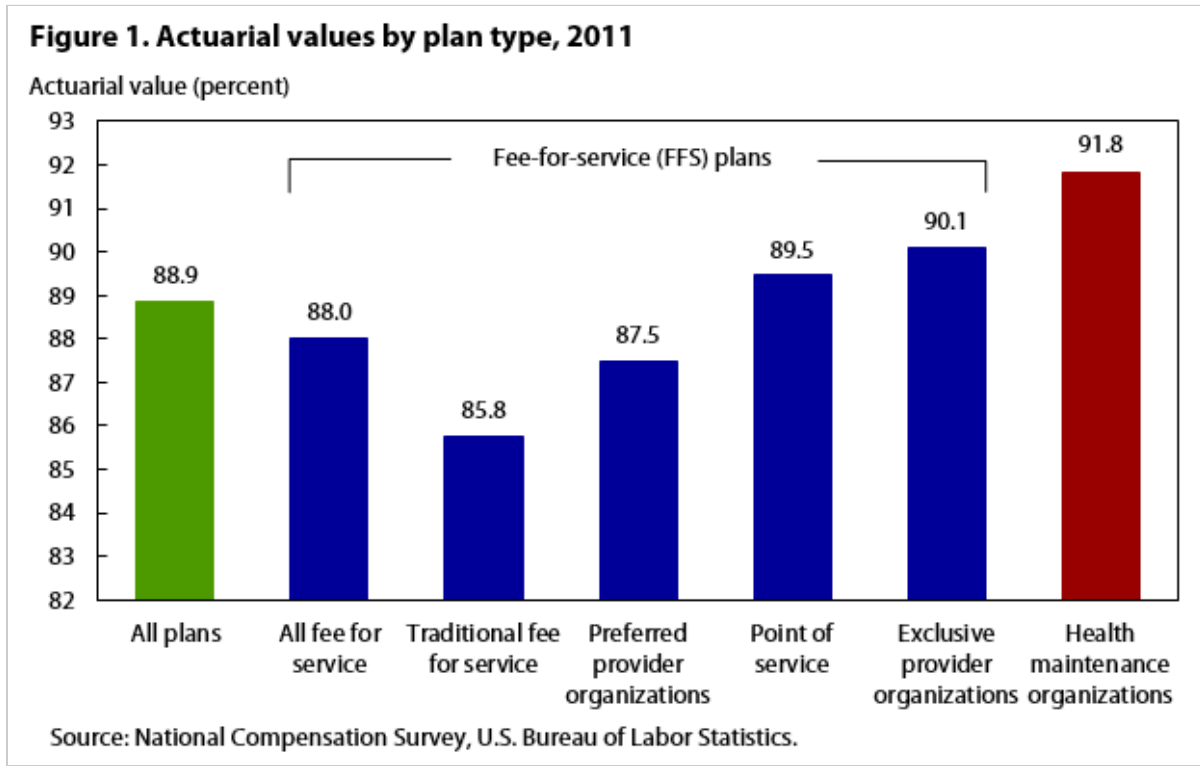
The research-based claims-payment model provides the mechanism with which to estimate the actuarial values of plans. Essentially, the model estimates the percentage of MEPS HIEU expenditures that would be paid by health insurance had those HIEUs been enrolled in the ESHI plans similar to those gathered from the NCS. Certainly, the model cannot predict the exact payment that would be made for any given claim, but the model is designed in conjunction with the data to estimate the typical levels of claim payments.

To show the types of estimates that can be produced by this modeling approach, we present our actuarial-value estimates sorted into two main health insurance categories: FFS and HMO plans. The former typically provides more flexible healthcare access options, such as choosing one’s own hospital or doctor, while the latter provides higher coverage rates—and therefore lower out-of-pocket costs—but more restrictive access rules, such as paying claims only if healthcare was received through an HMO-network provider. According to health insurance incidence statistics available from the BLS Employee Benefit Survey (EBS) annual bulletin, 82 percent of private industry workers who participate in ESHI enrolled in FFS plans; the remaining workers enrolled in HMO plans.²⁴ This suggests that workers covered under ESHI prefer some level of choice when it comes to healthcare providers. Most but not all FFS plans offer a choice of healthcare providers.

There are several types of FFS plans that are designed with varying levels of healthcare-provider choice. The most flexible among them are the traditional plans that pay providers similar rates without regard to whether those providers are within contractually arranged healthcare network systems. Among traditional FFS plans, the insured can choose any qualified healthcare provider and expect the same level of claims paid for covered services. On the other end of the flexibility spectrum, exclusive provider organizations (EPOs) offer the least flexibility among FFS plans, as they require the insured to receive healthcare exclusively through select providers if claims are to be paid. Between these two extremes are two other types of FFS plans, point-of-service plans—a rarity among FFS plans—and Preferred Provider Organizations (PPO) plans.²⁵

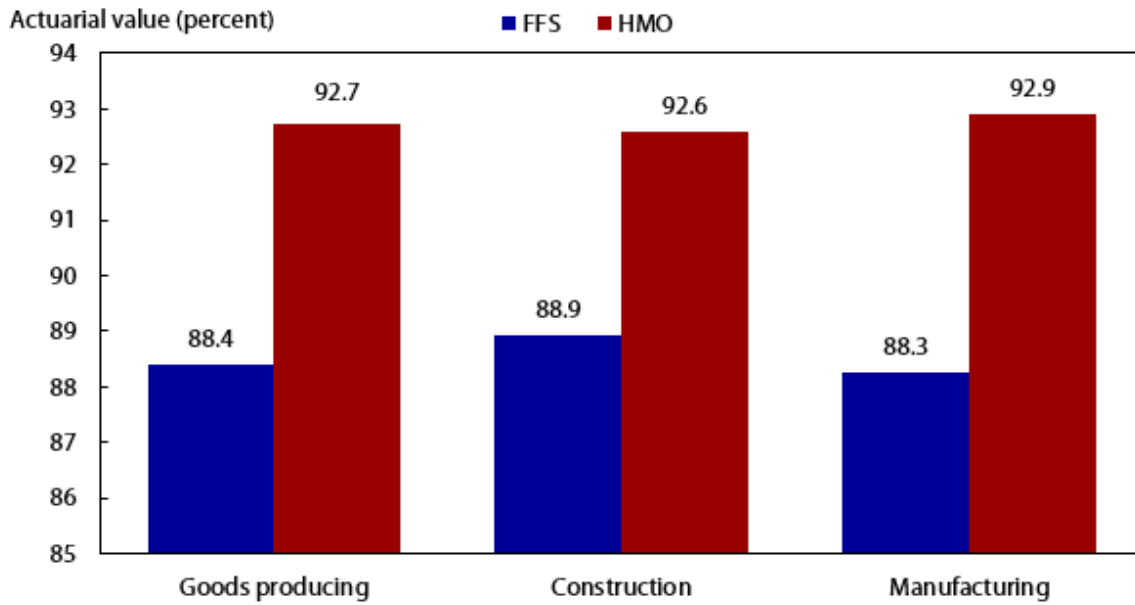
Of the 82 percent of private industry workers enrolled in FFS plans, nearly 88 percent (72 percent of all ESHI enrollees) are enrolled in PPO plans. With such a large percentage of workers enrolled in PPO plans, the actuarial-value estimates presented for FFS plans are principally driven by the payment features of these plans. PPOs provide the flexible-healthcare-access features found among traditional FFS plans; however, PPOs are defined as managed-care plans similar to HMOs because the shared-payment features are devised to encourage the PPO insured to access healthcare through preferred-provider networks. Healthcare received through preferred-provider networks has deductibles, copays, and coinsurance rates that all are lower than if healthcare were received from

providers outside of these networks. The blended features of PPOs—providing choice but offering higher coverage rates within networks—may explain, in part, why they are the most popular plans among all ESHI plans.



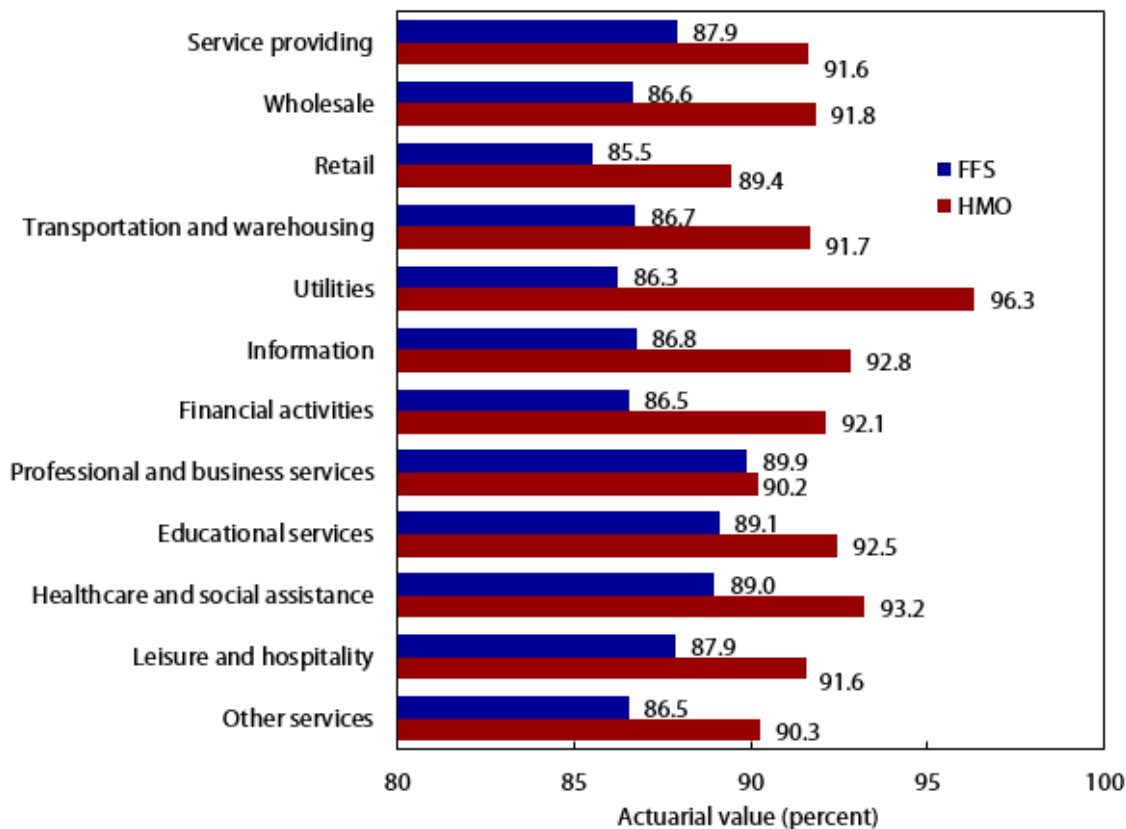
Figures 1 through 6 provide varying views of the actuarial-value estimates generated from the claims-payment model. Figure 1 shows the average actuarial values by type of plan, while the remaining figures show actuarial-value estimates by plan type arrayed across several establishment and occupational characteristics. Because these estimates are generated from two survey sources, we have not yet developed a method in which to compute standard errors of the estimates. Consequently, any comparisons should be done with caution. Figure 1 shows the monotonically increasing relationship between provider choice and generosity among the different FFS plans. The results exhibited in figure 1 suggest that there is a tradeoff between flexibility to choose providers and generosity in terms of expense coverage. Comparing the most flexible plans in terms of choice of healthcare providers, we find that traditional FFS plans pay 85.8 percent of covered expenses, on average, which is 6 percentage points less than the typical HMO plan. However, exclusive provider organizations (EPOs) pay, on average, 90.1 percent, an actuarial value that falls very close to the average HMO. EPOs are designed as indemnity plans, but they are as restrictive in choice as HMOs, if not more so.

Figure 2. Actuarial values for fee-for-service (FFS) plans and HMOs in goods-producing industries, 2011



Source: National Compensation Survey, U.S. Bureau of Labor Statistics.

Figure 3. Actuarial values for fee-for-service (FFS) and HMOs in service-providing industries, 2011



Source: National Compensation Survey, U.S. Bureau of Labor Statistics.

By industry, the actuarial-value estimates suggest that workers in the goods-producing industries are offered FFS and HMO plans that are not all that dissimilar, in terms of generosity, to plans offered to workers in service-providing industries (see figures 2 and 3). For the FFS plans, workers in goods-producing industries are offered plans with actuarial values of 88.4 percent, while workers in service-providing industries are offered plans with actuarial values of 87.9 percent. A similar small difference is found among HMOs where goods-producing industry workers are offered plans that pay 92.7 percent whereas workers in service-providing industries have HMOs that pay 91.6 percent. These differences may be economically insignificant in terms of out-of-pocket costs for many workers with typical healthcare expenses. Nonetheless, there are larger numerical differences among some of the individual industry groups that suggest there might be more divergences among plan generosity than observed from the goods-producing and service-providing estimates.

Most notable is the actuarial-value estimate for HMO plans offered to workers in the utility industry. These workers have HMO plans that pay 96.3 percent of covered expenses, which is 4.5 percentage points more than the typical HMO plan and 10.5 percentage points more than the traditional FFS plan. Although identifying the exact factors explaining the levels of actuarial values is beyond this study, these more generous plans might in part be explained by the high rate of unionization among workers in the utility industry. According to a report by the Bureau of Labor Statistics, the utility industry has the highest percentage of workers represented by unions.²⁶ In that unions can

collectively bargain for better healthcare plans than nonunion workers, we might expect that plans in highly unionized industries would pay more generously.

On the lower end of generosity are the plans that are offered to workers in retail. FFS plans offered to these workers pay, on average, 85.5 percent of covered healthcare costs, 2.5 percentage points less than the typical FFS plan. Similarly, HMO plans offered to these same workers pay 89.4 percent of covered expenses, or 2.4 percentage points less than the typical HMO plan.

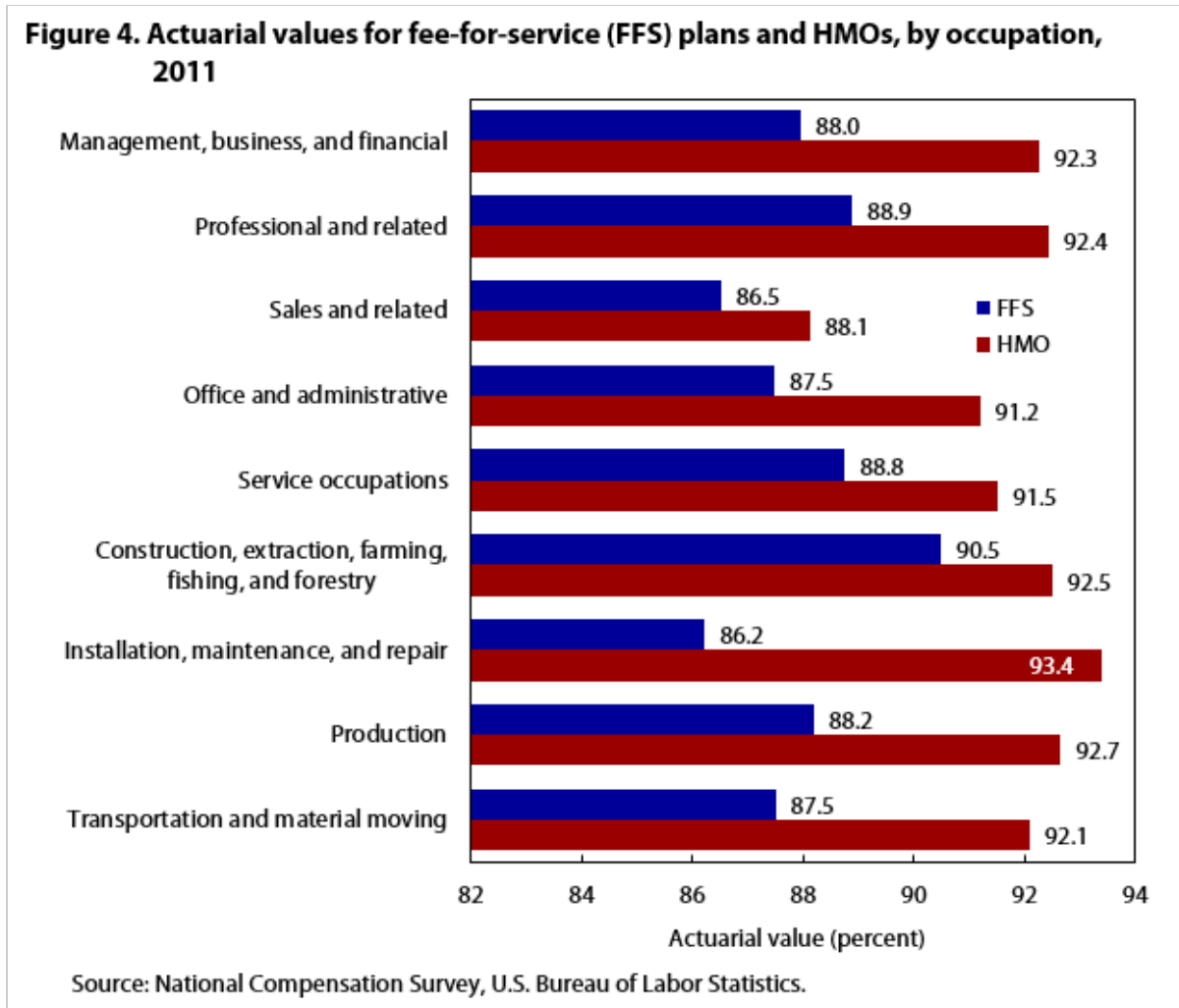


Figure 4 provides actuarial-values across occupational groups.²⁷ Perhaps not surprising, sales and related occupations are offered the least generous plans regardless of whether those plans are FFS or HMO plans. This is a predictable result because most sales workers are employed mainly in retail establishments, which was the industry group mentioned above for having the least favorable plans. FFS plans offered to sales workers pay on average 86.5 percent, while HMO plans offered to sales workers pay on average 88.1 percent. It is noteworthy that the HMO plans offered to sales workers are no more generous than the typical FFS plan offered to all private industry workers.

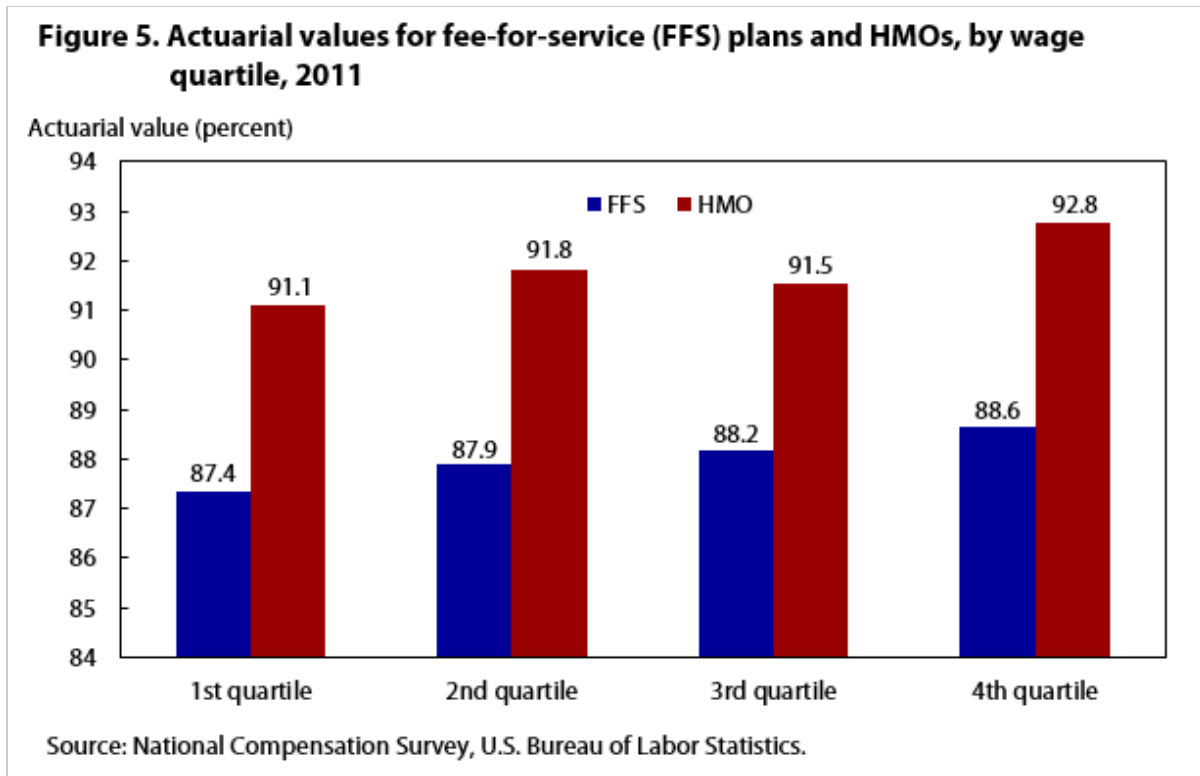


Figure 5 presents estimates of actuarial values of plans sorted by wage quartiles. The purpose of these estimates is to determine whether there are marked differences in plan generosity between, say, the lowest and highest paid workers in the economy. The quartile results show that the workers falling in the first quartile—the lowest wage earners—have access to both FFS and HMO plans that are not all together numerically different from workers in the top quartile of wage earners. These differences certainly are much smaller than what were found among the industry and occupational groups presented in figures 2, 3, and 4. This would suggest that employment within a particular industry or occupation is a more important determinant in the generosity of health insurance than the wage level of a worker.

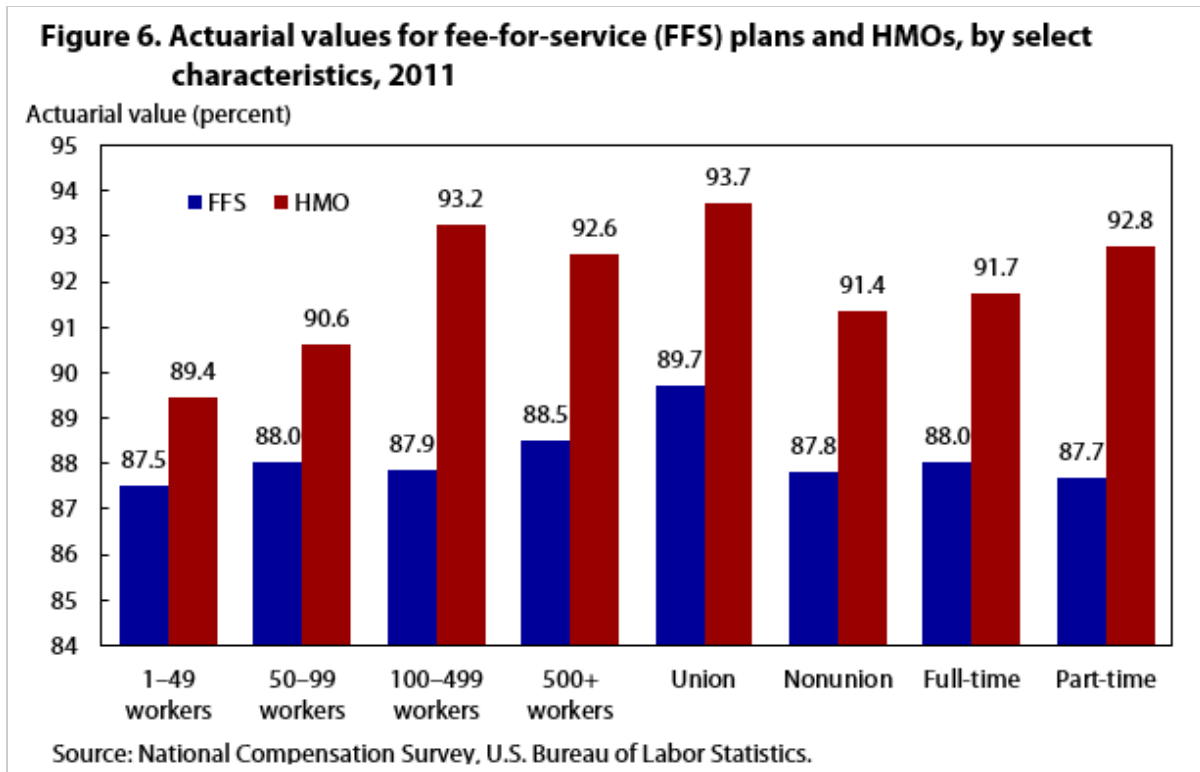


Figure 6 presents actuarial values of plans by establishment size, union and nonunion affiliation, and full-time and part-time work status. Of these characteristics, actuarial values for union workers and workers employed in establishments employing at least 500 workers stand out. Whether one is a union worker or worker in a large establishment, the FFS and HMO plans that are provided appear to be more generous than the average plan. This is not surprising for union workers, as collective bargaining may afford them access to generous plans. Similarly, large-size establishments may be able to offer their employees—through their larger risk pool of enrollees—more actuarially generous plans. In comparison, workers in the smallest establishments, those employing less than 100 workers, are offered the least generous plans, as is true for nonunion workers.²⁸

Concluding remarks

The paper describes ongoing BLS research work that has developed a method in which to estimate the average actuarial values of employer-sponsored health insurance plans. These actuarial values are measures of health-plan generosity in terms of providing financial protection against unexpected healthcare episodes. The underlying approach is to estimate claims payments using a model that incorporates utilization and expense data of healthcare made available from the Medical Expenditure Panel Survey, coupled with the cost-sharing parameters gathered from Summary Plan Descriptions of employer-sponsored health insurance collected by the National Compensation Survey. These actuarial-value estimates, in conjunction with other National Compensation Survey statistics, should provide a more comprehensive picture of health plans offered to American workers.

More research work is needed. One area of research could be to look at other sources of health claims data that may allow for richer estimates. In addition, research potentially could generate actuarial-value estimates of plans collected over a broader period of time than what is provided in this study so that the claim-payment model could provide a means by which estimates of actuarial value is computed for a series of periods. Improved in these

ways, and with calculation of standard errors, this model would likely be of interest as the multifaceted effects of the Affordable Care Act change the healthcare coverage landscape.

SUGGESTED CITATION

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NOTES

¹ For the latest online bulletin describing employer-sponsored health insurance, see *EBS Annual Bulletin* on "Benefit plan details in private industry," <http://www.bls.gov/ncs/ebs>.

² The term insurer is used universally throughout the paper even though the payer or underwriter of health expenditure claims for employees might be a self-insured employer or employee union rather than an insurance company.

³ See Lynn Quincy and Deanna Okrent, "Creating a usable measure of actuarial value," *Consumers Union Policy and Action from Consumer Reports*, synopsis of October 17, 2011 meeting, http://www.consumersunion.org/wp-content/uploads/2013/04/CU_Actuarial_Value_2012_Report.pdf.

⁴ For more information about the 10 essential health benefit categories stipulated by the ACA, see <https://www.healthcare.gov/blog/10-health-care-benefits-covered-in-the-health-insurance-marketplace/>.

⁵ Although the actuarial values may be equal, other parts of each plan may differ. For instance, one plan might have a more limited network of healthcare providers and therefore be less preferred than another plan that has an identical cost-sharing design but easy access to a wide variety of network providers.

⁶ To use an analogy, a \$100 market basket of goods bought in a discount grocery store might have the same types of groceries—meats, vegetables and such—as a \$100 basket bought in a gourmet grocery store, but the two baskets would likely have differences in quantity and quality of items within those baskets. Insurance companies that compute actuarial values for their own plans avoid these difficulties as they typically use their own claims data, which reflect usage-induced spending behavior and contractual network payment rates that they negotiate with their providers.

⁷ Price variation becomes particularly important in terms of generosity of plans in high-healthcare-price areas. For instance, plans that principally require copays will afford more financial protection with the same levels of healthcare utilization in high-price areas than would plans requiring coinsurance-shared arrangements.

⁸ Copays, which are present in many plans, are suppressed to keep the examples simple by not directly illustrating utilization.

⁹ Notice that plan 1 would have been less generous with the higher spending behavior had the out-of-pocket limit not been met.

¹⁰ See <http://www.irs.gov/pub/irs-drop/n-12-31.pdf>.

¹¹ L. Quincy and D Okrent, "Creating a usable measure of actuarial value."

¹² For the most recent detailed health plan bulletin that provides these estimates, see "National Compensation Survey: health and retirement plan provisions in private industry in the United States, 2013," Bulletin 2778 (U.S. Bureau of Labor Statistics, August 2014), <https://www.bls.gov/ncs/ebs/detailedprovisions/2013/ownership/private/ebbl0054.pdf>.

¹³ NAICS is the North American Industry Classification System, which is designed to assign a unique six-digit numeric code to each industry according to its economic activity.

¹⁴ For more information about the NCS design, see "Chapter 8, National compensation measures," *BLS Handbook of Methods*, which can be found at <https://www.bls.gov/opub/hom/pdf/homch8.pdf>.

¹⁵ The National Compensation Survey refers to this sample panel initiated in 2011 as Panel 109.

[16](#) The 575 plans that were dropped from this study lacked the complete information necessary to set all the cost-sharing parameters of the claims-payment model.

[17](#) If the effects caused by choice are nontrivial, the actuarial-value differences found between traditional FFS plans, which provide higher cost-sharing responsibilities but minimal service-access rules, and HMO plans, which provide low cost-sharing responsibilities but strict access rules, are not as large as reported in estimates presented in this paper.

[18](#) The immediate text is drawn from survey descriptions of the MEPS. A more complete description of the surveys can be found at <http://meps.ahrq.gov/mepsweb>.

[19](#) Data from the MEPS-IC are not used in this study.

[20](#) See <http://www.cdc.gov/nchs/nhis.htm>.

[21](#) See http://meps.ahrq.gov/mepsweb/data_stats/download_data_files_results.jsp?cboDataYear=All&cboDataTypeY=1%2CHousehold+Full+Year+File&buttonYearandDataType=Search&cboPufNumber=All&SearchTitle=Consoli

[22](#) At age 65, individuals are eligible to enroll in Medicare. If they are enrolled, Medicare becomes their primary insurance provided that they are no longer covered by an employer-sponsored health insurance plan. Thus, age 65 has been used as the border age between employer-sponsored plans as primary coverage and Medicare.

[23](#) See MEPS HC-129 full year consolidated data file documentation on pages C5–C6 for more descriptive details of Health Insurance Eligibility Units construction. The documentation can be found at http://meps.ahrq.gov/mepsweb/data_stats/download_data/pufs/h129/h129doc.pdf.

[24](#) For employer-sponsored health insurance incidence and provision estimates for 2013—the latest Employee Benefit Survey estimates available—see https://www.bls.gov/ncs/ebs/detailedprovisions/2013/ownership/private/basic_health.htm.

[25](#) See <https://www.bls.gov/ncs/ebs/glossary20132014.htm> for a glossary of employee benefit terms, including definitions for health-plan types that describe differences among FFS and HMO plans.

[26](#) Current Population Survey, Bureau of Labor Statistics “Union Members—2013,” news release, USDL-14-0095 (U.S. Bureau of Labor Statistics, January 23, 2015), <https://www.bls.gov/news.release/pdf/union2.pdf>.

[27](#) The occupational groups of this study are the same occupational groups that are found in the National Compensation Survey publications, such as the Employment Cost Index. These relatively high-level aggregates enable estimation by job tasks as defined by the Standard Occupational Classification Manual.

[28](#) Some caution must be exercised for estimates by establishment size. Establishments are single-site units; therefore, estimates by establishment size might be somewhat muted in comparison with analysis at the enterprise or firm level. NCS survey design precludes estimates at higher organizational levels such as the firm level.

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Job openings reach a new high, hires and quits also increase

Data from the Bureau of Labor Statistics Job Openings and Labor Turnover Survey continues to show improvements in the economy. All data series—job openings, hires, and total separations (and components quits, layoffs and discharges, and other separations)—increased in 2014.

Data from the Bureau of Labor Statistics Job Openings and Labor Turnover Survey (JOLTS) trended upward in 2014. Job openings rose to their highest monthly value since the series began in 2000, and the average job opening level rose 17.0 percent. Hires increased for the fifth year in a row, growing by 8.1 percent in 2014. Total separations grew as well. It is important to note that voluntary quits increased by 10.4 percent, contributing more to the increase in total separations than involuntary layoffs and discharges, which increased by 2.7 percent. Although a sharp increase in layoffs and discharges is indicative of an economic contraction, layoffs and discharges may grow slightly during times of economic growth. The larger gains in job openings, hires, and quits suggest an improvement in the labor market.

The JOLTS sample is comprised of 16,000 establishments from all 50 states and the District of Columbia, and all nonfarm industries as classified by the North American Industry Classification System (NAICS¹). This allows publication of data by four regions,² as well as by select 2-digit NAICS codes. This article examines 2014 JOLTS data, and compares the data to prior years for perspective on how the labor market has evolved. Current data will most frequently be compared with data from 2013 (the prior year) and 2007 (the start of the most recent recession).

Throughout this article, the Great Recession of 2007–2009 is frequently referenced, and is the only recession that is discussed. Because the recession began in December 2007, comparisons with 2007 help determine where various industries now stand relative to prerecession values. Levels at or above 2007 values for procyclical data elements—job openings, hires, and quits—generally indicate the industry or region has recovered. Levels at or below 2007 values for countercyclical data elements—layoffs and discharges—tend to indicate recovery as well.



Kevin S. Dubina

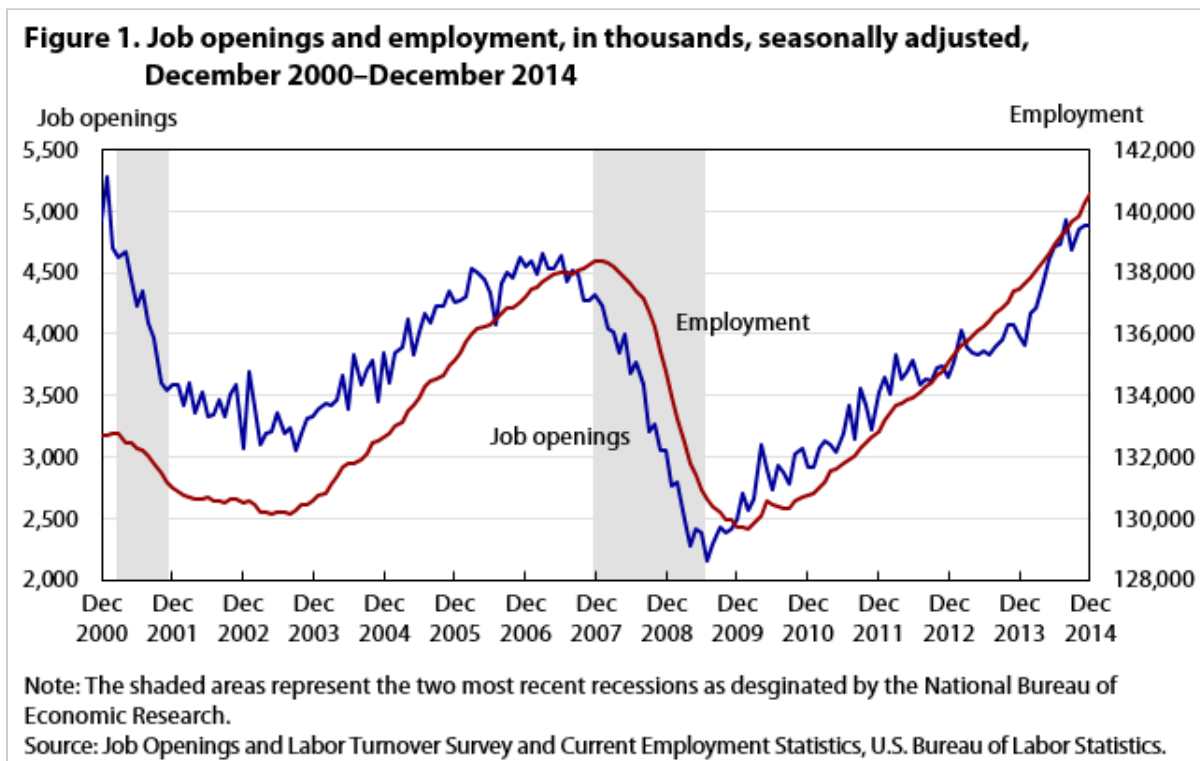
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Job openings

Job openings, measured at a specific point in time (last business day of the month), trended upward for the fifth consecutive year in 2014—indicating continued improvement on the demand side of the labor force. Prior to the most recent recession, job openings peaked at 4.7 million in March 2007, a level that was surpassed each month from June 2014 through December 2014. There was an average of 4.6 million job openings each month in 2014, the highest monthly average for any year in JOLTS history. The next highest monthly average is 4.5 million, which occurred in 2007.

Job openings offer a procyclical measure of demand; they tend to increase during economic expansion and decrease during economic contraction. More job openings indicate that employers need additional workers, a sign of confidence in the economy. Job openings and employment³ are closely linked, and tend to rise and fall together. (See figure 1.)



Job openings and employment figures tend to follow a similar pattern, and in 2014 both trended higher than in previous years. Average monthly job openings rose from 3.9 million in 2013 to 4.6 million in 2014, a 17.0 percent increase. Average monthly employment increased by 1.9 percent over the same period. Monthly averages for both job openings and employment in 2014 were the highest values measured since the series began. Job openings fell to a series low in July 2009, one month after the end of the recession, but have steadily increased since then, rising by 127.3 percent. The post-recession low for employment occurred in February 2010 (7 months after the job openings low), but has risen 8.4 percent since.

Job openings remained relatively flat over the first and fourth quarters of 2014, with most of the growth occurring in the middle of the year. Average monthly job openings increased 1.2 percent in the first quarter, 11.9 percent in the second quarter, 4.3 percent in the third quarter, and 2.0 percent in the fourth quarter.

Job openings by industry and region

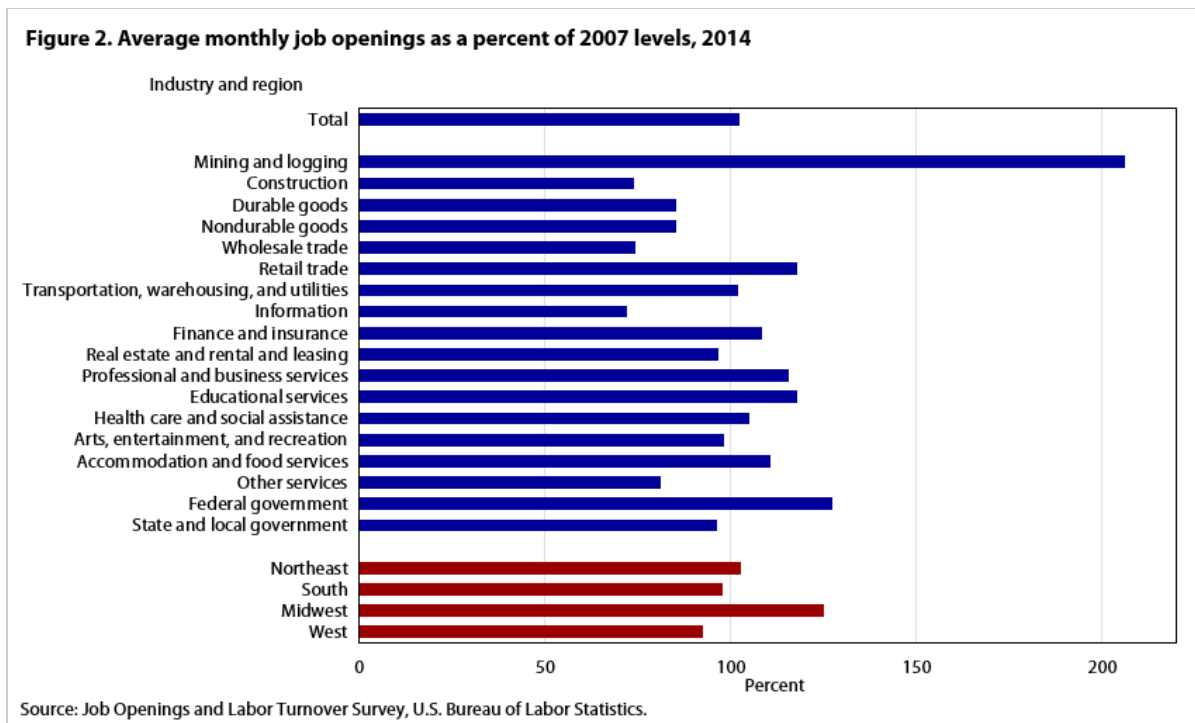
Average monthly job openings increased in all industries from 2013 to 2014. The largest over-the-year changes in average job openings occurred in mining and logging (40.7 percent), accommodation and food services (28.8 percent), and professional and business services (26.2 percent). The least growth occurred in other services (1.8 percent) and finance and insurance (3.6 percent). (See table 1.)

Table 1. Average monthly job openings by industry and region, in thousands

Industry and region	Annual level			Change from 2013 to 2014	
	2012	2013	2014	Level	Percent
Total	3,673	3,915	4,579	665	17.0
Total private	3,296	3,524	4,139	616	17.5
Mining and logging	19	21	29	8	40.7
Construction	88	116	128	12	10.5
Manufacturing	274	265	290	25	9.2
Durable goods	177	169	179	10	6.0
Nondurable goods	97	97	111	15	15.0
Trade, transportation, and utilities	609	713	807	94	13.2
Wholesale trade	129	129	153	24	18.5
Retail trade	366	446	488	42	9.4
Transportation, warehousing, and utilities	114	138	166	28	20.3
Information	97	97	103	6	6.3
Financial activities	246	274	289	14	5.2
Finance and insurance	185	220	228	8	3.6
Real estate and rental and leasing	61	55	61	6	11.5
Professional and business services	688	692	874	182	26.2
Education and health services	700	680	810	130	19.2
Educational services	60	66	80	14	21.3
Health care and social assistance	640	613	730	117	19.0
Leisure and hospitality	444	521	661	141	27.0
Arts, entertainment, and recreation	56	61	70	9	14.1
Accommodation and food services	388	459	591	132	28.8
Other services	132	146	149	3	1.8
Government	376	391	440	49	12.6
Federal	69	54	61	7	13.6
State and local	308	337	379	42	12.5
Northeast	668	680	757	77	11.3
South	1,429	1,494	1,744	250	16.7
Midwest	807	866	1,037	171	19.7
West	768	875	1,042	167	19.1

Source: Job Openings and Labor Turnover Survey, U.S. Bureau of Labor Statistics.

In all regions, average monthly job openings increased in 2014. The largest gains occurred in the Midwest, at 19.7 percent, and the West, at 19.1 percent.



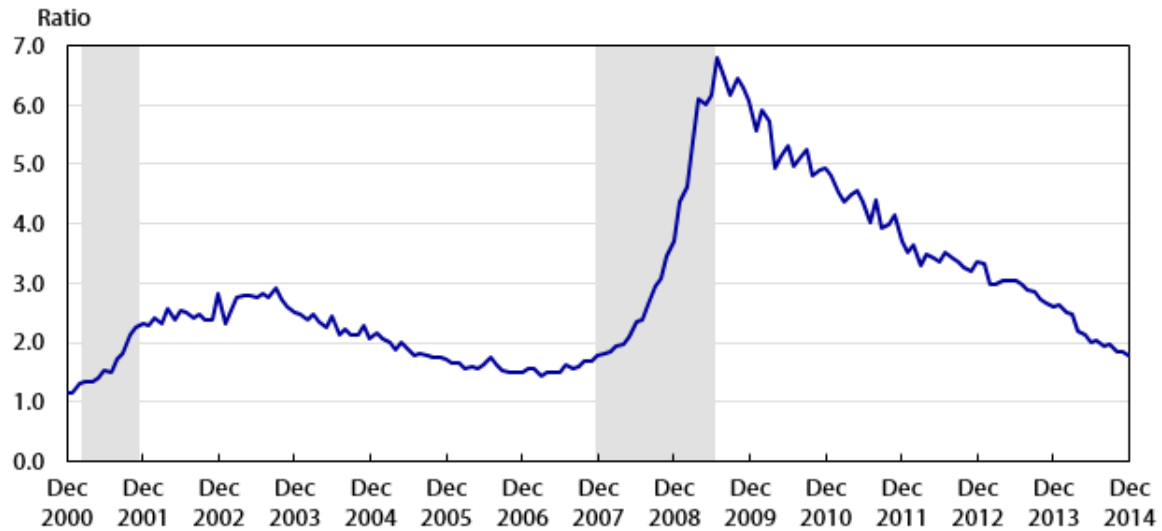
The 2014 total nonfarm average monthly job openings level increased slightly above the 2007 average level, the year the recession began; the monthly average was 4.6 million in 2014, compared with 4.5 million in 2007. Individual industries are notable for rising at different rates since the depth of the recession. Some industries have recovered to their prerecession values, while others have not. (See figure 2.) Mining and logging showed the largest increase, with a monthly average standing at 206 percent of its 2007 average level. Federal government rose to 127 percent of its 2007 level. While these industries grew, others fell behind. Information lagged the most, reaching only 72 percent of its prerecession average level. Construction and wholesale trade have also lagged. Each recovered to 74 percent of their 2007 average levels.

Among regions, average monthly job openings increased most in the Midwest, standing at 125 percent of its 2007 level. The Northeast also added job openings, improving to 103 percent of the 2007 level. Average monthly openings lagged in the West and South, standing at 92 and 98 percent, respectively.

Job openings and unemployment⁴

The job openings and unemployment levels generally move in opposite directions. During a robust economy, job openings are high and unemployment is low. During an economic contraction, the dynamics reverse—unemployment rises, while job openings fall. Accordingly, the ratio of the unemployed to job openings provides a metric that helps describe the state of the economy. Figure 3 graphs this ratio from December 2000 through December 2014. Since July 2009, 1 month after the end of the recession, this ratio has trended downward. In January 2014, the ratio stood at 2.6. By December 2014, it had fallen to 1.8, the same ratio present in December 2007, the start of the recession.

Figure 3. Number of unemployed people per job opening, seasonally adjusted, December 2000–December 2014

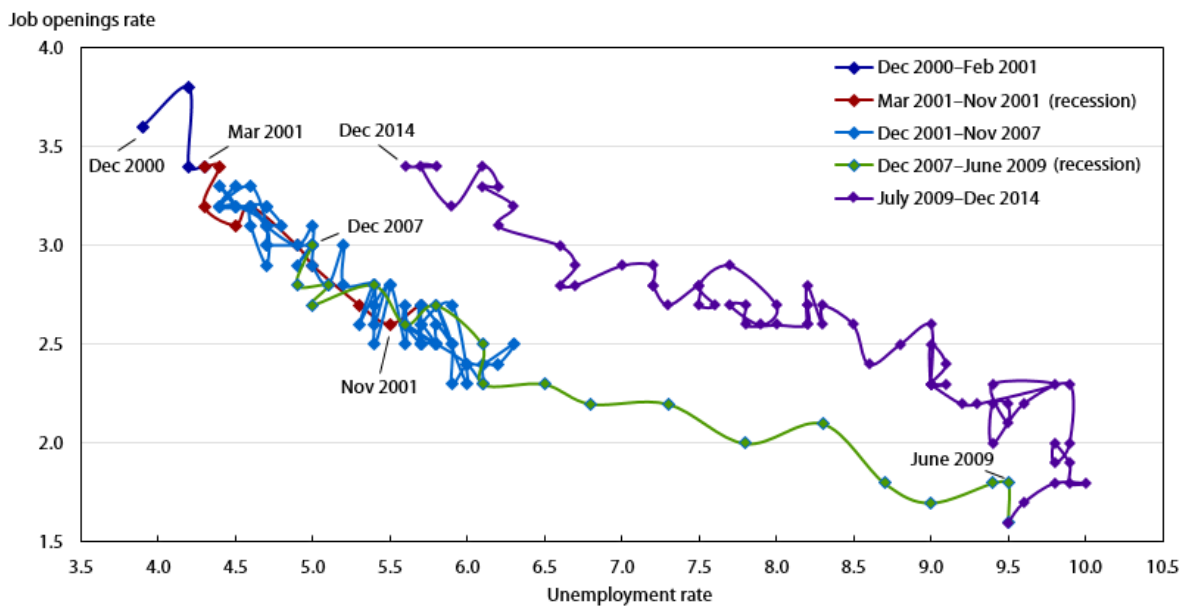


Note: The shaded areas represent the two most recent recessions as designated by the National Bureau of Economic Research.

Source: Job Openings and Labor Turnover Survey and Current Population Survey, U.S. Bureau of Labor Statistics.

The inverse relationship between job openings and unemployment can be analyzed using the Beveridge Curve. (See figure 4.) Each month corresponds to a point on the curve—the unemployment rate is plotted on the x-axis while the job openings rate is plotted on the y-axis. During an economic expansion, the monthly point on the curve is expected to move high and to the left on the graph, indicating high job openings and low unemployment. During a contraction, the monthly point on the curve is expected to fall and move to the right, as happened during the recession. From 2009 (when the recession ended) through April 2010, the unemployment rate remained high toward the right on the curve, while the job openings rate moved up. Since April 2010, the point on the curve has moved up further and to the left, similar to the historical pattern. Therefore, the current post recession curve has shifted outward from the prerecession curve. There is historical evidence indicating that a shift immediately following a recession is natural and should be interpreted as a cyclical pattern.⁵ Another theory suggests that a shift may be due to structural changes—a change in the matching efficiency between prospective workers and potential employers,⁶ or that potential workers lack the skills that employers seek.⁷

Figure 4. The Beveridge Curve, seasonally adjusted, December 2000–December 2014



Source: Job Openings and Labor Turnover Survey and Current Population Survey, U.S. Bureau of Labor Statistics.

Hires

In 2014, hires grew for the fifth consecutive year. Hires increased 8.1 percent, from 54.2 million to 58.7 million. In September, for the first time in nearly seven years, monthly hires returned to the level present when the recession began in December 2007 (5.0 million). Hires remained at or above 5.0 million the rest of the year. Growth remained consistent throughout the year; hires grew at a rate of 3.1 percent in the first quarter, 2.7 percent in the second quarter, 3.1 percent in the third quarter, and 3.5 percent in the fourth quarter.

Hires by industry and region

The growth in hires varied by industry—14 industries had more hires than in 2013, while 4 had fewer hires. The industries with the largest gains were wholesale trade, at 23.8 percent, and mining and logging, at 17.6 percent. The real estate and rental and leasing industry declined 4.5 percent, the largest of any single industry. Finance and insurance followed with a 2.9 percent decrease. (See table 2.)

Hires increased in all four regions in 2014. The Midwest experienced the greatest increase, 11.6 percent. The Northeast grew at the slowest rate, increasing 4.1 percent.

Table 2. Annual hires by industry and region, in thousands

Industry and region	Annual level			Change from 2013 to 2014	
	2012	2013	2014	Level	Percent
Total	52,367	54,241	58,657	4,416	8.1
Total private	48,916	50,787	55,048	4,261	8.4
Mining and logging	379	346	407	61	17.6

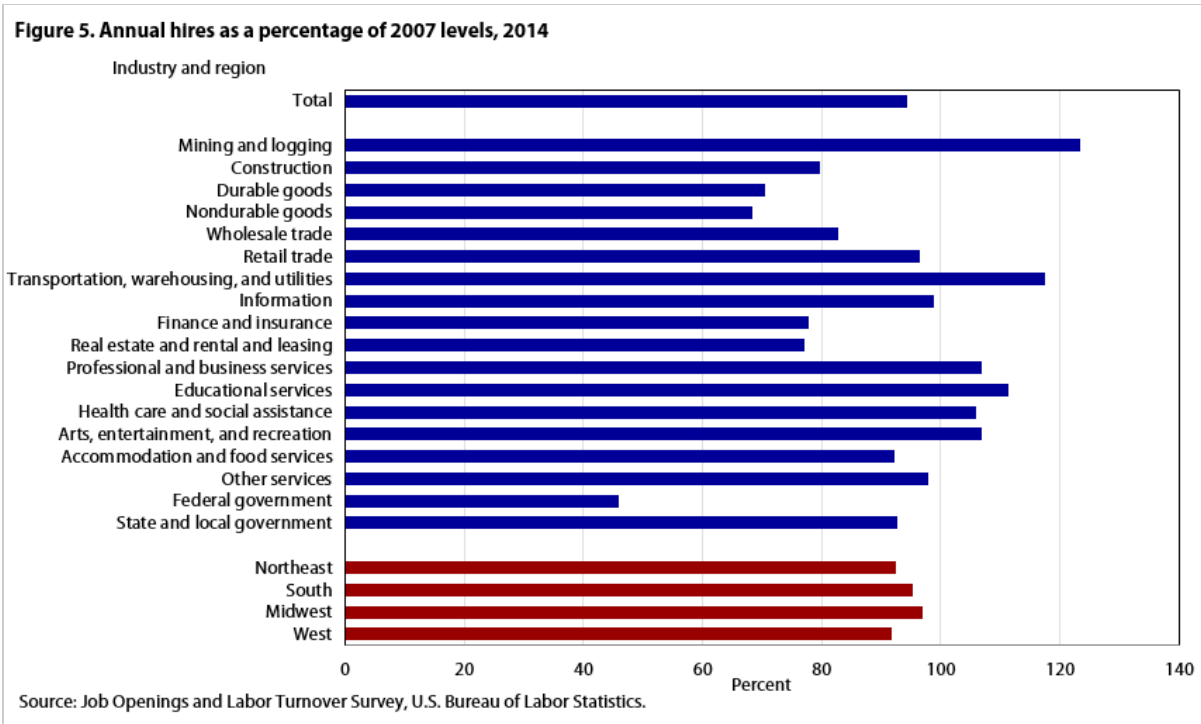
See footnotes at end of table.

Table 2. Annual hires by industry and region, in thousands

Industry and region	Annual level			Change from 2013 to 2014	
	2012	2013	2014	Level	Percent
Construction	3,969	3,844	3,799	-45	-1.2
Manufacturing	2,982	2,895	3,115	220	7.6
Durable goods	1,793	1,740	1,838	98	5.6
Nondurable goods	1,186	1,151	1,280	129	11.2
Trade, transportation, and utilities	10,480	11,153	12,776	1,623	14.6
Wholesale trade	1,558	1,422	1,760	338	23.8
Retail trade	6,999	7,810	8,827	1,017	13.0
Transportation, warehousing, and utilities	1,922	1,919	2,187	268	14.0
Information	767	844	926	82	9.7
Financial activities	2,183	2,406	2,322	-84	-3.5
Finance and insurance	1,412	1,580	1,534	-46	-2.9
Real estate and rental and leasing	771	825	788	-37	-4.5
Professional and business services	10,604	10,970	12,109	1,139	10.4
Education and health services	6,229	6,463	6,887	424	6.6
Educational services	883	900	992	92	10.2
Health care and social assistance	5,344	5,565	5,896	331	5.9
Leisure and hospitality	9,099	9,634	10,469	835	8.7
Arts, entertainment, and recreation	1,540	1,569	1,719	150	9.6
Accommodation and food services	7,559	8,063	8,749	686	8.5
Other services	2,226	2,241	2,238	-3	-.1
Government	3,450	3,453	3,611	158	4.6
Federal	364	368	375	7	1.9
State and local	3,086	3,084	3,237	153	5.0
Northeast	8,443	8,527	8,880	353	4.1
South	20,731	21,464	23,104	1,640	7.6
Midwest	11,623	11,878	13,256	1,378	11.6
West	11,568	12,377	13,420	1,043	8.4

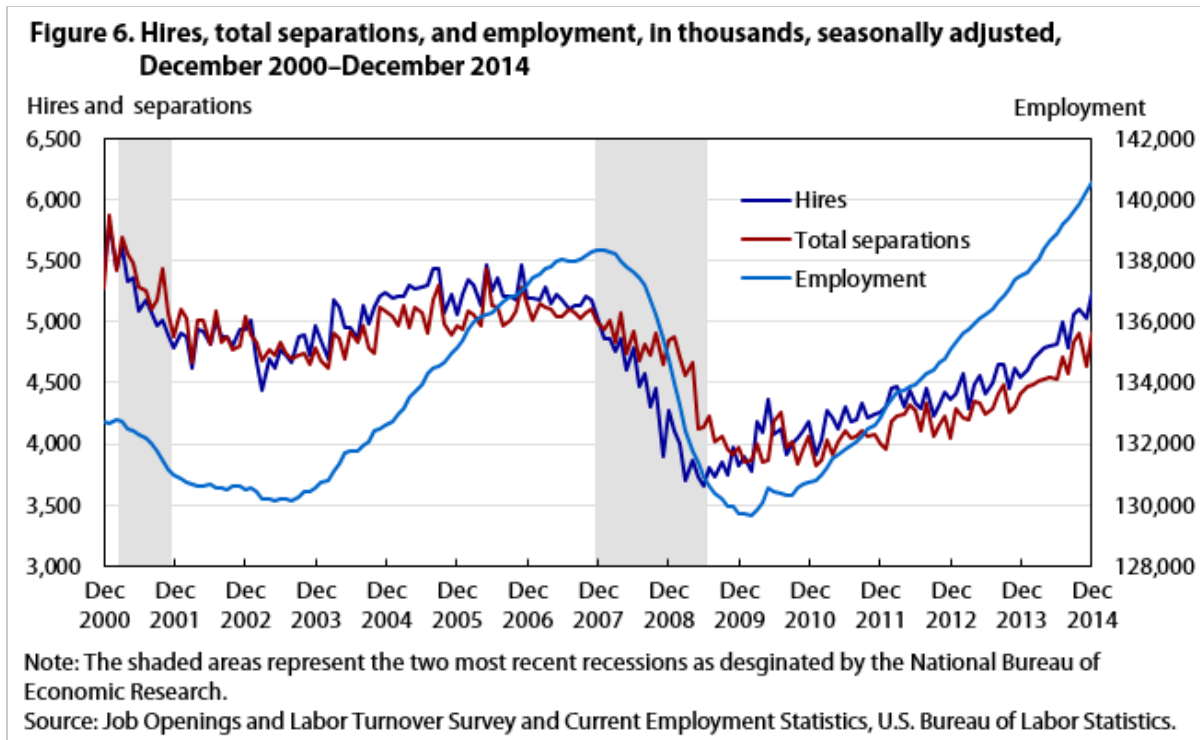
Source: Job Openings and Labor Turnover Survey, U.S. Bureau of Labor Statistics.

In 2014, annual hires nearly recovered their prerecession value, reaching 94 percent of the 2007 level. While hires in some individual industries surpassed 2007 levels, most fell short. The two industries with the largest gains were mining and logging, and transportation, warehousing, and utilities; these groups surpassed 2007 levels, standing at 123 percent and 117 percent respectively. Federal government hires experienced the least growth, tallying a mere 46 percent of the 2007 level; this occurred despite an increase in the federal government monthly average job openings between the two time periods. Hires were down across all four regions, compared to 2007 levels. (See figure 5.)



Separations and gross worker flows

Total separations—disaggregated into quits, layoffs and discharges, and other separations—increased in 2014, from 51.8 million to 55.5 million. This growth was driven mostly by quits, which rose from 27.6 million to 30.5 million, a 10.4 percent increase. Layoffs and discharges grew at a smaller rate—from 19.9 million to 20.4 million, an increase of 2.7 percent. Other separations (retirements, transfers, deaths, and separations caused by disability) increased as well, from 4.3 million to 4.6 million.



Analyzing hires and separations together offers a more complete picture of the economy than analyzing each data element separately. One advantage of this approach is that it allows an examination of employment change and gross worker flows. Employment change is derived by subtracting separations from hires. When hires are greater than separations, the employment level increases; when separations are greater than hires, the employment level decreases. This net employment change is known as gross worker flows. Figure 6 shows hires and separations graphically, alongside employment levels.

There were 55.5 million separations in 2014, an increase of 7.2 percent. This was the fifth straight year of growth for separations. (See table 3.) From January 2008 through November 2009, separations outpaced hires, resulting in negative gross worker flows. Since October 2010, there have been more hires than separations, resulting in positive gross worker flows. In 2014, there were 55.5 million separations and 58.7 million hires, matching the annual employment change of 3.2 million.⁸

Table 3. Total separations by industry and region, in thousands

Industry and region	Annual level			Change from 2013 to 2014	
	2012	2013	2014	Level	Percent
Total	50,047	51,783	55,524	3,741	7.2
Total private	46,545	48,280	51,992	3,712	7.7
Mining and logging	359	330	361	31	9.4
Construction	3,855	3,613	3,526	-87	-2.4
Manufacturing	2,808	2,776	2,899	123	4.4
Durable goods	1,648	1,649	1,643	-6	-.4
Nondurable goods	1,158	1,126	1,257	131	11.6

See footnotes at end of table.

Table 3. Total separations by industry and region, in thousands

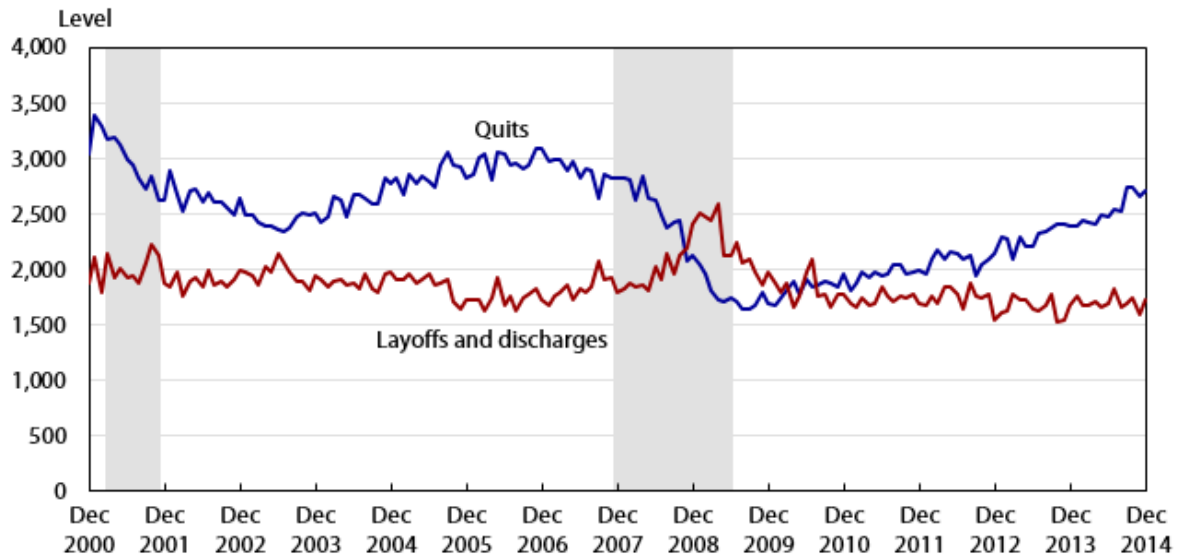
Industry and region	Annual level			Change from 2013 to 2014	
	2012	2013	2014	Level	Percent
Trade, transportation, and utilities	10,067	10,592	12,184	1,592	15.0
Wholesale trade	1,467	1,363	1,654	291	21.3
Retail trade	6,832	7,420	8,525	1,105	14.9
Transportation, warehousing, and utilities	1,765	1,809	2,006	197	10.9
Information	781	802	883	81	10.1
Financial activities	2,092	2,320	2,194	-126	-5.4
Finance and insurance	1,351	1,535	1,469	-66	-4.3
Real estate and rental and leasing	739	783	728	-55	-7.0
Professional and business services	10,001	10,420	11,412	992	9.5
Education and health services	5,750	6,138	6,374	236	3.8
Educational services	862	863	903	40	4.6
Health care and social assistance	4,887	5,274	5,469	195	3.7
Leisure and hospitality	8,645	9,131	9,996	865	9.5
Arts, entertainment, and recreation	1,451	1,490	1,637	147	9.9
Accommodation and food services	7,193	7,641	8,360	719	9.4
Other services	2,191	2,158	2,165	7	0.3
Government	3,501	3,504	3,532	28	0.8
Federal	384	434	385	-49	-11.3
State and local	3,116	3,068	3,145	77	2.5
Northeast	8,233	8,441	8,772	331	3.9
South	19,759	20,295	22,049	1,754	8.6
Midwest	11,242	11,142	12,168	1,026	9.2
West	10,813	11,905	12,535	630	5.3

Source: Job Openings and Labor Turnover Survey, U.S. Bureau of Labor Statistics.

The types of separations offer a useful gauge of the existing economic climate. Quits are voluntary separations, and measure workers' willingness or ability to leave the job. Layoffs and discharges are involuntary separations initiated by the employer. Other separations include retirements, transfers, disability, and deaths. Quits are procyclical, rising during an expansion and falling during a contraction. Conversely, layoffs and discharges are countercyclical, rising during a contraction and usually falling during an expansion. Due to population and employment growth, layoffs and discharges naturally increase over time. Cyclical effects usually outweigh underlying short-term layoffs and discharge growth. However, it is possible for layoffs and discharges to grow during an expansion. Rising layoffs and discharges, when exceeded by a larger rise in quits and total separations, is consistent with an economic expansion.

Hires usually outnumber total separations, but during the recession there were more separations than hires. This was due to both a cutback in hires and a surge in layoffs and discharges; the latter drove total separations higher even as quits declined. Other separations are a relatively small part of total separations, and are unlikely to influence any overall trend in total separations.

Figure 7. Quits and layoffs and discharges, in thousands, seasonally adjusted, December 2000–December 2014

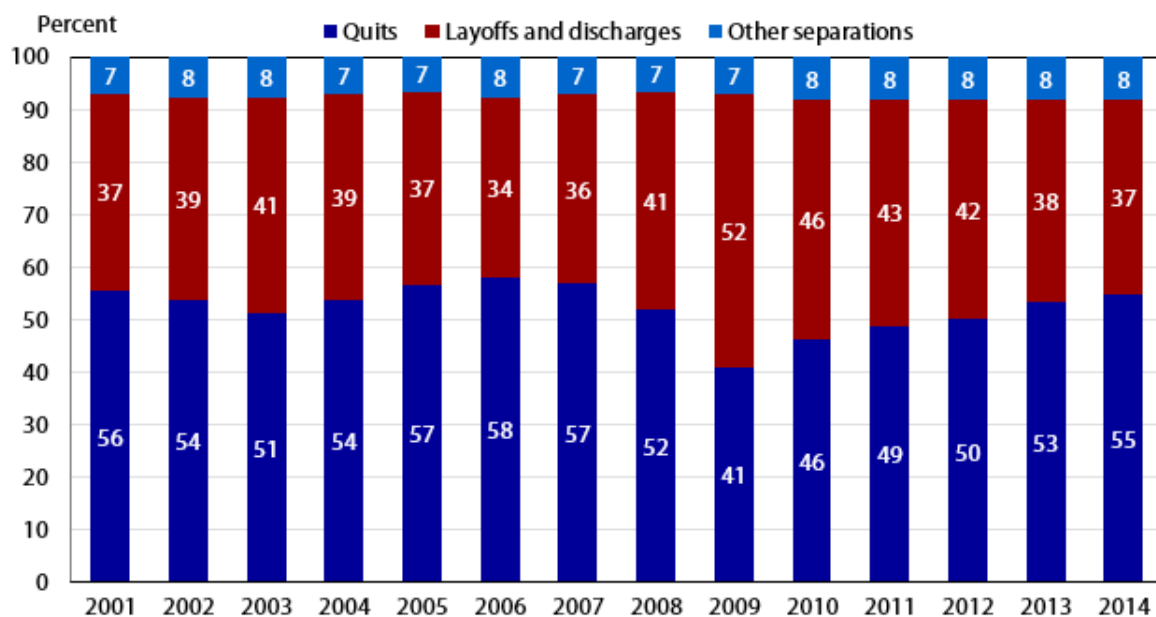


Note: The shaded areas represent the two most recent recessions as designated by the National Bureau of Economic Research.

Source: Job Openings and Labor Turnover Survey, U.S. Bureau of Labor Statistics.

Quits generally account for a larger proportion of the total separations level than layoffs and discharges. The only year during the history of JOLTS in which there were more layoffs and discharges than quits was 2009. (See figure 7.) Since then, quits (as a percentage of total separations) have risen each year, while layoffs and discharges (as a percentage of total separations) have fallen each year. (See figure 8.) In 2014, quits made up 55 percent of total separations, while layoffs and discharges accounted for 37 percent. For quits, this was the largest contribution since 2007; for layoffs and discharges, it barely surpassed the 36 percent recorded in 2007.

Figure 8. Disaggregated separations as a percent of total separations, 2001–2014



Source: Job Openings and Labor Turnover Survey, U.S. Bureau of Labor Statistics.

Quits

In 2014, quits grew for the fifth year in a row, increasing 10.4 percent, from 27.6 million to 30.5 million. It was the most quits in a single year since the start of the recession. The heaviest growth occurred during the latter half of the 2014. During the year, the quits level grew 0.6 percent in the first quarter, 1.7 in the second quarter, 5.6 percent in the third quarter, and 4.3 percent in the fourth quarter.

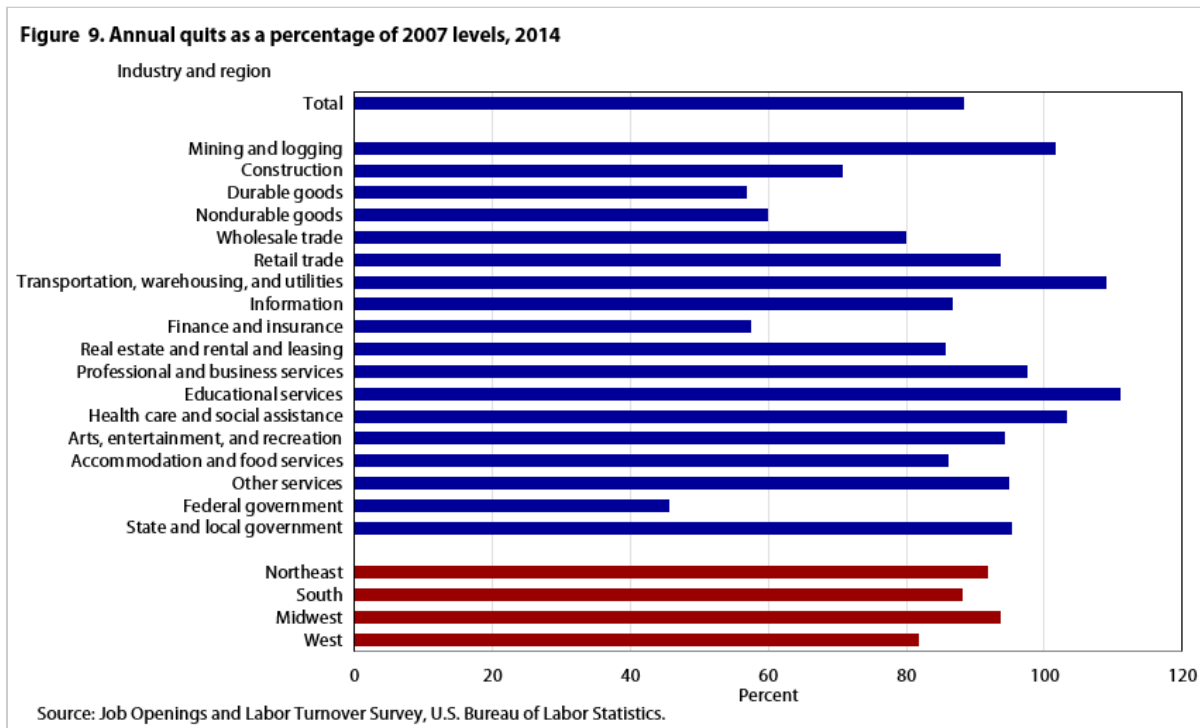
Quits grew in nearly all industries and in all regions in 2014. The largest over-the-year percent increase, 25.2 percent, occurred in wholesale trade. The finance and insurance industry and the federal government were the only two industries that declined, falling 2.7 percent and 6.0 percent respectively. In all four regions, quits increased by no less than 9 percent. (See table 4.)

Table 4. Quits by industry and region, in thousands

Industry and region	Annual level			Change from 2013 to 2014	
	2012	2013	2014	Level	Percent
Total	25,074	27,636	30,522	2,886	10.4
Total private	23,530	26,079	28,842	2,763	10.6
Mining and logging	193	168	182	14	8.3
Construction	973	1,175	1,323	148	12.6
Manufacturing	1,294	1,318	1,450	132	10.0
Durable goods	710	746	798	52	7.0
Nondurable goods	584	576	652	76	13.2
Trade, transportation, and utilities	5,558	6,073	7,032	959	15.8
Wholesale trade	700	721	903	182	25.2
Retail trade	3,994	4,478	5,153	675	15.1
Transportation, warehousing, and utilities	864	873	976	103	11.8
Information	443	427	490	63	14.8
Financial activities	1,087	1,170	1,179	9	0.8
Finance and insurance	704	779	758	-21	-2.7
Real estate and rental and leasing	382	388	421	33	8.5
Professional and business services	4,384	5,269	5,614	345	6.5
Education and health services	3,304	3,621	3,856	235	6.5
Educational services	406	400	452	52	13.0
Health care and social assistance	2,895	3,222	3,402	180	5.6
Leisure and hospitality	5,223	5,698	6,468	770	13.5
Arts, entertainment, and recreation	530	574	607	33	5.7
Accommodation and food services	4,693	5,123	5,861	738	14.4
Other services	1,070	1,163	1,248	85	7.3
Government	1,545	1,557	1,679	122	7.8
Federal	130	133	125	-8	-6.0
State and local	1,416	1,423	1,555	132	9.3
Northeast	3,687	3,843	4,200	357	9.3
South	10,505	11,520	12,727	1,207	10.5
Midwest	5,651	6,195	6,817	622	10.0
West	5,230	6,077	6,778	701	11.5

Source: Job Openings and Labor Turnover Survey, U.S. Bureau of Labor Statistics.

As of 2014, quits had not reached prerecession values in most industries. While some industries recovered fully to surpass 2007 values, overall, the annual quits level was 88 percent of its 2007 level. Educational services experienced the largest increase, 111 percent of its 2007 level. The transportation, warehousing, and utilities industry grew as well, reaching 109 percent of its 2007 level. The industry least recovered was federal government with an annual quits level of only 46 percent of its 2007 level. Finance and insurance, at 57 percent of its 2007 total, and both durable goods and nondurable goods manufacturing, at 57 and 60 percent respectively, have also lagged over this time period. No regional annual quits levels have recovered to 2007 levels. (See figure 9.)



Layoffs and Discharges

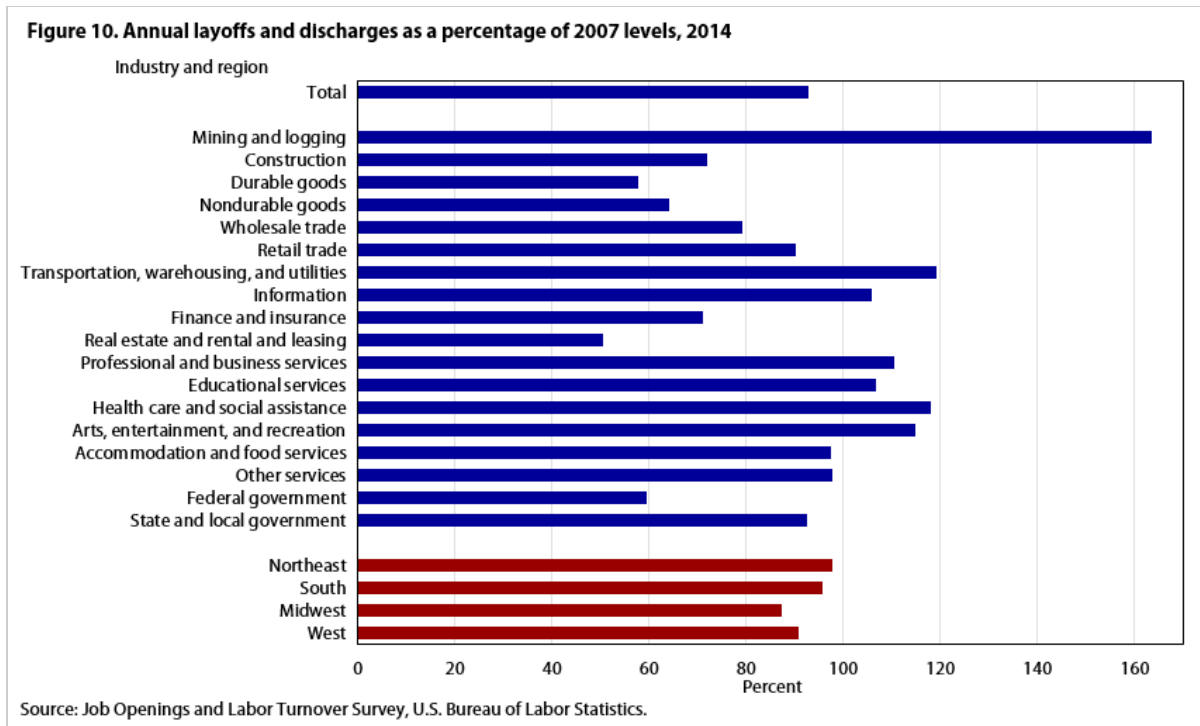
In 2014, layoffs and discharges increased 2.7 percent, from 19.9 million to 20.4 million. Most of this growth occurred in the first quarter of the year; layoffs and discharges increased 7.7 percent in the first quarter, decreased 0.9 percent in the second quarter, increased 2.4 percent in the third quarter, and decreased 2.3 percent in the fourth quarter.

Across industries, changes in layoffs and discharges were far from uniform, increasing in half of industries and decreasing in the other half. The largest increase occurred in wholesale trade, which grew by 18.9 percent. Transportation, warehousing, and utilities experienced the next largest rate of growth, increasing by 17.0 percent. The heaviest decline in layoffs and discharges occurred in real estate and rental and leasing, which fell by 22.3 percent. (See table 5.)

Table 5. Layoffs and discharges by industry and region, in thousands

Industry and region	Annual level			Change from 2013 to 2014	
	2012	2013	2014	Level	Percent
Total	20,872	19,889	20,418	529	2.7
Total private	19,686	18,725	19,347	622	3.3
Mining and logging	143	137	144	7	5.1
Construction	2,766	2,325	2,049	-276	-11.9
Manufacturing	1,252	1,191	1,163	-28	-2.4
Durable goods	778	743	679	-64	-8.6
Nondurable goods	473	444	483	39	8.8
Trade, transportation, and utilities	3,570	3,552	3,965	413	11.6
Wholesale trade	638	518	616	98	18.9
Retail trade	2,249	2,320	2,516	196	8.4
Transportation, warehousing, and utilities	685	713	834	121	17.0
Information	276	307	305	-2	-.7
Financial activities	625	716	650	-66	-9.2
Finance and insurance	339	406	411	5	1.2
Real estate and rental and leasing	286	309	240	-69	-22.3
Professional and business services	5,022	4,665	5,120	455	9.8
Education and health services	1,952	1,929	2,022	93	4.8
Educational services	390	407	393	-14	-3.4
Health care and social assistance	1,560	1,519	1,630	111	7.3
Leisure and hospitality	3,091	3,042	3,154	112	3.7
Arts, entertainment, and recreation	896	881	989	108	12.3
Accommodation and food services	2,193	2,161	2,163	2	.1
Other services	998	865	777	-88	-10.2
Government	1,185	1,163	1,070	-93	-8.0
Federal	128	150	130	-20	-13.3
State and local	1,060	1,014	940	-74	-7.3
Northeast	3,753	3,745	3,742	-3	-.1
South	7,770	7,245	7,456	211	2.9
Midwest	4,645	4,015	4,431	416	10.4
West	4,701	4,884	4,791	-93	-1.9

Source: Job Openings and Labor Turnover Survey, U.S. Bureau of Labor Statistics.



There were fewer layoffs and discharges than when the recession began, as the 2014 value held at 93 percent of the 2007 value. Additionally, all regions had fewer layoffs and discharges in 2014 than in 2007. Most industries experienced a decline, with the largest coming from real estate and rental and leasing, which reached only 50 percent of the 2007 total. A few industries surpassed their 2007 values; the mining and logging industry led standing at 164 percent of the 2007 value. (See figure 10.)

Other Separations

For the fifth consecutive year, other separations have increased. (See table 6.) In 2014, other separations grew by 7.6 percent, from 4.3 million to 4.6 million. That year, other separations were 106 percent of their 2007 level.

Table 6. Other separations by industry and region, in thousands

Industry and region	Annual level			Change from 2013 to 2014	
	2012	2013	2014	Level	Percent
Total	4,101	4,259	4,584	325	7.6
Total private	3,331	3,473	3,801	328	9.4
Mining and logging	21	25	34	9	36.0
Construction	119	113	154	41	36.3
Manufacturing	263	265	288	23	8.7
Durable goods	163	162	164	2	1.2
Nondurable goods	97	103	124	21	20.4
Trade, transportation, and utilities	938	969	1,187	218	22.5
Wholesale trade	127	124	137	13	10.5
Retail trade	592	625	854	229	36.6
Transportation, warehousing, and utilities	217	222	196	-26	-11.7
Information	65	68	89	21	30.9

See footnotes at end of table.

Table 6. Other separations by industry and region, in thousands

Industry and region	Annual level			Change from 2013 to 2014	
	2012	2013	2014	Level	Percent
Financial activities	376	432	364	-68	-15.7
Finance and insurance	305	349	298	-51	-14.6
Real estate and rental and leasing	73	83	67	-16	-19.3
Professional and business services	598	486	676	190	39.1
Education and health services	493	589	498	-91	-15.4
Educational services	65	56	60	4	7.1
Health care and social assistance	430	533	440	-93	-17.4
Leisure and hospitality	334	394	375	-19	-4.8
Arts, entertainment, and recreation	28	34	39	5	14.7
Accommodation and food services	305	357	332	-25	-7.0
Other services	122	129	141	12	9.3
Government	769	786	783	-3	-.4
Federal	127	155	130	-25	-16.1
State and local	642	633	649	16	2.5
Northeast	789	846	827	-19	-2.2
South	1,489	1,532	1,869	337	22.0
Midwest	945	932	919	-13	-1.4
West	876	945	969	24	2.5

Source: Job Openings and Labor Turnover Survey, U.S. Bureau of Labor Statistics.

JOLTS data show a continuing resurgence in the labor market. The average job openings level has increased to its highest value since the series began, indicating increased demand for labor. Annual hires and quits levels, although not yet above prerecession levels, have steadily increased, so much so that many industries' hires and quits levels now exceed prerecession values. This is likely indicative of increased confidence on the part of both employers and workers; the former being willing to make additional hires, the latter being assured enough of future prospects to leave their current positions. Layoffs and discharges have decreased as a percentage of total separations, due in part to employers' increased confidence and in part to rising quits.

SUGGESTED CITATION

Kevin S. Dubina, "Job openings reach a new high, hires and quits also increase," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, June 2015, <https://doi.org/10.21916/mlr.2015.17>.

NOTES

¹The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. Out-of-scope NAICS industries are Agricultural establishments (NAICS 11), except logging (NAICS 1133), and Private households (NAICS 814110). For more information on the NAICS, see <https://www.census.gov/eos/www/naics/>.

² The most detailed geographical breakout the JOLTS sample can provide by region is Northeast, South, Midwest, and West.

³ For Current Employment Statistics data on employment, see <https://www.bls.gov/ces/>.

⁴ For Current Population Survey data on unemployment, see <https://www.bls.gov/cps/>.

⁵ See Peter A. Diamond and Aysegül Sahin, “Shifts in the Beveridge Curve,” *Federal Reserve Bank of New York Staff Reports*, No. 687 (August 2014), http://www.newyorkfed.org/research/staff_reports/sr687.pdf.

⁶ “European Social Statistics,” (Luxembourg: Publications Office of the European Union, 2013), page 164, <http://ec.europa.eu/eurostat/documents/3930297/5968986/KS-FP-13-001-EN.PDF/>.

⁷ See Sarah E. Needleman, “Skills Shortage Means Many Jobs Go Unfilled,” *Wall Street Journal*, July 9, 2014, <http://www.wsj.com/articles/small-business-owners-work-to-fill-job-openings-1404940118>, and Jason Faberman and Bhash Mazumder, “Is There a Skills Mismatch in the Labor Market?” *Chicago Fed Letter*, No. 300, July 2012, <https://www.chicagofed.org/publications/chicago-fed-letter/2012/july-300>.

⁸ Slight differences between the JOLTS employment and employment levels are expected due to definitional differences <https://www.bls.gov/jlt/joltsdivergenceinformation.pdf>.

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Teenagers' behaviors and time use respond to changing economic conditions

Sabrina Wulff Pabilonia

Job losses during and after the Great Recession (December 2007–June 2009) have had a tremendous impact on the health and incomes of a large number of Americans. Although numerous research papers have examined the effects of the Great Recession on adults and families, none has specifically focused on effects of the weakening economy on the health behaviors and human capital investments made by teenagers ages 15–18.

Changes in economic conditions may affect 1) the demand for teenage workers, 2) teenagers' future employment expectations, 3) the likelihood of financial and emotional stressors resulting from the job losses experienced by the parents of teenagers or the parents of their classmates, and 4) parental supervision of teenagers because of changes in parents' work hours.

In "Teenagers' risky health behaviors and time use during the Great Recession" (*Review of Economics of the Household*, May 2015), Sabrina Wulff Pabilonia used data from the Centers for Disease Control and Prevention's National Youth Risk Behavior Survey and the BLS American Time Use Survey to examine the effects of weakening state economic conditions over the 2003–2011 period on teenagers' risky behaviors. The article also looked at how teens allot their time over the day in order to better understand observed changes in their behavior over the business cycle. Some of the factors that may affect teen behavior include changes in parental supervision, changes in time spent working, changes in sports participation, and changes in TV watching. In addition, Pabilonia examined the effects of changing state economic conditions on teenagers' other major uses of time. In particular, she examined effects on investments in schooling-related human capital; these changes could affect the future earnings of this group of young people who are just beginning to enter the labor market.

Pabilonia found that Black teenage boys were less likely to have had sex during poorer economic conditions. This finding was consistent with these boys spending more time with their parents. Consistent with a decrease in parental supervision, Hispanic teenage boys were more likely to have consumed alcohol or smoked marijuana in the past 30 days when the unemployment rate was higher. However, even though non-Hispanic White teenage boys spent less time with their parents as the economy weakened, there were no statistically significant increases in risky behaviors for this group. As the unemployment rate increased, Hispanic teenage boys spent less time playing sports and more time watching time TV and were more likely to become obese.

Teenage girls, in contrast, were not any more or less likely to spend time with their parents during various phases of the business cycle. However, teenage girls shifted their time toward educational activities as opportunities for employment shrank; this could potentially increase their future labor market opportunities. On the other hand, there

were signs that teenage girls were stressed during the Great Recession: they slept less, smoked more regularly and, in the case of Black teenage girls, became more likely to drink alcohol.

The relationship between access to benefits and weekly work hours

Data from the National Compensation Survey (NCS) consistently show that part-time workers have lower access to benefits. The designation of a job as full time or part time in the NCS is based on whether the responding establishment reports the job as full time or part time rather than on actual hours worked. However, legal requirements for providing access to benefits often depend specifically on hours worked. This article examines access rates to benefits—retirement, health insurance, and leave—based specifically on scheduled weekly hours. It also takes into account whether a person is employed in an industry where full-time or part-time work is more prevalent. The results show distinct variations in access rates in hour-specific categories.

Employee benefits often depend specifically on weekly work hours. Part-time workers consistently show lower access rates to benefits than do full-time workers.

Reporting only that an employee works full time or part time, however, may not always tell the entire story. For instance, while 40 hours of work per week is often informally considered to be the definition of full-time

employment, for many purposes full time has long been defined as 35 or more hours per week. More recently, the Affordable Care Act (ACA) defined full-time employment as 30 or more hours per week and required that large employers offer healthcare coverage to full-time employees or make an Employer Shared Responsibility Payment to the IRS.¹ This article looks at access rates for a selection of employer-provided benefits by categories based explicitly on scheduled weekly work hours.

The Bureau of Labor Statistics (BLS) uses data from the National Compensation Survey (NCS) to calculate access rates for a variety of employee benefits. Estimates are produced across a broad range of job characteristics, including industry, occupation, and establishment size. Statistics are also reported by full-time and part-time status. As shown below, NCS data for March 2013 indicate that U.S. employees in private industry work an average of 35



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hours per week,² with full-time employees working 40 hours per week and part-time employees working 21 hours per week.

Characteristic	Mean hours	Percent of jobs
All workers	35	100
Full time	40	74
Part time	21	26

The full-time or part-time status published by the NCS is based on whether the responding establishment reports a job as full time or part time,³ rather than on a definition that specifies weekly work hours. The NCS does, however, collect information on scheduled work hours for each job. Data on scheduled weekly work hours are used in this article.

Benefit access by scheduled weekly work hours

Table 1 compares estimates of access rates for a selection of benefits by full- and part-time status, with estimates for job categories that are explicitly defined by the number of weekly hours an employee is scheduled to work. For each of the selected benefits, the rates of access for part-time workers mirror the rates seen for employees working less than 30 hours per week. Similarly, access rates for full-time workers, as reported by employers and traditionally defined in the NCS, are almost identical to jobs in the 40-or-more-hours-per-week category.

Table 1. Percentage of jobs with access to selected benefits, private industry, March 2013

Characteristic	Retirement	Health insurance	Holidays	Sick leave	Vacations
All workers	64	70	77	61	77
Full time	74	85	90	74	91
Part time	37	24	39	24	36
At least 40 hours	74	86	91	74	91
35 to less than 40 hours	71	80	85	75	86
30 to less than 35 hours	40	44	60	40	65
Less than 30 hours	38	24	37	23	34

Source: National Compensation Survey, U.S. Bureau of Labor Statistics.

When comparing benefit access rates across hours-worked categories, only statistically significant differences are discussed in the text.⁴

Retirement and health insurance. Access to retirement benefits for employees working at least 30 hours but less than 35 hours per week is 31 percentage points lower than for those working at least 35 hours but less than 40 hours per week.

Access to health insurance displays more prominent differences across the scheduled-work-hours categories. Access for those working 30–35 hours per week is 20 percentage points higher than the less-than-30-hours category. The difference is even greater (36 points) between the categories of 30–35 and 35–40 hours per week. The difference between the two highest categories, 35–40 hours and 40 hours or more, is relatively small (6 percentage points).

Leave benefits. For each of the three leave benefits considered (paid holidays, sick leave, and vacations), the 30–35 hours category is found to be both higher than the less-than-30-hours category and substantially below the 35–40-hours-per-week category. For paid holidays and paid vacation benefits, the access rates are slightly higher for those working 40 or more hours per week than for those working 35–40 hours per week.

With the exception of retirement benefits, access rates for the 30–35-hours-per-week category were found to be consistently higher than access rates for the less-than-30-hours category. Moreover, the 30–35-hours-per-week category was also found to have substantially lower access rates than the 35–40-hours-per-week category for all of the benefits considered. While the differences between the two highest hours categories were less pronounced, there is evidence of small but statistically significant differences between access rates for some benefits—holiday, vacation, and health benefits.

Benefit access rates by prevalence of full- and part-time jobs by industry

While it has been shown that access to benefits in private industry overall is related to scheduled weekly work hours, might variations in access rates be different for industries in which part-time or full-time employment is more prevalent? Table 2 lists the percentage of part-time jobs by major industrial sector.

Table 2. Percentage of jobs that are part time, by industry, March 2013

Industry	Percent
Lower hour industries	
Accommodation and food services	60
Arts, entertainment and recreation	50
Retail trade	49
Higher hour industries	
Other services (except administration)	32
Health care	27
Administrative and support and waste management and remediation services	26
Educational services	22
Transportation and warehousing	20
Real estate and rental leasing	16
Professional, scientific, and technical services	11
Information	9
Wholesale trade	8
Finance and insurance	6
Management of companies and enterprises	6
Construction	5
Manufacturing	3
Mining	2
Utilities	1

Source: National Compensation Survey, U.S. Bureau of Labor Statistics.

For the purposes of this study, accommodation and food services; arts, entertainment, and recreation; and retail trade have been aggregated into a group which will be referred to as “lower hour industries.” This selection was based on the relatively high percentage of part-time jobs in these industries. For comparison, the remaining

industries are aggregated into a group referred to as “higher hour industries.” As shown below, NCS data for March 2013 indicate that while full-time jobs account for 85 percent of employment in the higher-hour-industries category, employment in the lower hour industries is more evenly divided between full-time and part-time jobs.

Characteristic	Full time	Part time
Higher hour industries	85	15
Lower hour industries	47	53

Lower hour industries

Table 3 shows the benefits access rates for the scheduled work-hours categories in lower hour industries. Access rates for the less-than-30-hours category are similar to access rates for part-time jobs, and access rates in the 40-or-more-hours category are similar to access rates for full-time jobs. This mirrors the results for private industry overall.

Table 3. Access rates for selected benefits for the lower hour industries, March 2013

Characteristic	Retirement	Health insurance	Holidays	Sick leave	Vacations
All workers	49	47	54	38	58
Full time	58	73	78	62	85
Part time	41	25	33	17	35
At least 40 hours	59	74	80	64	84
35 to less than 40 hours	51	62	65	50	82
30 to less than 35 hours	44	44	53	32	62
Less than 30 hours	41	24	31	16	33

Source: National Compensation Survey, U.S. Bureau of Labor Statistics.

Retirement and health insurance. Among access rates for retirement benefits in lower hour industries, there appear to be differences in several adjacent hours-worked categories. However, the only statistically significant differences are found in two categories: the 35–40-hours category, which is greater than the less-than-30-hours category by 10 percentage points, and the 40-or-more-hours category, which is greater than the 30–35-hours categories by 15 points.

For health insurance, the access rate for employees in lower hour industries working 30–35 hours per week is 20 percentage points greater than the under-30 category. The access rate for the 35–40-hours category is 18 points higher than that of the 30–35-hours category, while the 40-or-more-hours category is 12 points higher than the 35–40 category.

Leave benefits. For each of the leave benefits, the access rates for the less-than-30-hours category are less than those for the 30–35-hours category: 22 percentage points less in the case of holiday pay, 16 points for sick leave, and 29 points for vacation pay. Other sizable differences in access rates are between the 30–35- and the 35–40-hours categories for sick leave (18 percentage points) and vacation pay (20 percentage points), and between the 35–40 and the 40-or-more-hours categories for holiday pay (15 percentage points) and sick leave (14 points). In each of these cases, the higher-hours-worked categories had higher rates of access.

Higher hour industries

Higher hour industries refers to the remainder of private industry once the lower hour industries (accommodation and food services; arts, entertainment, and recreation; and retail trade) have been excluded. Table 4 shows the benefit access rates for the higher-hour-industries group. As was the case for lower hour industries as well as for private industries overall, the higher-hour-industries access rates for the 40-or-more-hours-per-week category line up closely with full-time employment, and access rates for the less-than-30-hours-per-week category line up closely with part-time employment.

Table 4. Access rates for selected benefits for the higher hour industries, March 2013

Characteristic	Retirement	Health insurance	Holidays	Sick leave	Vacations
All workers	70	78	85	69	84
Full time	77	88	93	76	92
Part time	32	24	46	33	37
At least 40 hours	77	89	93	76	93
35 to less than 40 hours	74	84	89	81	87
30 to less than 35 hours	37	44	66	45	67
Less than 30 hours	34	25	44	33	36

Source: National Compensation Survey, U.S. Bureau of Labor Statistics.

Retirement and health insurance. For retirement benefits, one statistically significant difference is found: the 35–40-hours category is 37 points higher than 30–35-hours category.

Access to health benefits, however, varies by wide margins across the less-than-30 versus 30–35-hours-per-week categories (19 point difference) and the 30–35 versus 35–40-hours-per-week categories (40 points). The 40-or-more-hours rate is 5 points greater than that for the 35–40-hours category.

Leave benefits. Access to holiday pay increases between the less-than-30 and the 30–35-hours categories by 22 percentage points, and increases between the 30–35 and the 35–40-hours categories by 23 points. There is a 4-point difference between the two highest hours-per-week categories.

Sick leave exhibits more modest differences between the less-than-30 and the 30–35-hours category (12 percentage points). The access rate to sick leave for the 35–40 category is much larger than for the 30–35 categories (36 points). The access rate for the 35–40 category is 5 points higher than for the 40-or-more category.

There is a large difference in access to vacation pay between the less-than-30 and the 30–35-hours categories (31 percentage points). The access rate for the 35–40 category is 20 points greater than for the 30–35 category, and there is a 6 point difference between the 35–40 and 40-or-more-hours categories.

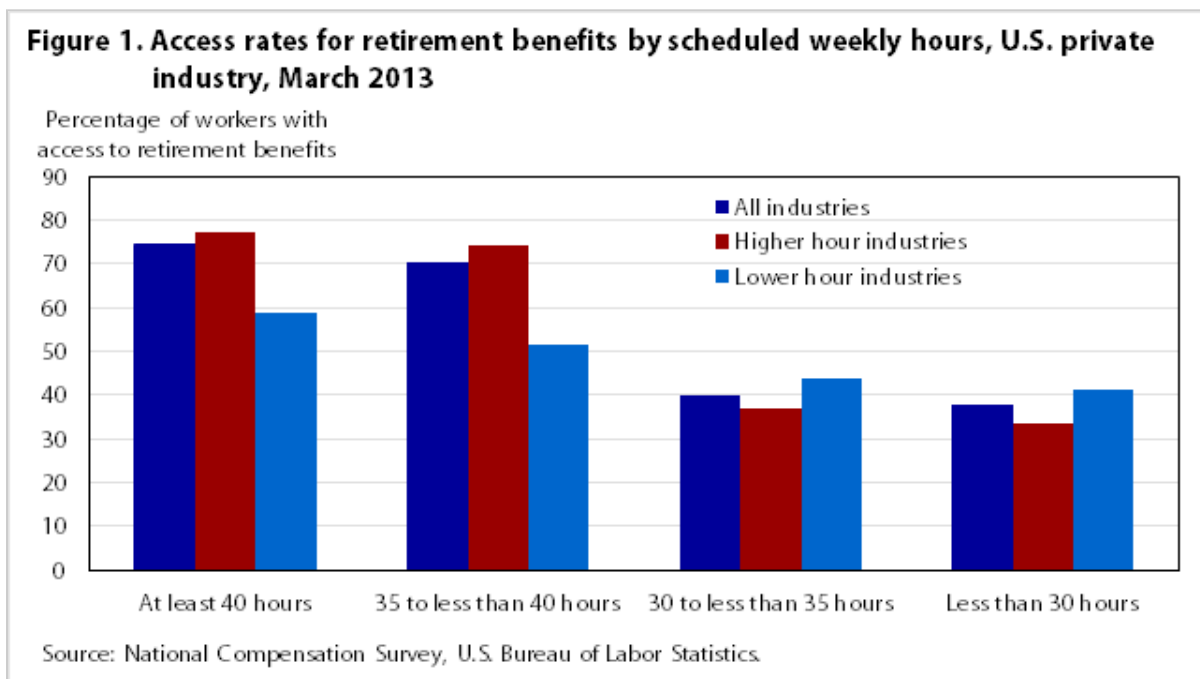
How a change in hours affects benefits

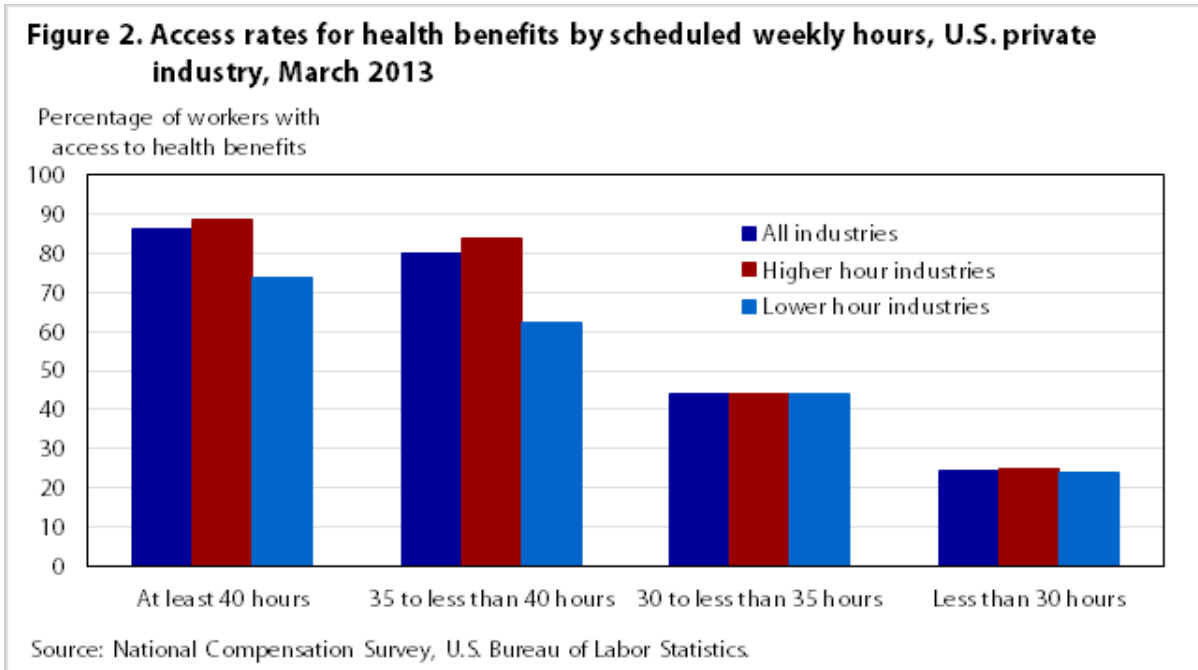
Changes in the work schedule can have unforeseen impacts on access to employee benefits. For instance, the Family and Medical Leave Act (FMLA), which provides eligible employees with up to 12 weeks of unpaid leave per year, requires the employee to have worked for the employer for at least 1,250 hours (approximately 24 hours per week) during the 12 months prior to the start of leave.⁵ In another example, concerns about flu epidemics in recent

years have given rise to increased interest in access to sick leave, and some states and cities have since instituted laws that require employers to provide paid sick leave.⁶ Connecticut now requires that employers with 50 or more employees provide paid sick leave at an accrual rate of at least 1 hour per 40 hours worked.⁷ Under San Francisco’s mandatory paid-sick-leave law, employees must accrue at least 1 hour of sick leave for every 30 hours worked.⁸

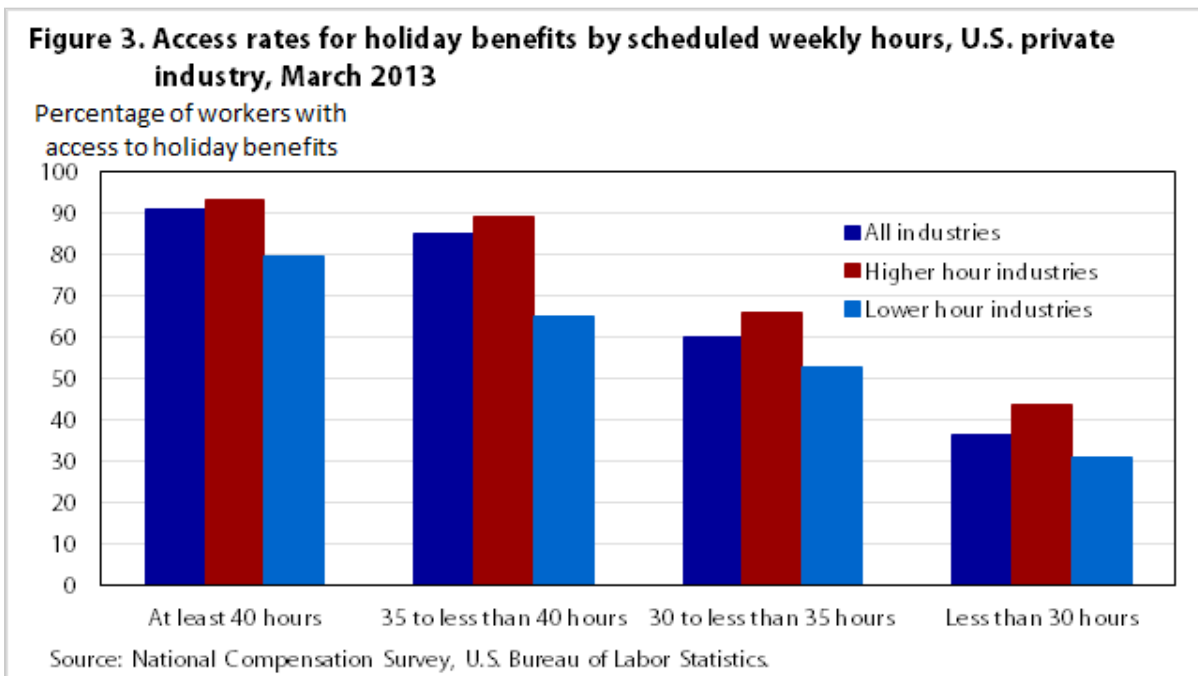
Figures 1 through 5 give a visual representation of how access rates to retirement, health, and leave benefits vary depending upon scheduled weekly hours as well as by employment in higher or lower hour industries (refer back to tables 1, 3, and 4). In particular, these figures help illustrate changes in access to benefits that a worker might face as a result of a reduction of weekly work hours.

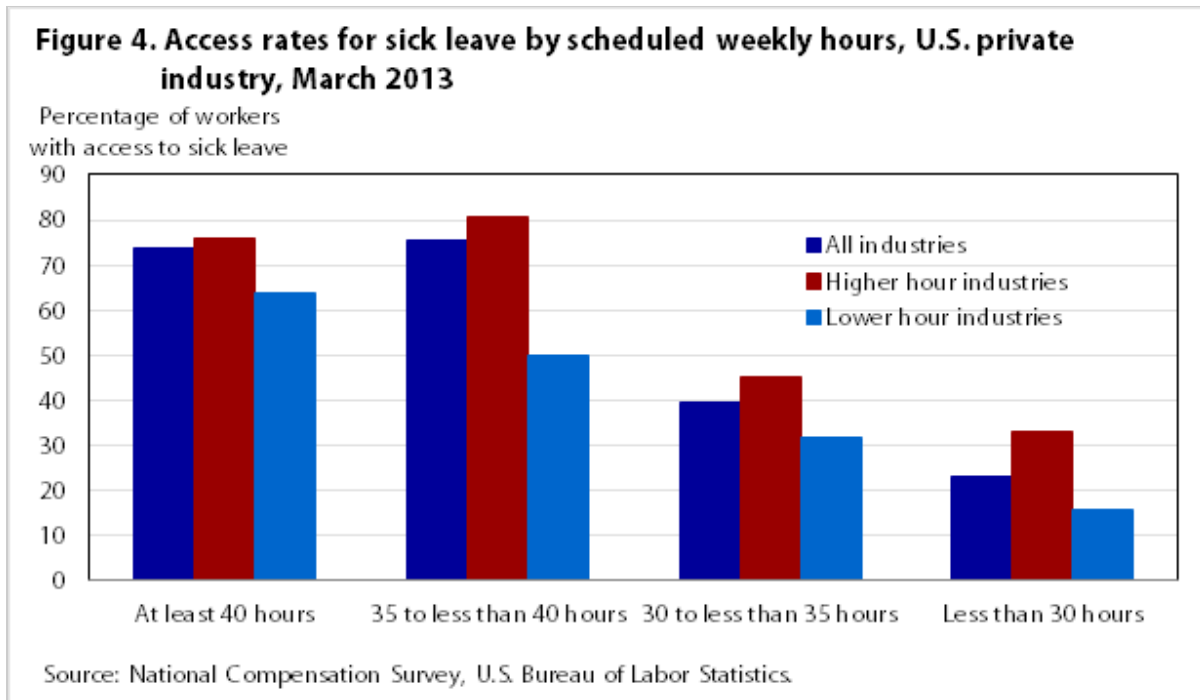
For retirement benefits (figure 1), access in the less-than-30-hours category is greater in the lower hour industries; this may be related to the high concentration of employees in lower hour industries who are scheduled to work less than 30 hours per week. Access rates for 30–35-hour-per-week categories for the higher and lower hour industries are not statistically different, while access rates in both the 35–40 and 40-or-more categories are greater in the higher hour industries.



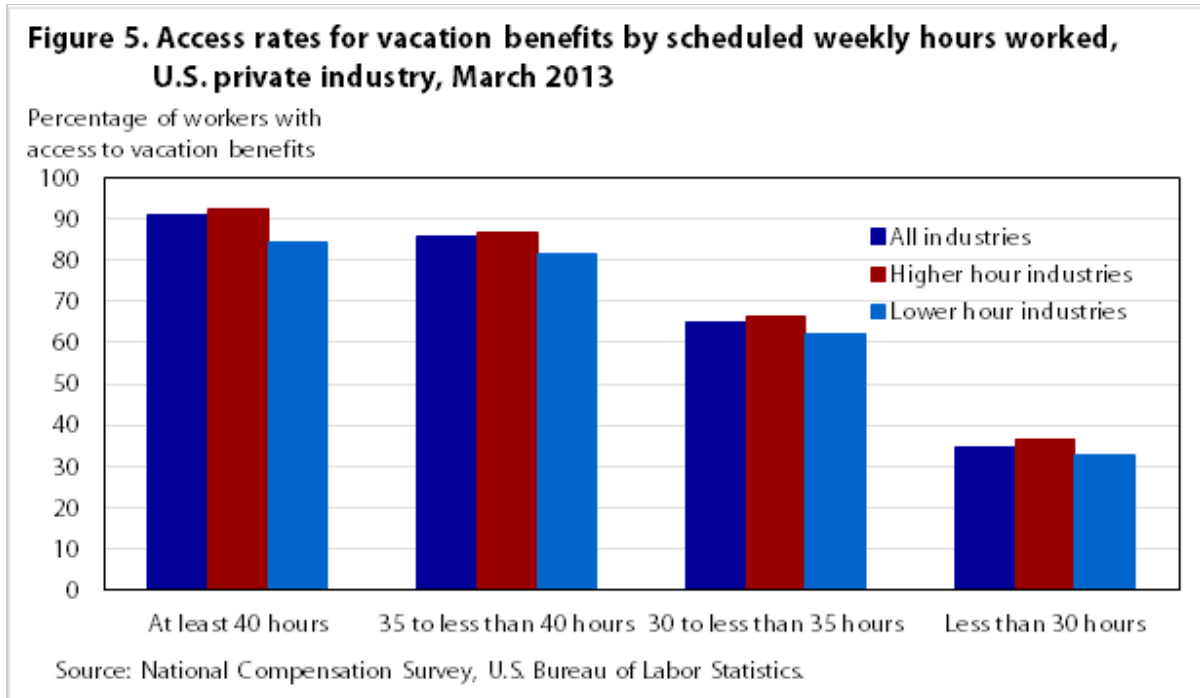


Access to health insurance (figure 2) is similar across the two industry groups for the less-than-30 and 30–35-hours categories but is greater in the higher hour industries for both the 35–40 and the 40-or-more-hours categories. A comparison of figures 3 and 4 indicates that access rates to holiday pay and sick leave are greater for higher-hour industries for all of the hours-per-week categories.





A notable difference across the two industry groups pertains to access to sick leave benefits (figure 4). In higher hour industries, the access rate for sick leave in the 35–40 hour category is 36 percentage points higher than in the 30–35 hour category (81 percent and 45 percent, respectively). Put another way, the access rate drops by 44 percent when shifting from 35–40 hours to 30–35 hours per week.⁹ By comparison, the 18-percentage-point difference between these same 35–40 hours and 30–35-hours-per-week categories in the lower hour industries represents a 36-percent drop in access. Now consider the shift from the 30–35-hour category to the less-than-30-hours category. In the higher hour industries, there is a 12-percentage-point difference between these categories (45 percent and 33 percent, respectively), representing a 27-percent drop in access. In contrast, the 16-percentage-point difference between these categories in the lower hour industries (32 percent and 16 percent, respectively) represents a 50-percent drop in access to sick leave.



For vacation pay (figure 5), the only statistically significant difference across the two industry groups is for the 40-or-more-hours-per-week category (93 percent in the higher hour industries compared with 84 percent in the lower hour industries).

Summary

Besides reducing earnings, a decrease in weekly hours is likely to affect access to employee benefits. Moreover, this impact varies depending upon whether a person is employed in a higher hour industry, where full-time jobs are more prevalent, or in a lower hour industry, where jobs are more evenly divided between full time and part time.

For workers overall, access rates for all benefits are greater in the higher hour industries by statistically significant margins (refer back to tables 3 and 4). The differences in access rates between higher hour and lower hour industries range from 21 percentage points for retirement, to 26 points for vacation, to 31 points each for health, holiday, and sick leave. For full-time workers, benefit access is also greater across the two industry groups. In this case the differences are less dramatic, however, ranging from 7 percentage points for vacation pay to 19 points for retirement benefits. For part-time workers, access to retirement benefits is greater in lower hour industries (9 points); access to holiday pay and sick leave is greater in the higher hour industries (13 points and 16 points, respectively); and there is no statistically significant difference between access rates for health insurance or vacation pay across the two industry groups.

SUGGESTED CITATION

John L. Bishow, "The relationship between access to benefits and weekly work hours," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, June 2015, <https://doi.org/10.21916/mlr.2015.18>.

NOTES

¹ More about Employer Shared Responsibility provisions can be found at <http://www.irs.gov/Affordable-Care-Act/Employers/Employer-Shared-Responsibility-Provisions>.

² By way of comparison, the BLS Current Employment Survey (CES) reports 34.5 average weekly hours for all workers in private industry for March 2013. See <https://data.bls.gov/pdq/querytool.jsp?survey=ce>.

³ In the National Compensation Survey (NCS), employees are classified full time or part time as defined by their employer. The Current Population Survey (CPS) and the American Time Use Survey (ATUS) both classify full-time workers as people who work 35 hours or more per week. (See the BLS Glossary at <https://www.bls.gov/bls/glossary.htm>.)

⁴ For example, when looking at retirement benefits in table 1, it appears that there is a difference of 3 percentage points between the two highest hours-worked categories (35-40 hours compared with 40 or more hours per week). However, because the difference is not statistically significant it is not mentioned in the text.

⁵ More information on the FMLA is available at the Department of Labor website, <http://www.dol.gov/whd/fmla/fmla-faqs.htm>.

⁶ "Paid sick leave in the United States," *Program Perspectives*, March 2010, <https://www.bls.gov/opub/btn/archive/program-perspectives-on-paid-sick-leave-pdf.pdf>.

⁷ For more information on the Connecticut law, see <http://www.ctdol.state.ct.us/wgwkstnd/SickLeaveGuidance.pdf>.

⁸ For more information on the San Francisco paid sick leave law see, [http://www.amlegal.com/nxt/gateway.dll/California/administrative/chapter12wsickleave*?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:sanfrancisco_ca](http://www.amlegal.com/nxt/gateway.dll/California/administrative/chapter12wsickleave*?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca).

⁹ The percentage drop in access discussed here refers to the percentage change associated with moving from one hours-per-week category to another. For example, in the higher hour industries, where access to sick leave is 81 percent in the 35–40-hours per-week category compared with 45 percent in the 30–35-hours category, the percentage change was calculated as $(81-45)/81 \times 100=44\%$.

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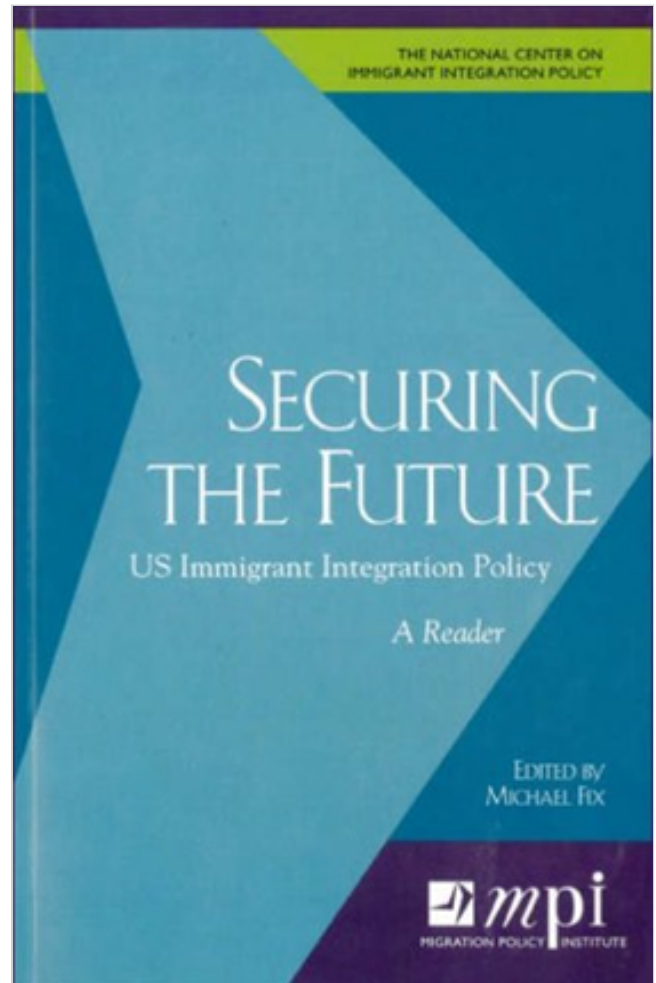
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Migrants: making it in the melting pot

Securing the Future: U.S. Immigrant Integration Policy: A Reader. Edited by Michael Fix, Washington, DC. Migration Policy Institute, 2007, 192 pp., \$22.68 /paperback.

Despite the enforcement of stricter immigration laws in the last decade, the United States remains a top destination for migrants in the 21st century. Together with other factors, the recent national crises of the Great Recession, stagnant wages, and increased threat of terrorist attacks, however, have exacerbated an already delicate nature of the immigration debate. Whereas in the past the discussion delved mostly into whether the United States should impose new restrictions on immigrants or adopt a more laissez-faire approach, the debate in the 21st century has been much more focused on border control and undocumented immigrants. As a result, fewer studies have been conducted about how well immigrants are actually *integrating* into American society, leading one to question, “What exactly does integrating immigrants in the 21st century entail?” and “To what extent should the United States push this agenda?”

Securing the Future: U.S. Immigrant Integration Policy: A Reader, 10 essays written and compiled by Editor-in-Chief Michael Fix, attempts to answer those and other questions. The book is logically divided into an introduction and three parts: (1) “Defining the integration vision,” (2) “The current state of rights and services,” and (3) “Key policy issues.” In the introduction, Doris Meissner, senior fellow at the Migration Policy Institute, refers to the then (2007) state of U.S. immigrant integration policy as “skeletal, ad hoc, and under-funded.” Following Meissner’s brief introduction, Michael Fix provides an overview of the book in its first essay, emphasizing the importance of the issue in contrast to the time invested in it. Both pieces encourage the reader to consider immigrant integration not simply as an *option*, but a *need*, for America to grow and to maintain



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international competitiveness. And both call for more comprehensive immigrant integration policies in education, health care, and welfare, themes which are amplified in the essays that follow.

Part 1: Defining the integration vision

This section introduces historical trends in integration and encourages the reader to ponder whether current policies help, hinder, or even create barriers to successful immigrant integration. In his introductory overview, Michael Fix defines successful integration as “a two-way process that involves change on the part not just of immigrants but members of the receiving community.” Further, “Successful integration builds communities that are stronger economically and more inclusive socially and culturally.” However, he also offers opposing views in the book, such as that expressed in Tamar Jacoby’s essay “Immigrant Integration—The American Experience.” Jacoby argues that U.S. integration policies should focus on the work immigrants can provide rather than any federal aid to which they may be entitled. Her essay poses the questions “How much is too much federal aid?” and “Should immigrants even be allowed to take part in receiving welfare distribution?” Jacoby agrees that immigrants are entitled to assistance such as access to education and the right to work, but maintains that successful integration occurs only when immigrants and government meet halfway. In her opinion, the foreign born must first prove a willingness to do the work necessary to create a better life for themselves. Only then should government provide assistance to the extent possible. Jacoby’s essay serves as an excellent starting point for a more thorough discussion and segues nicely into the essays that follow.

Roger Waldinger and Renee Reichl’s “Today’s Second Generation: Getting Ahead or Falling Behind?” scrutinizes the hardships immigrants face once they arrive in America. The authors compare and contrast first-generation (the foreign born), second-generation (those born in the United States to at least one foreign-born parent), and third-generation immigrants (those born in the United States to parents also born in the United States) in regard to quality of life. Using BLS Current Population Survey (CPS) data, Waldinger and Reichl disaggregate the immigrant population by generation and origin (race and ethnicity); generation and age group (“youth,” “young adult,” and “adult”); age group and educational attainment; and employed adults by generation, origin, and gender. They find that, with the exception of first- and second-generation Asians, who performed as well as the native born on many indicators, opportunities for most first-generation immigrants are severely limited. First-generation Mexican Americans, in particular, are more likely to start and remain in low-skilled occupations. Second-generation Mexican Americans fare much better than their parents in terms of quality of life, however, and the authors find no correlation between any of race, ethnicity, or gender and educational attainment among other second- and third-generation immigrants. Across the spectrum, school enrollment and graduation rates improve dramatically with each successive generation.

Part 2: The current state of rights and services

The title of this part of the book could be considered misleading, because some of the essays within it touch on other topics. For example, Donald Kerwin’s “Immigrant Rights, Integration, and the Common Good” focuses on tying the topic of immigrant integration to basic human rights rather than discussing the limitations and constraints of federal programs and services. Kerwin suggests that extending both “rights” (defined as that which entails “civic responsibilities” and expands the “common good”) and “membership privileges/attributes/benefits” to immigrants accelerates integration. He examines the historical background and legal framework surrounding immigration, delves into Supreme Court cases addressing limitations on their rights encountered by immigrants since 1886, and concludes, “Noncitizens have scant constitutional rights in immigration matters.” Although the court cases differ,

one similarity is ubiquitous: Congress' ability and willingness to exercise "plenary authority to make laws" that affect immigrants. Kerwin's essay thus challenges the reader to question the *context* of "rights." Specifically, what rights do immigrants really have if Congress has the authority to alter them whenever it deems necessary? Per Kerwin, successful immigrant integration policy should secure "rights" not only in a way that would "allow immigrants to integrate," but in a way that is "common to all of us." The federal cases he cites call to mind Chief Justice John Marshall's statement in the landmark case of *Marbury vs. Madison*:

The distinction between a government with limited and unlimited powers is abolished, if those limits do not confine the persons on whom they are imposed, and if acts prohibited and acts allowed, are of equal obligation....The Constitution is either superior paramount law, unchangeable by ordinary means, or alterable when the legislature shall please to alter it.

Limitations to immigrant rights are further analyzed in the essay by Julia Gelatt and Fix, "Federal Spending on Immigrant Families' Integration." In it, the authors explore major federal programs targeting immigrants (e.g., The Bilingual Education Act of 1968 and the No Child Left Behind Act of 2001). Gelatt and Fix determine that "targeted federal integration programs form a fragmentary system of support for immigrant families in U.S. communities" and point out that many federal programs either have declined in funding over the years or have simply "failed to keep pace with the growing

flows of new immigrants."

Part 3: Key policy issues

Leighton Ku and Demetrios Papademetriou's "Access to Health Care and Health Insurance: Immigrants and Immigration Reform" opens the discussion of policy issues. Its authors analyze CPS data and find the number of noncitizen immigrants without health care to be triple the number of uninsured U.S.-born citizens, regardless of income. Ku and Papademetriou discuss both private health insurance limitations that immigrants face and the lack of access to public health care.

Focusing mainly on the realm of education, the three essays that follow address other key policy issues: Amy Beeler and Julie Murray's "Improving Immigrant Workers' Economic Prospects: A Review of the Literature" examines the nonexistence of a "formal public system" in the United States that would allow for the verification of one's education in another country and the conversion of the courses taken to equivalent U.S. courses; "Educating the Children of Immigrants," by Julie Murray, Jeanne Batalova, and Michael Fix, discusses the increased legislative demands that have built up over time—and the inadequate funding provided to satisfy them—to better accommodate students with limited English proficiency; and Deborah Garvey's "Designing an Impact Aid Program for Immigrant Settlement" sheds light on the absence of policy measures to alleviate the burden faced by state and local governments with the highest influx of immigrants.

Thus, the last part of the book discusses the ongoing challenges immigrants face, such as the need to build their skills through adequate training, the need to promote entrepreneurship, and opportunities lost because of limited English proficiency. Policy recommendations include providing immigrants with affordable access to health care, making funding available for more quality research on how to best train immigrant workers, and offering aid packages to state and local governments with a heavy concentration of immigrants.

This book was written in 2007. Flash forward to 2015, and some individuals feel that health care for immigrants, for one, has found a solution: President Obama's Patient Protection and Affordable Care Act (ACA) of 2010. The ACA provides affordable health care to all who reside in the United States, regardless of citizenship status. Education, another key policy issue discussed in the last part of the book, has also seen action: the Deferred Action for Childhood Arrivals Act of 2012. Among other immigrant-oriented legislation, the act gives a segment of the undocumented immigrant population the opportunity to remain in the country without fear of deportation, allows immigrants to apply for work permits, and increases opportunities for economic and social incorporation. In addition, a number of states now grant in-state tuition to immigrants regardless of legal residence. There has also been legislation in the area of immigrants' right to work: in November 2014, President Obama signed an executive order granting work permits for millions of undocumented immigrants, providing a pathway for them to obtain citizenship. Although some of the contributions in Part 3 of the book are of limited value because of changes that have occurred since 2007, they encourage the reader to reflect on progress made, question today's challenges, and examine policies currently in effect.

This compilation of essays affords the reader good insight not only into the complexities of immigrant integration, but also into some ethical and moral issues surrounding it. Perhaps most importantly, *Securing the Future* enables the reader to gain a better understanding of the hardships immigrants in America encounter and to empathize with them as friends, neighbors, and colleagues. Reading it made me reminisce about the hardships and challenges I faced growing up as a 1.5-generation immigrant (the term, coined by Ruben Rumbaut of the University of California, Irvine, refers to immigrants who arrived at their destination country before or during adolescence) and feel a kinship with immigrants of any generation.

The book is well organized and a pleasure to read. I recommend it highly to anyone interested in the foreign born, immigrant integration, public policy, or social reform.

The role of BLS import and export price indexes in the real GDP

As one of the most closely watched economic measures in the world, gross domestic product (GDP) is the most extensive measure of goods and services produced in United States. People in the government and the private sectors closely follow the GDP. The U.S. Bureau of Labor Statistics (BLS) provides important data that the U.S. Bureau of Economic Analysis uses to create the GDP. This article examines how the import and export indexes published by the BLS International Price Program are used in calculating the real GDP.

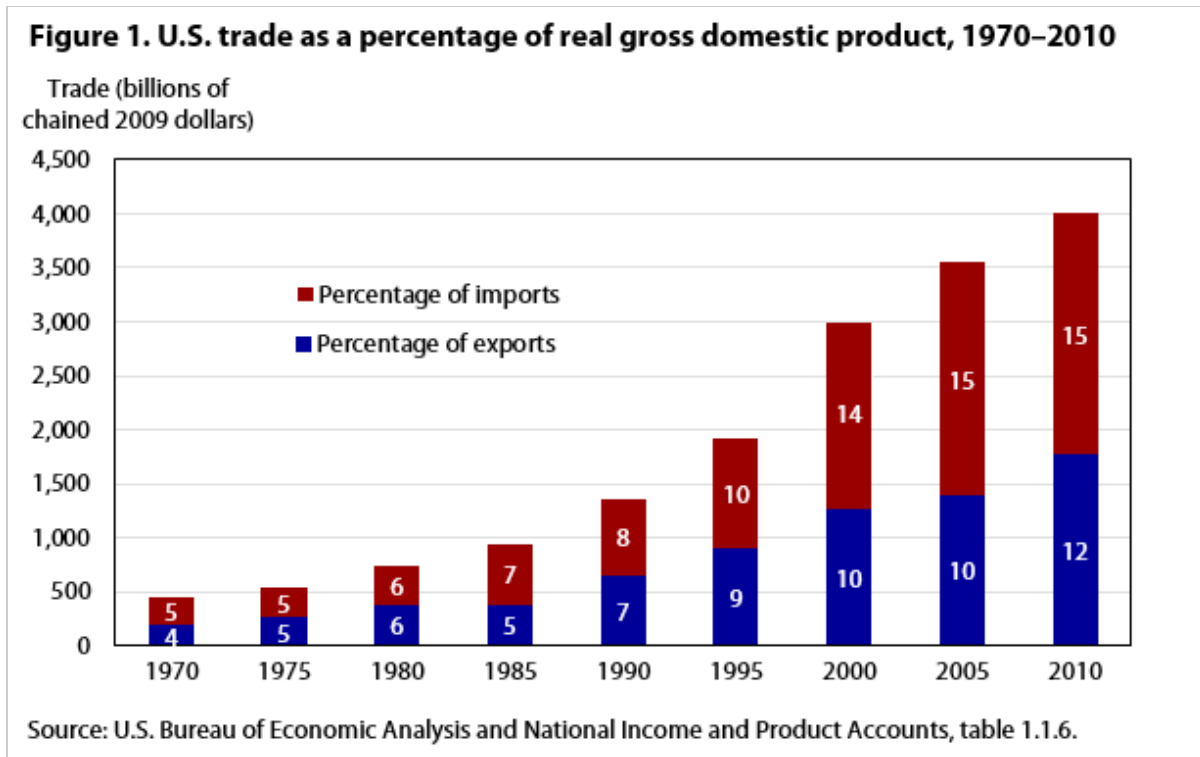
Over the past four decades, international trade has made a growing contribution to U.S. economic activity. Figure 1 shows that trade in goods and services increased from \$441 billion in 1970 to nearly \$4 trillion in 2010. As a percentage of gross domestic product (GDP), trade's share has tripled since 1970 to 27 percent of GDP in 2010.



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The GDP, published by the U.S. Bureau of Economic Analysis (BEA), is considered the most comprehensive measure of economic activity in the United States. Decisionmakers in both the government and the private sector widely follow the GDP. The U.S. Bureau of Labor Statistics (BLS) role in the creation of this important economic measure is essential. This article describes the U.S. import and export price indexes published by the BLS International Price Program (IPP). In addition, it explains how BEA uses these indexes to calculate the trade component of real GDP and two related measures of international competitiveness.

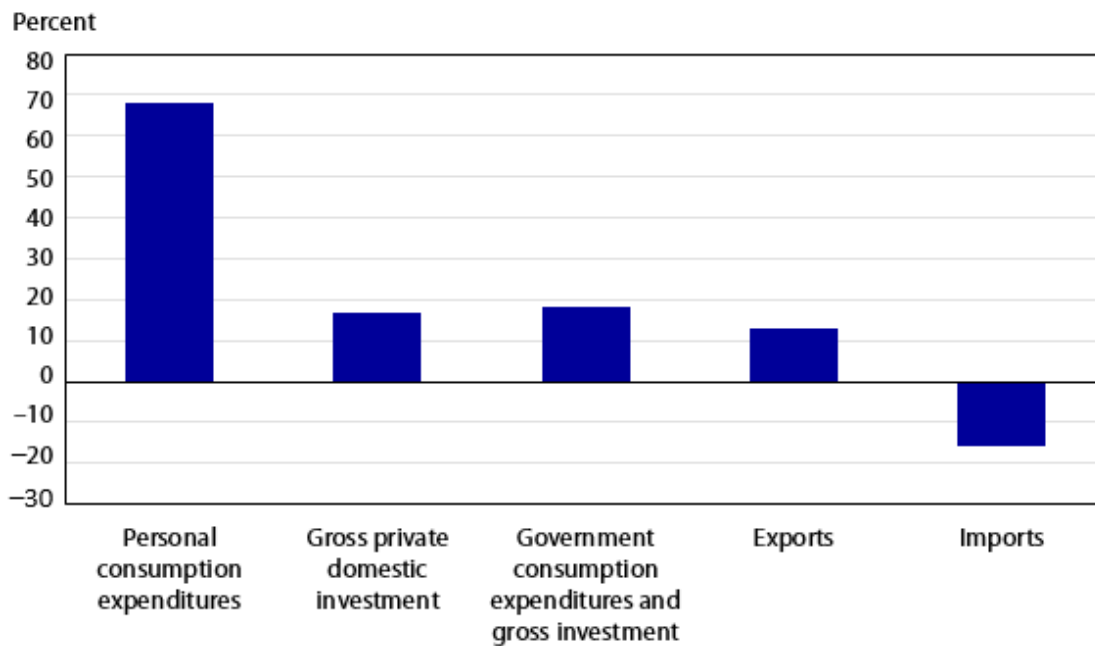
Overview of GDP

The GDP is the most comprehensive measure of the output of final goods and services produced in the United States and is one of the most closely watched economic statistics in the world.¹ A general representation of GDP is as follows:

$$\text{GDP} = \text{consumption} + \text{government expenditures} + \text{investments} + (\text{exports} - \text{imports})$$

This article focuses on the foreign-trade component of GDP, also known as “net exports” (exports less imports), and the method in which BEA uses the IPP U.S. import and export price indexes to adjust for inflation. Net exports measure the impact of the foreign-trade sector on the economy. If exports outweigh imports, then the foreign-trade sector has a positive contribution to GDP. Conversely, if imports outweigh exports, as is the current situation in the United States, then the foreign-trade sector has a negative contribution to GDP. Figure 2 shows how trade (exports and imports) compares with the other components of GDP in terms of contribution to total GDP.

Figure 2. Component shares of real gross domestic product, 2014



Source: U.S. Bureau of Economic Analysis and National Income and Product Accounts, table 1.1.6.

Overview of international prices

The IPP was created in the early 1970s to develop the statistics necessary to calculate inflation-adjusted measures of merchandise trade and GDP. The IPP published its first annual price indexes in 1973 and first quarterly indexes in 1974.² The Office of Management and Budget placed the IPP indexes on its list of Principal Federal Economic Indicators in 1982. By 1989, the IPP began publishing a limited number of monthly price indexes. Later that year, the U.S. Census Bureau (Census) began using the IPP U.S. import and export price indexes to deflate merchandise trade statistics.³ In 1993, the IPP began publishing all indexes monthly.

What the import and export price indexes measure

The import price indexes measure the monthly changes in the prices of goods and services that U.S. residents purchase from foreign suppliers. The export price indexes measure the monthly changes in the prices of goods and services that U.S. residents sell to foreign buyers. Currently, the IPP publishes over 1,000 indexes each month that cover nearly all U.S. foreign trade in goods and two categories of transportation services (airfreight and air passenger fares). Some indexes measure the price change for a broad category, such as all exports, while other indexes measure the price change for more specific commodities, such as corn exports. The IPP publishes the indexes at the lowest level of detail possible while meeting index quality criteria, such as adequate item coverage and response rates.⁴

Available indexes

The IPP publishes import and export price indexes for merchandise trade on the basis of three major classification systems:

1. The BEA end use, which is the system that Census and BEA use to construct the foreign-trade portion of the national income and product accounts (NIPA)⁵
2. The North American Industry Classification System, which government statistical agencies in the United States, Canada, and Mexico jointly developed to allow for greater comparability of business statistics among the North American economies⁶
3. The Harmonized System, which is based on a commodity classification system that the World Customs Organization developed and the U.S. International Trade Commission maintains in the United States to apply tariffs⁷

The IPP locality of origin indexes measure the monthly changes in the prices of goods imported from 15 countries and regions. The IPP also publishes indexes covering two categories of transportation services.

How the indexes are calculated

BLS uses a modified form of the Laspeyres index to calculate the IPP import and export price indexes. One feature of the IPP index calculation is that the quality of items is fixed so the indexes capture pure price changes and not quality changes. For example, if the import price of a computer processor increases solely because of an increase in its processing speed while all other factors remain the same, then the new price will be adjusted to show no change from the previous month.⁸

Interactions between agencies

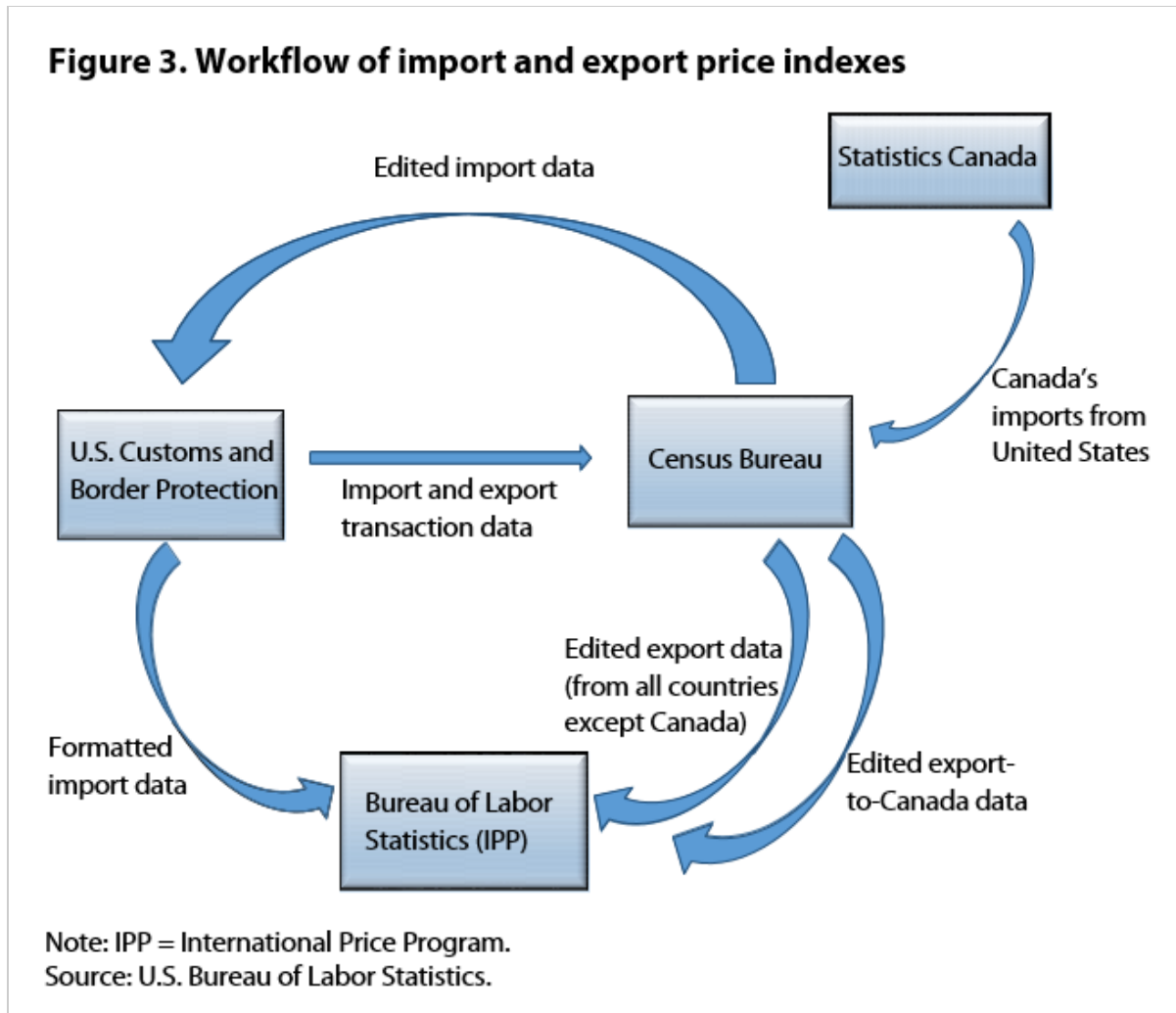


Figure 3 outlines the basic flow of data among the agencies involved in producing the import and export data used to create the import and export price indexes and eventually deflate GDP. First, U.S. Customs and Border Protection (Customs) collects data on import and export transactions. Customs collects many data points on each transaction, a few of which include country, Harmonized System classification number, and dollar value. Second, Customs sends the transaction data to Census for further processing and editing. Third, after processing the import transactions data, Census returns the data to Customs, which formats and sends the data to the IPP. For exports, Census sends the export data directly to the IPP after processing and editing. Statistics Canada sends data to Census on Canada’s imports from the United States. Census sends these data to the IPP to use for U.S. exports to Canada.

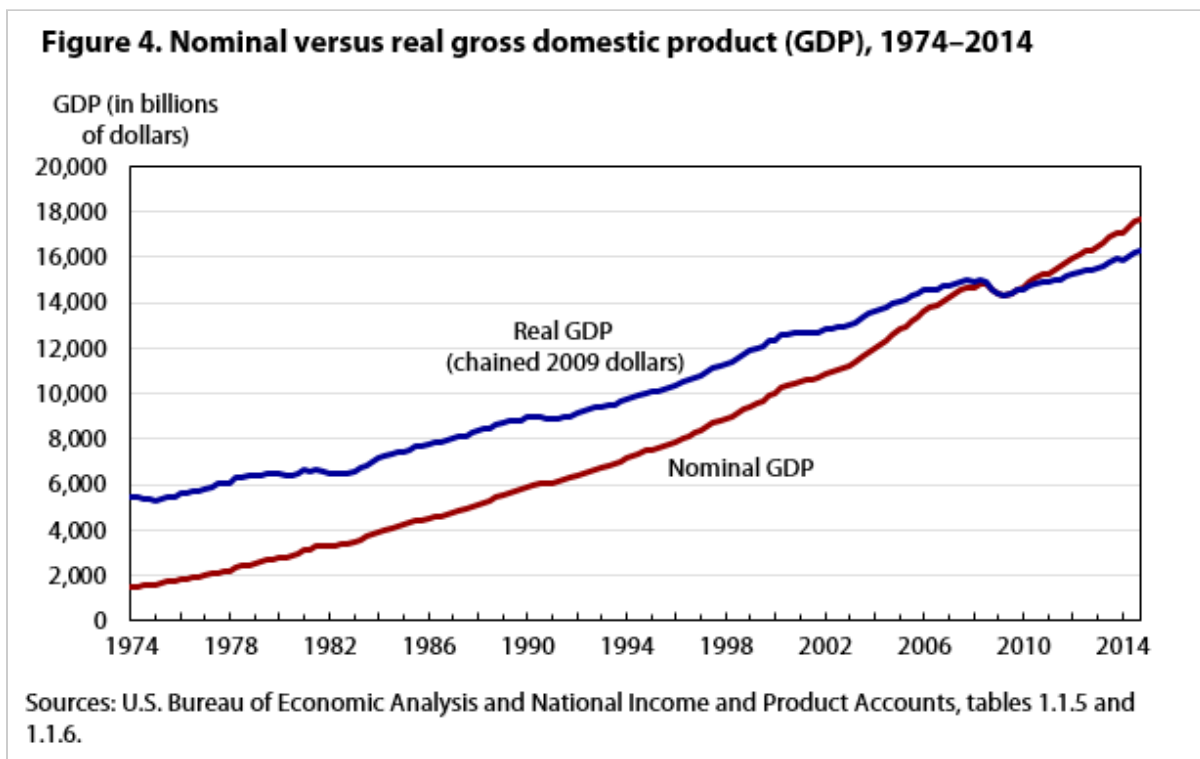
Uses of import and export price indexes

The import and export price indexes are important in the government statistical community and for government policymakers, private business, and academia. One essential function of the import and export price indexes is adjusting the foreign-trade portion of GDP and monthly merchandise trade statistics for inflation, both of which are released by the Department of Commerce. Government officials in charge of monetary policy also use import price indexes to gauge the impact of exchange rate fluctuations on the prices of imported goods, which can affect the prices of domestic output.⁹ Private companies use import and export price indexes for contract escalations. For

example, when a U.S. producer contracts with a foreign supplier, the contract can stipulate that the U.S. producer will change how much it will pay the supplier for a certain input, such as steel rebar. The U.S. producer determines this payment change on the basis of the movement of an IPP import price index that closely relates to that input. Finally, academic researchers use import and export price indexes to investigate many economic issues, such as the competitiveness of U.S.-produced versus foreign-produced goods and how fluctuations in exchange rates affect U.S. consumers.

Nominal versus real GDP

The BEA publishes GDP in both nominal and real terms. With nominal, or current-dollar GDP, the BEA estimates the dollar value of output in a given quarter without adjusting for inflation. Nominal GDP does not clearly show whether the change is a result of the quantity of goods and services output or is due to a change in the price of those goods and services. Real GDP, however, more clearly shows how the economy is performing over a long period because the effect of price changes is removed. BEA calculates real GDP by dividing the nominal value by an appropriate price index, thereby removing the effect of inflation. Figure 4 shows how real GDP grows over the period at a slower rate than the rate for nominal GDP because the effect of price fluctuations is removed.



Because GDP is a very broad measure of activity, an example of a specific component can help show how real and nominal series can move differently. For example, a severe drought hit the U.S. Corn Belt in the summer of 2012, sending the price index for exported corn to the highest recorded level since BLS began measuring monthly export prices.¹⁰ Corn is a major export crop for the United States and is the largest contributor to the U.S. trade surplus in agricultural goods.¹¹

Table 1 shows how the real export value eliminates the effect of price changes for corn exports during the period from June through August 2012. The nominal value of corn exports, as reported by the BEA, decreased throughout the period, but the price level of corn increased, which provides more information about the underlying economic activity.¹² Therefore, the increasing price of corn held the nominal export value “artificially” high. The real value of corn exports decreased much more than the nominal value, which clearly shows the underlying economic activity: the volume of exports (i.e., bushels of corn exported) decreased much more rapidly than the nominal value of exports suggested.

Table 1. Corn exports, June to August 2012

Month	Nominal corn export value (millions of dollars)	Corn export price index	Rebased export corn price index	Real corn export value (millions of dollars)	Difference between real and nominal corn exports (millions of dollars)
June	\$926	277.1	100.0	\$926.00	\$0
July	809	330.4	119.2	678.70	-130.30
August	733	367.1	132.5	553.20	-179.80

Sources: U.S. Bureau of Labor Statistics and U.S. Bureau of Economic Analysis.

Price indexes are based to a specific period, which varies from index to index. To convert a nominal series to a real series, one must rebase the price index to correspond to the period examined. In table 1, the export price index of corn is rebased by dividing each month’s price index level by June’s price index level (277.1). In other words, the rebased price index levels for each month are set in terms of June prices.

The real export value of corn is computed using equation (1) as follows

$$\text{Real export value} = (\text{Nominal export value} / \text{Rebased price index}) \times 100 \tag{1}$$

Import and export price indexes used in deflating GDP

Why are the IPP import and export price indexes the most appropriate for deflating net exports? Currently, no other statistics exist that measure prices of goods imported into or exported from the United States.¹³ As such, the import and export price indexes the IPP produces are essential in deflating the net exports portion of GDP.¹⁴

As mentioned earlier, BLS publishes import and export price indexes using the BEA end-use classification system, which the BEA uses to deflate the foreign transactions sector of GDP. The BEA NIPA tables provide a wealth of data that underlie the final headline GDP figure. In addition, NIPA tables provide the general process of how the BEA uses the IPP import and export indexes to deflate foreign transactions. For example, the NIPA tables show how BEA uses the IPP export price indexes to deflate exports of foods, feeds, and beverages. The third line of the NIPA table 4.2.5 contains the nominal value for exports of foods, feeds, and beverages.¹⁵ For the third quarter of 2012, the total was \$148 billion.¹⁶ NIPA table 4.2.4 contains the price indexes that correspond to the BEA end-use categories for goods, as well as to various categories of services. The IPP import and export price indexes are a prominent input to this table, especially in the categories of goods. In NIPA table 4.2.4, the price index value for the third quarter of 2012 for exports of foods, feeds, and beverages was 135.58. As shown in equation (1), to calculate a real value, divide the nominal value (NIPA table 4.2.5) by the price index (NIPA table 4.2.4) and multiply by 100.

Applying the equation to the example for exports of foods, feeds, and beverages shows that the real value for the third quarter of 2012 is \$109.2 billion, which is published in NIPA table 4.2.6.

The BEA uses a much finer level of detail of the IPP import and export price indexes than that which is published in the NIPA tables. The example in tables 2 and 3 uses simulated data and outlines the overall process of how the BEA uses the IPP indexes to build up from commodity-level data many of the price indexes in NIPA table 4.2.4. Although the example is for exports, the same process occurs for imports. Continuing with the example for foods, feeds, and beverages, assume that the category comprises only corn, soybean, and wheat.¹⁷

Table 2. Quarterly commodity export prices weighted by monthly trade value

Commodity	Month	BLS price index percent change (not seasonally adjusted)	BEA price index		Seasonally adjusted monthly trade value (millions of dollars)	Monthly trade value weight	Monthly weighted price index (seasonally adjusted)	Quarterly price index (seasonally adjusted)
			Not seasonally adjusted	Seasonally adjusted				
Corn	January	1.2	207	215	\$2	0.29	62.35	—
	February	3.0	213	210	1	.14	29.40	—
	March	.8	215	220	4	.57	125.40	—
	—	—	—	—	—	—	—	217.15
Soybeans	January	2.0	214	210	5	.38	79.80	—
	February	1.8	218	215	7	.54	116.10	—
	March	.9	220	220	1	.08	17.60	—
	—	—	—	—	—	—	—	213.50
Wheat	January	1.0	202	220	3	.30	66.00	—
	February	.7	203	210	5	.50	105.00	—
	March	3.0	209	215	2	.20	43.00	—
	—	—	—	—	—	—	—	214.00

Source: Data are simulated.

First, the BEA advances the not seasonally adjusted commodity-level price indexes for each month in a quarter by the percent change in the corresponding IPP price index. For example, the IPP February price index for corn increased 3 percent from January, so the BEA advances the January price index for corn by 3 percent from 207 to 213. Thus, the levels of the BEA price indexes may differ from the IPP price indexes, but they move by the same rate each month. Second, the BEA seasonally adjusts the commodity-level price indexes, if necessary.¹⁸

Next, the monthly price indexes must be converted to a quarterly price index for each commodity. To do so, the BEA weights each monthly price index by the monthly share of the quarterly value. The final commodity-level quarterly price index is the sum of the monthly trade value-weighted indexes.

Finally, the quarterly price indexes for each commodity are summed to the price index for the aggregate end-use category, which is published in NIPA table 4.2.4. As shown in table 3, this computation is done by multiplying the quarterly price index for each commodity (e.g., corn, soybeans, and wheat) by the proportion of each commodity's quarterly trade value within the aggregate end-use category's (e.g., foods, feeds, and beverages) quarterly trade value.

Table 3. Creating a quarterly end-use price index from commodity weighted quarterly price indexes

Commodity	Seasonally adjusted quarterly trade value (millions of dollars)	Quarterly trade value weight	Quarterly price index	Quarterly weighted price index
Food, feeds, and beverages	—	—	—	212.37
Corn	\$7	0.23	217.15	49.94
Soybeans	13	.43	213.50	91.81
Wheat	10	.33	214.00	70.62

Source: Data simulated.

Because trade has grown in importance in the United States (figure 1), having statistics that measure the real purchasing power of income that the U.S. economy generates as a measure of international competitiveness is useful. The BEA produces such a statistic called command-basis GDP, and again, the IPP price indexes are essential in constructing it. Command-basis GDP measures the value of goods and services the United States can afford to purchase in the world market, in contrast with conventional GDP, which measures the value of goods and services the U.S. economy produces. Command-basis GDP is calculated similarly to conventional GDP, except that the value of exports is deflated by a price index that includes the IPP import price indexes as opposed to the IPP export price indexes.¹⁹

A statistic that has grown in importance along with the increased amount of trade is called “terms of trade” and is another measure of international competitiveness. The terms of trade statistic measures the relationship between the prices U.S. producers receive for their exports and the prices U.S. purchasers pay for their imports. The ratio of an export price index to the import price index can represent terms of trade. Thus, if the U.S. export price index increases, all else equal, then imports are cheaper in terms of exports. As a result, the United States would have to export less to import the same amount of goods and services.

Conclusion

This article has shown how the IPP import and export price indexes are critical in providing policymakers, researchers, and the public with an inflation-adjusted measure of GDP, which provides the most comprehensive view of economic activity in the United States. In addition, when trade comprises an increasing share of economic activity in the United States, the IPP import and export price indexes allow the BEA to derive important measures of competitiveness, such as command-basis GDP and terms of trade.

SUGGESTED CITATION

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NOTES

¹ For a brief history of GDP and an overview of how it is measured, see J. Steven Landefeld, Eugene Seskin, and Barbara Fraumeni, "Taking the pulse of the economy: measuring GDP," *Journal of Economic Perspectives*, Spring 2008, pp. 193–216.

² "International price indexes," *BLS Handbook of Methods* (U.S. Bureau of Labor Statistics, April 1997), chapter 15, https://www.bls.gov/opub/hom/ho_mch15_a.htm.

[3](#) For more information on how the U.S. Census Bureau uses the International Price Program U.S. import and export price indexes to deflate merchandise trade statistics, see “Adjustment of U.S. merchandise trade data for price change” (U.S. Census Bureau, Foreign Trade Division, March 2004), <https://www.census.gov/foreign-trade/aip/priceadj.html>.

[4](#) For example, the International Price Program (IPP) publishes the end-use export index *other agricultural goods* (Q003) with five indexes below it that offer details on more specific product groups, such as *meat, poultry, and other edible animal products* (Q00300), and *vegetables and vegetable preparations and juices* (Q00320). To ensure data quality for these lower level indexes, the IPP requires that a certain number of companies submit prices each month and a certain number of items have prices updated.

[5](#) For the current list of end-use categories, see <https://www.census.gov/foreign-trade/reference/codes/enduse/imeumstr.txt> for imports and <https://www.census.gov/foreign-trade/reference/codes/enduse/exeumstr.txt> for exports.

[6](#) For more information on the North American Industry Classification System, see <https://www.census.gov/eos/www/naics/>.

[7](#) The U.S. Census Bureau maintains the codes used for exports, which are based on the import codes that the United States International Trade Commission developed. For exports, see <https://www.census.gov/foreign-trade/schedules/b/index.html>.

[8](#) For additional information on the International Price Program quality adjustment practices, see <https://www.bls.gov/mxp/ippfaq.htm#item13> and the pricing section of *BLS Handbook of Methods*, <https://www.bls.gov/opub/hom/>.

[9](#) Etienne Gagnon, Benjamin R. Mandel, and Robert J. Vigfusson, “Missing import price changes and low exchange rate pass-through,” Federal Reserve Bank of New York Staff Reports, no. 537, January 2012, revised July 2012, http://www.ny.frb.org/research/staff_reports/sr537.pdf.

[10](#) The main corn-growing region of the United States includes Iowa, Illinois, Nebraska, Minnesota, Indiana, Wisconsin, South Dakota, Michigan, Missouri, and Kansas. For more information on the direct impacts of the drought on corn prices, see Will Adonizio, Nancy Kook, and Sharon Royales, “Impact of the drought on corn exports: paying the price,” *Beyond the Numbers: Global Economy*, vol. 1, no. 17, November 2012, <https://www.bls.gov/opub/btn/volume-1/impact-of-the-drought-on-corn-exports-paying-the-price.htm>.

[11](#) See “U.S. corn trade” (U.S. Department of Agriculture, Economic Research Service, January 15, 2015), <http://www.ers.usda.gov/>.

[12](#) For detailed goods trade data, see “International accounts products for detailed goods trade data: U.S. trade in goods (IDS-0182)” (U.S. Department of Commerce, Bureau of Economic Analysis, June 5, 2015), http://www.bea.gov/international/detailed_trade_data.htm.

[13](#) For a detailed discussion on why the International Price Program indexes are the most appropriate for measuring export prices, see Bill Alterman, “Are producer prices good proxies for export prices?” *Monthly Labor Review*, October 1997, pp. 18–32, <https://www.bls.gov/mlr/1997/10/art3full.pdf>.

[14](#) See the “Net exports of goods and services,” *National Income and Product Accounts Handbook* (U.S. Department of Commerce, Bureau of Economic Analysis, November 2014), chapter 8, pp. 8-17–8-23, <https://apps.bea.gov/national/pdf/chapter8.pdf>.

[15](#) The NIPA tables are available at “National data, GDP & personal income” (U.S. Department of Commerce, Bureau of Economic Analysis), https://apps.bea.gov/iTable/index_nipa.cfm.

[16](#) Note that the Bureau of Economic Analysis publishes most dollar-value data seasonally adjusted to annual rates. A discussion of annual rates is beyond the scope of this article.

[17](#) Wheat, soybeans, and corn together make up 34 percent of the weight for the International Price Program *foods, feeds, and beverages* end-use export price index (based on 2012 trade weights).

[18](#) Seasonal adjustment is a statistical technique that removes seasonal variations from economic data series that occur in the same month or quarter each year (e.g., consumer spending, which increases every December and decreases every January). Seasonally adjusted data series better reflect economic trends that are not linked to recurring economic activity.

¹⁹ For command-basis gross domestic product (GDP), the Bureau of Economic Analysis uses the gross domestic purchases price index to deflate both exports and imports. For more information on command-basis GDP, see *System of National Accounts, 2008* (United Nations and World Bank, 2009), paragraph 15.188, <http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf>. The System of National Accounts refers to command-basis GDP as real gross domestic income, but the concept is identical.

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