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Workforce Outcomes Among WIA/Trade Training Completers

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Recent federal legislation compels states to empirically measure workforce outcomes among training program completers. In 2010, the U.S. Department of Labor solicited proposals to fund the development of state workforce longitudinal databases. The first round of Workforce Data Quality Initiative (WDQI) grants was awarded in July 2011 to twelve state agencies. One year later, an additional twelve states received grants. Finally, eleven more states were funded in 2013 and 2014. The typical grant award is one million dollars and the grant period is three years.

The purpose of the WDQI monies is to direct states' attention to earnings returns from program completion over time. Prior to this initiative, decisions on curriculum development and allocation of education resources were not systematically driven by empirical evidence on student workforce outcomes. And on the workforce side, the labor market community had not established a well-defined data infrastructure or research protocol to address the needs of the education community.

In 2015, the U.S. Department of Labor implemented the Workforce Innovation

and Opportunity Act (WIOA) with a goal to assist job seekers access employment, education, training and support services. This federal legislation unifies strategic planning across four core programs: Title 1 Adult, Dislocated Worker and Youth programs; Adult Education and Literacy programs; the Wagner Peyser Employment Service; and Title 1 of the Rehabilitation Act programs. WIOA strengthens the coupling of the education and labor market communities and reinforces the overriding objective to establish empirical evidence on student workforce outcomes. Whereas WDQI centers on statewide solutions to longitudinal workforce outcomes, WIOA reinvests in local workforce boards to coordinate and align local workforce programs to meet local workforce priorities.

The imperative for WDQI and WIOA is to establish a training and education infrastructure in which readily-available information on workforce outcomes guides an individual's choice on pathways for study. An overriding assumption of this federal legislation concerns the scope of relevant information in shaping consumer decision making. The community of WDQI and WIOA program

implementers has mostly presumed an extension of the education paradigm with regard to workforce outcomes. That is, educators identify the student as the unit of analysis and, therefore, compile information on demographic characteristics, curriculum exposure, classroom experience, and academic achievements tied to a particular student. This paradigm of the individual as the unit of analysis has transitioned to frame also discussions of workforce outcomes. The conventional narrative, then, focuses on the individual and poses two questions: is the individual employed and, if so, what are the associated earnings?

The conventional narrative yields an incomplete understanding of outcomes. Most grievous, it hinders important reference group comparisons and fails to establish a relevant context for workforce outcomes. We contend that reference group comparisons and context are critical components for a robust consideration of return-on-investment. We propose an enhanced narrative to workforce outcomes that argues for job-based measures. In the enhanced narrative, the unit of analysis is the pairing of an individual's social security number with a specific employer's UI account number. This pairing, then, represents a job and establishes the underpinning for job-based outcome



measures. In contrast, the conventional narrative uses individual-based measures, simply an individual's social security number as the unit of analysis.

The transition from the conventional narrative to the enhanced narrative reorients the outcome discussion to the individual's job. The reference group comparison for program completers is no longer limited to the program cohort (conventional), but extends to other workers who share similar demographic characteristics (enhanced). The relevant context for outcomes is no longer limited to whether an individual is employed (conventional), but extends to measures of job quality, such as job attachment (enhanced).

A critical objective of the WDQI/WIOA imperative is to understand labor market outcomes over time. This legislation importantly extends the conversation on workforce outcomes from a point-in-time comparison to analyses over an extended period of time, i.e. a longitudinal framework. This shift in analytical perspective is motivated by

the recognition of earnings profiles in a segmented labor market that manifest in distinct windows of time. Certain study programs offer completers immediate earnings returns to education, e.g., computer engineers, whereas returns for graduates from other programs are best understood in a four- to eight-year window, e.g., liberal arts.

An assumption in the federal legislation framework is that outcomes will serve to inform consumers as to return-on-investment, and function to incentivize education choice. This assumption presumes accurate and appropriate measurement of workforce outcomes, of which expected earnings is the most salient outcome to incentivize choice. The primary source data for the development of outcome measures is the quarterly Unemployment Insurance Wage Records, a compilation from quarterly employer reports on each worker's employment and earnings. The conventional approach to statistical estimation of earnings outcomes follows the education paradigm of individual as the unit of analysis. In contrast, the enhanced approach,

which draws on estimation of job-based earnings, overcomes deficiencies in the conventional approach that hinder measurement accuracy.

Following a presentation on enhanced measures for workforce outcomes and a discussion on data sources and methods, we present findings on WIA/Trade training completers who exited training programs in 2012Q2.

Enhanced Narrative on Workforce Outcomes: Job-Based Measures

In 1999, the U.S. Bureau of Census initiated the Local Employment Dynamics (LED) Partnership, a strategic collaboration with state Labor Market Information agencies (http://lehd.ces.census.gov/state_partners). The mission of this innovative statistical program is development of data products related to the employment flow of workers. These products are jointly developed by Census and the state partners. Among its most prominent

data products is the Quarterly Workforce Indicators (QWI's) that include job-based measures of worker employment, worker employment change, and worker earnings. Each state provides Census two source data files, Quarterly Unemployment Insurance (UI)



Wage Records and Quarterly Census of Employment and Wages (QCEW). The former contains worker employment and wage records by employer account. The QCEW reports total employment and wages by the physical location of employers' establishments (place of work). Census links these records longitudinally and matches the worker and employer records to federal administrative databases thus expanding the analytical scope to include, for example, worker demographics and residence.

For the purpose of this study, the QWI's are predicated on the movement of workers from one employer to another, as well as the transition of firms in the conduct of merger/acquisition activity. As mentioned above, a job is the pairing of a worker's concatenated SSN/Name with an employer's UI Account Number. Census links these data longitudinally, which affords to the analyst the ability to determine the year/quarter when a worker is hired into a job and separated from a job.

A worker is hired into a job when it is determined that a worker-employer pairing appears in year/quarter (t) but does not appear in the previous year/quarter (t-1). Conversely, a separation occurs when a worker-employer pairing appears in a year/quarter (t) but does not appear in the subsequent year/quarter (t+1). Of significant import, then, this analytical framework makes it possible to measure job attachment. Hire and separation represent the two end points of a job spell and the persistence of the worker-employer pairing between these end points produces a measure of job attachment.¹

Depending on the availability of state data, the Quarterly Workforce Indicators

can extend back nearly two decades and offer a unique glimpse into the structural and business cycle impacts on worker flows in local labor markets. As mentioned, the LED partnership extends its analytical capability by matching worker demographics available in federal databases. The range of these demographics enriches an understanding of worker flows, but, unfortunately, the LED partnership does not provide for the development of worker flow outcomes for state-designated subpopulations. For the purpose of this report, the LED program does not produce outcomes for state-designated subpopulations of program completers.

To address this critical information gap and in support of the Workforce Data Quality Initiative, the Illinois Department of Employment Security (IDES) created Workforce Development Services (WDS), a strategic partnership with Illinois State University (ISU).² In the context of this research endeavor, WDS constructed a statistical infrastructure to replicate LED quarterly workforce indicators for completers from WIA/Trade training programs administered by the Illinois Department of Commerce and Economic Opportunity (DCEO) – a worker population not covered by the LED program. For this report, WDS produced two job-based outcome measures for training completers – job attachment and earnings by job attachment. These completer outcomes produced by WDS are comparable measures to Illinois worker outcomes produced by LED. This comparative context affords a unique and critical perspective on the labor market experience of subpopulations of training completers and other Illinois workers. We explore this comparison by demographic characteristics, such as age and industry.

Data and Methods

The Illinois Department of Commerce and Economic Opportunity conducts employment and training programs under the auspices of the Workforce Investment Act, and for individuals affected by trade-related dislocation. The WIA program serves adults, dislocated workers (for reasons other than trade), and youth (ages 14-21). The types of services (core, intensive, and training) that are made available to a particular adult or dislocated worker depend on an assessment of the individual's current skill set with the likelihood that the training will lead to full-time employment. Youth training programs focus more on educational and case-management services and have a goal of identifying near-term education opportunities or a career path.

The NAFTA-Transitional Adjustment Assistance (NAFTA-TAA) Program began in 1993 as a requirement of the North American Free Trade Agreement Implementation Act of 1993. Participants

in the TAA employment and training program are required to document export of their employer's production to Canada or Mexico or either trade-related job loss or diminished wages. Moreover, their employer must have a certified Trade Adjustment Assistance petition issued by the U.S. Department of Labor (www.doleta.gov/programs/factsht/nafta.cfm). Program benefits include training and income support.

The individuals selected for this study represent WIA and TAA program participants who exited training in 2012Q2 for the reason that they entered employment (number of observations = 3,073 persons). This subpopulation of individuals comprises slightly less than one half of all individuals who exited WIA/Trade employment and training programs in 2012Q2 (total observations = 6,369 persons). Other reasons for program exit include: transition to education or military (469 persons), client-initiated termination (1,069

persons), and other (1,759 persons).

In the remainder of this analysis, we consider individuals who complete training for entered employment as completers. Verification for entered employment includes employer name and



contact, position title, and documentation of earned income (e.g., pay stub, W2 form, or 1099 form). In addition, the employment must be covered under state unemployment insurance law. Major exclusions from UI coverage include self-employment and certain agricultural, domestic, railroad and government work.

Methods

This analysis centers on job-based measures of employment and earnings. Job attachment captures employment behavior that can impact earnings outcomes and, thus, is a critical dimension of labor market behavior. Again, the conventional narrative limits itself to individual-based outcome measures that, more often than not, are estimated for a particular year/quarter and disregard the implications of labor market flows for employment and earnings. We adopt the enhanced narrative, which highlights the role of job persistence in outcome measures based on the linked-longitudinal pairing of an SSN, worker name, and employer account number.

The enhanced narrative enables us to present employment and earnings outcomes for jobs that persist across two or three consecutive quarters, depending on the specific measure. This perspective is essential to understanding the job attachment of workers over time. Our research addresses whether the pattern of job attachment among completers from DCEO WIA/Trade training is comparable to other Illinois workers. Do completers demonstrate a level of job stability exhibited by other workers? And, if so, is this stability observable immediately upon training completion or is there an extended transition period?

Job attachment is also a vital analytical perspective for accurate measuring of

earnings outcomes. The conventional narrative typically sums all earnings reported for each unique SSN then calculates an average across all the summed earnings. While some practitioners of this approach may apply a slightly more sophisticated approach in summing earnings for unique concatenations of SSN and name, they do not incorporate the employer into their computational framework. This omission precludes measures of job attachment from the conventional approach and, we argue, prevents accurate estimation of earnings outcomes. In particular, this approach suffers from the confounding effects of partial employment and multiple jobholding.

The source data for earnings outcomes is the quarterly UI Wage Records. Each Illinois employer is mandated by state law to report the SSN, name, and total earnings (UI-covered earnings) for each employee in a thirteen-week period (4 quarterly files in a calendar year).³ What is not known for a particular SSN is the number of weeks worked within the thirteen-week period. If an individual is hired or separated at some point in the quarter, the earnings for that individual represent partial employment. In the conventional scheme, partial-employment earnings receive the same weight as full-quarter earnings in the calculation of average earnings for a specific year/quarter.

The enhanced narrative, with the added benefit of job attachment, proposes a reasonable solution to the potential confounding effect of partial employment on earnings. In the enhanced scheme, analysts can filter individuals who hold a job, i.e., paired to the same employer, for three consecutive quarters. The researcher establishes a reference quarter (t), views the SSN-Employer/UI Account

pairings in the reference quarter and determines whether those same pairings exist in the prior quarter (t-1) and in the subsequent quarter (t+1). By definition, these individuals are employed by the same employer in quarter (t), (t-1), and (t+1). It is reasonable to assume, then, that an individual who establishes three-quarter job attachment in the reference

quarter (t) works for a specific employer at the beginning and end of the quarter. In this framework the issue of partial employment is minimized, even largely eliminated. Consequently, the enhanced narrative estimates average earnings based on jobs in the reference quarter that meet the condition of three-quarter attachment.⁴

Workforce Outcomes: Findings

Job Attachment

For the remainder of this paper, individuals who complete the DCEO WIA/Trade training program and exit for reason of retained employment are referenced as “completers”. The conventional narrative on workforce outcomes typically offers only a count of completers who are employed. In 2012Q2, the quarter of the transition, nearly 2,750 of the completers (89.3%) are employed as reported in the quarterly UI wage record database (see **Chart 1**). One year prior to their training completion, less than 1,500 of these individuals have UI-covered employment. In the quarters following exit, the employed count declines modestly through 2014Q2. Two years after exit, there are 2,404 employed

persons among the original 3,079 program completers, 78.1%.

The enhanced narrative augments the employment count with a count of jobs held by program completers. In the quarter of transition, the 2,750 employed completers hold nearly 3,500 jobs (see **Chart 1**). In fact, twenty-five percent of these jobs are held by individuals

Chart 1. Completer Employment and Jobs Held

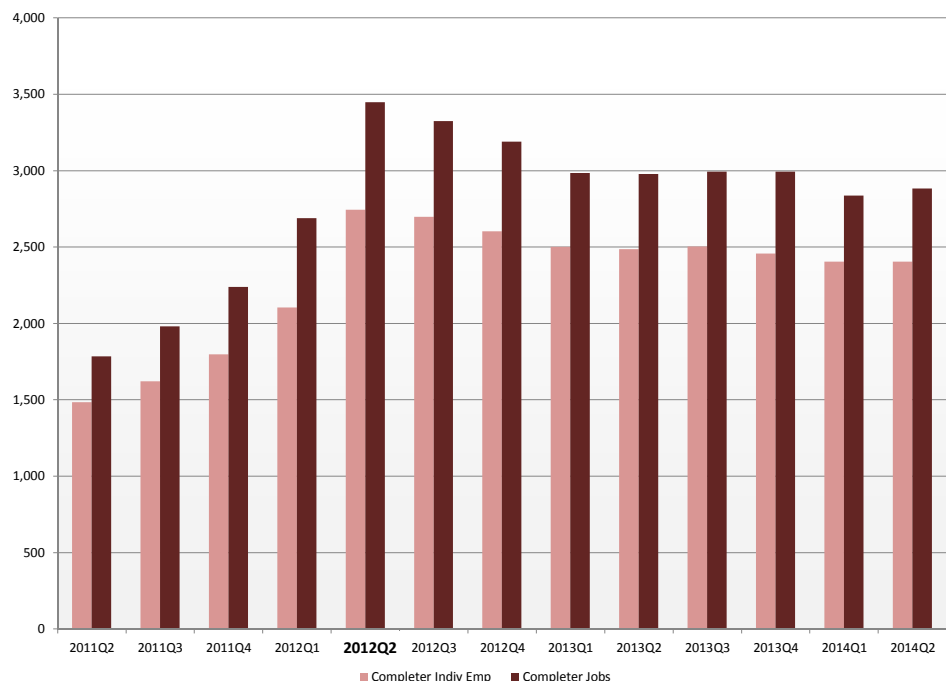
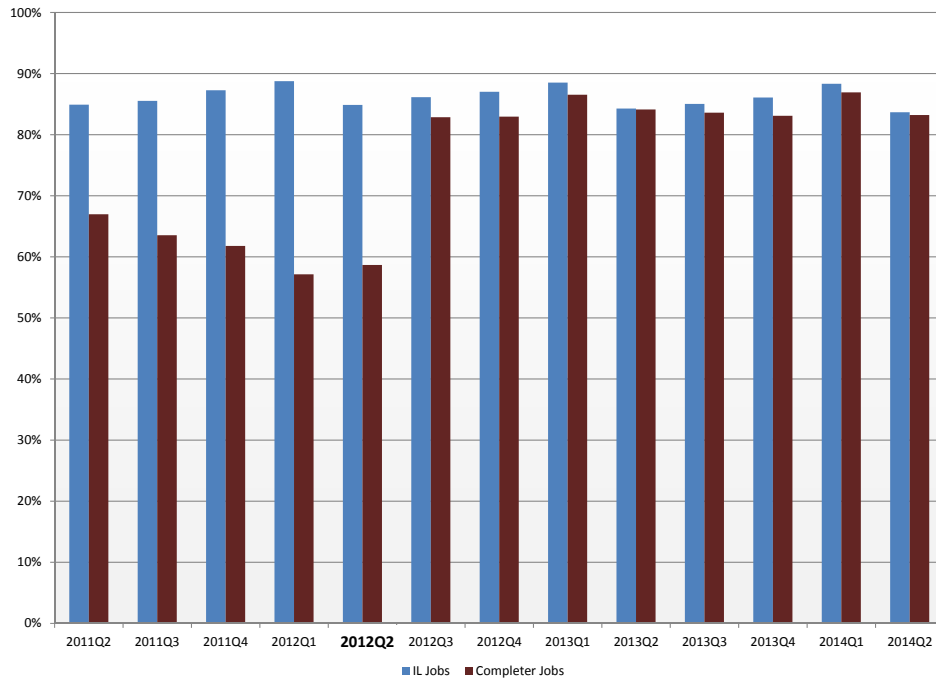


Chart 2. Two-Quarter Attachment for IL Jobs and Completer Jobs



with at least one other job. In the post exit period, the job count follows the general pattern of employment, a gradual decrease. However, an additional dynamic that impacts the job count trend is a decrease in multiple jobholding to approximately twenty percent.

The enhanced narrative recasts the discussion on workforce outcomes from employment to jobs and, by extension, to job attachment. To what extent does the pairing of an individual with a specific employer persist from one quarter to the next? Or, said differently, what is the pattern of completer job attachment?

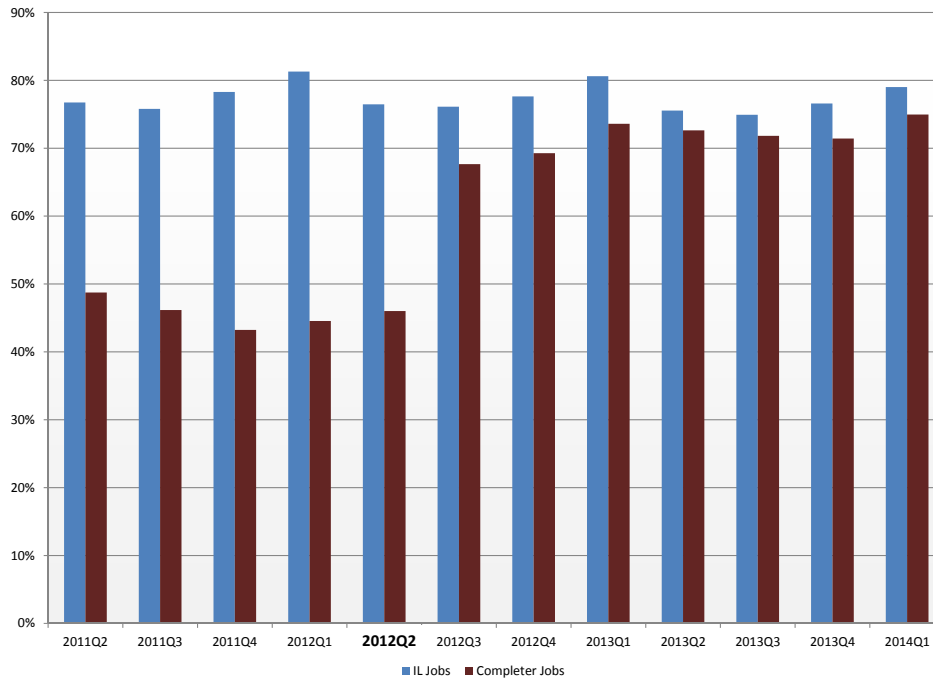
Importantly, we can compare attachment among completers to all Illinois workers because of the replication of Census Bureau estimation methodology by

the Workforce Development Services partnership between IDES and ISU. The Census estimates for all Illinois workers is a benchmark and serves as a comparative context.

In 2012Q2, the transition quarter, less than sixty percent of completers remained in the same job for two consecutive quarters (six months), significantly less than the two-quarter attachment of the benchmark for all Illinois workers (nearly 85%) (see **Chart 2**). However, the performance of completers quickly and dramatically shifts post completion. Two-



Chart 3. Three-Quarter Attachment for IL Jobs and Completer Jobs



quarter attachment among completers' jobs surges above eighty percent in 2012Q3 and remains at that elevated level for the duration of the period under study. Indeed, job attachment among completers' jobs and all Illinois jobs is nearly identical post completion.

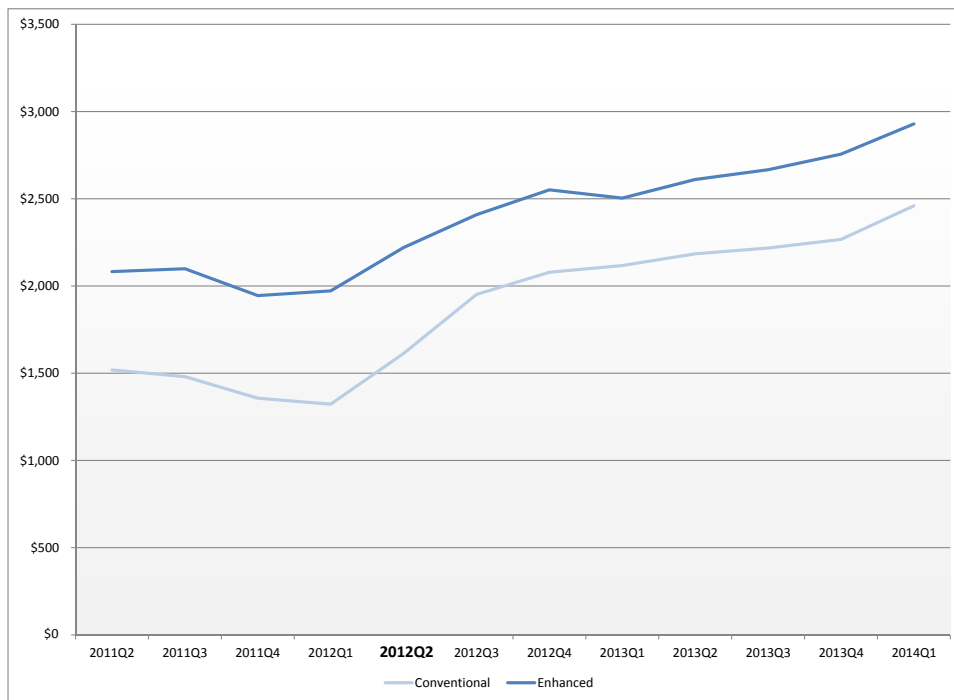
Chart 3 displays job attachment for three consecutive quarters, i.e., the pairing of an individual with a specific employer for nine months. Again, notice the dramatic upward movement in job attachment among completers in the quarter immediately following exit, the percentage of three-quarter attachment jumps from 46% to 67.6%. Their attachment exceeds 73% in 2013Q1 and, then, follows a slight seasonal pattern somewhat more muted than for the benchmark for all Illinois workers. In the last year of data, three-quarter job attachment is reasonably similar between completers and Illinois workers, 72.7% and 76.5%.

In general, individuals who exit the WIA/Trade training program in 2012Q2 for reasons of entered employment demonstrate a level of job attachment similar to Illinois workers within a year of transition. This finding holds whether the perspective on job attachment is two or three consecutive quarters. The next question, then, concerns the degree of similarity or dissimilarity in the earnings pattern between completers and Illinois workers with identical job attachment.

Earnings Outcomes and Job Attachment

We present earnings outcomes for WIA/Trade program completers using both the conventional and enhanced narrative framework for a two-year window beginning in 2012Q2, the completion of program training. That is, the conventional approach calculates earnings based on an average across all employment records and the enhanced approach calculates earnings

Chart 4. Earnings Comparison for Completers: Conventional vs. Enhanced Measures



for jobs held for three consecutive quarters. As mentioned, the conventional earnings estimation is confounded by instances of partial employment and multiple jobholding that are lessened significantly using the job attachment approach in the enhanced estimation.

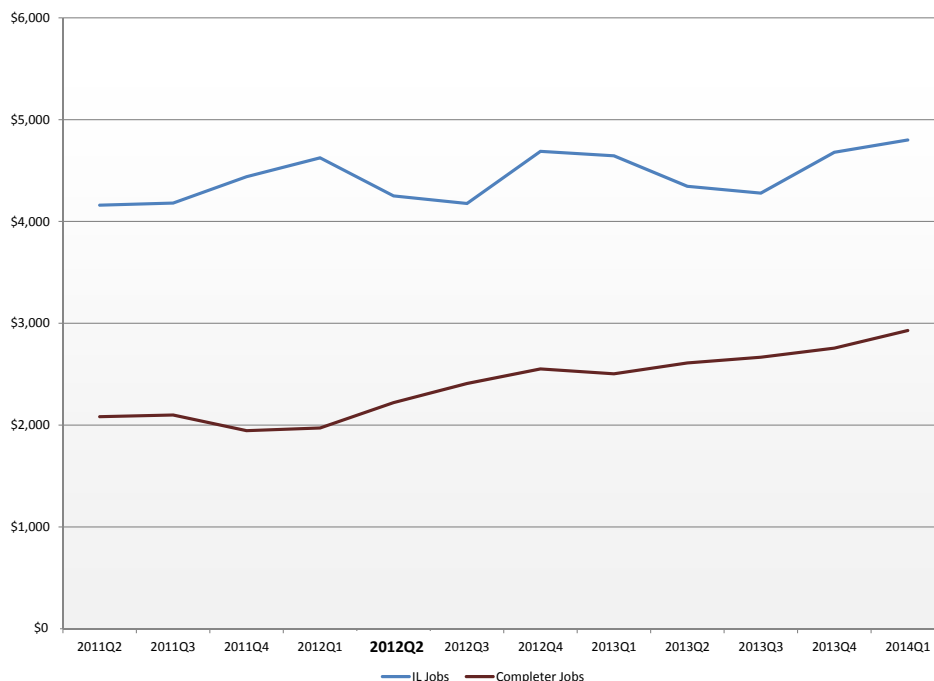
At the time of program completion in 2012Q2, the conventional average monthly earnings is \$1,613, whereas the enhanced average monthly earnings is more than one-third higher, \$2,221 (see **Chart 4**). In 2014Q1, conventional earnings is \$2,460 and enhanced earnings is \$2,929. While the magnitude difference between these two measures diminishes somewhat during this time period, there remains a persistent gap of nearly 20 percent. In fact, the persistent gap between the conventional and enhanced earnings measures supports the argument that the conventional calculation underreports actual earnings due to a discrepancy

between actual hiring and firing activity and the quarterly periodicity of employer UI reports, i.e., the partial employment problem.

A shift from the conventional to the enhanced estimation methodology doesn't change the broad earnings pattern. Notice the uniformity in the two earnings trends (see **Chart 4**). Viewed from a different perspective, the relative impact of partial employment and multiple jobholding on earnings appears to remain somewhat constant over the two-year period. Rather, the principal difference between these two methodologies is a difference in the overall level of earnings.

In an effort to highlight this difference, let's convert the earnings outcomes to fulltime equivalence, 40 hours per week. In the conventional narrative, program completers earn \$9.30 per hour (assuming fulltime equivalence) at the time of exit

Chart 5. Earnings Comparison: IL Jobs vs. Completer Jobs



and \$14.19 per hour two years following exit (see **Chart 4**, on the previous page). In the enhanced narrative, program completers start at \$12.81 per hour (again assuming fulltime equivalence) and their pay rises to \$16.90 per hour.

Assuming fulltime equivalence, earnings for completers in the conventional narrative (\$9.30 and \$14.19) is not particularly compelling in a state with a minimum wage of \$8.25 per hour. And, in fact, that's the point. The calculation of average earnings using the conventional

methodology understates actual earnings outcomes. Although the enhanced estimation doesn't meet the exact requirements of fulltime equivalence, i.e., an individual could retain the same part-time job for three consecutive quarters, this approach does reasonably adjust for two known sources of mismeasurement -- partial employment and multiple jobholding.

Another advantage of the enhanced approach is the capacity to compare earnings outcomes among program

completers to the benchmark for all Illinois workers. **Chart 5** displays average earnings among jobs held for three consecutive quarters by completers and for all Illinois workers. In general, the starting



Chart 6. Earnings Comparison: Health Jobs

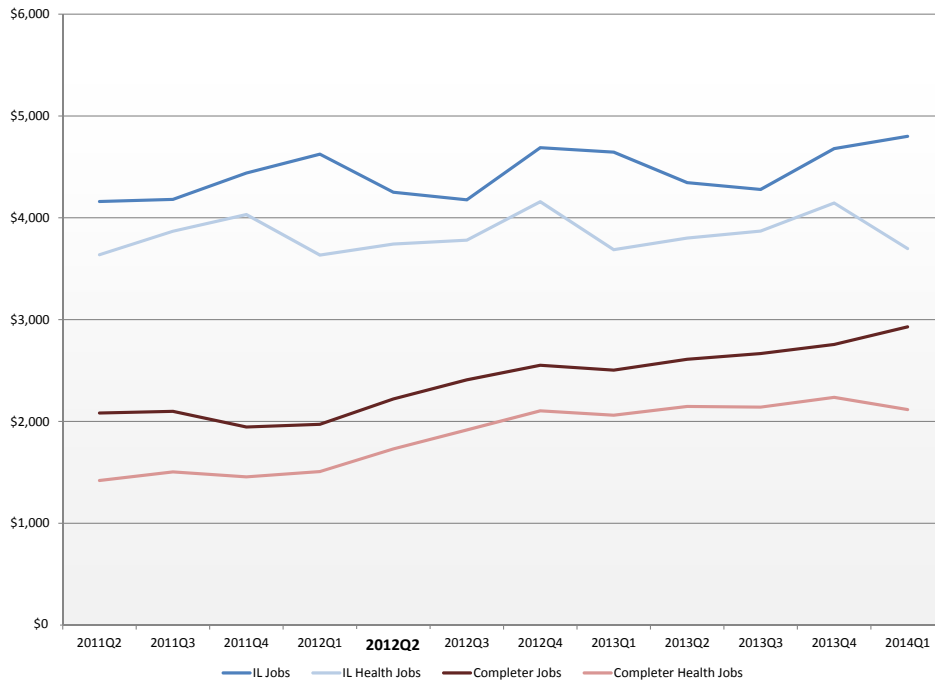
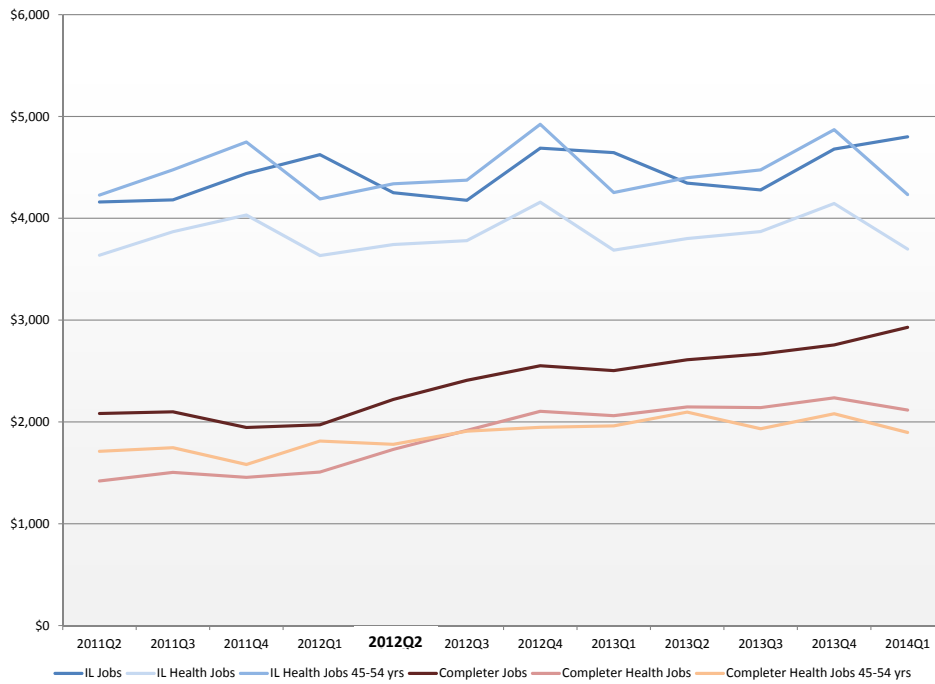


Chart 7. Earnings Comparison: Older Workers in Health Jobs



wage for completers is approximately forty percent less than the average earnings of other workers. However, earnings gains are higher for completers (13%) than Illinois workers (2%) on an average rolling over-the-year basis during the post-completion period. Parenthetically, the earnings trend for Illinois workers exhibits a more clearly defined seasonal pattern than is the case of completers. This distinction cautions against a point-in-time earnings comparison between these two groups and encourages an over-the-year perspective.

In addition to reporting average earnings for completers and Illinois workers, **Chart 6**, on the previous page, also posts results for earnings outcomes among completers and workers employed in the Health industry. Again, the seasonal pattern in earnings among Illinois workers is more readily apparent and endorses an over-the-year comparison. Health jobs earn

less than other jobs, although more so among completers (-25.6%) than Illinois workers (-16.3%) during the period from 2012Q2 to 2014Q1. The average over-the-year wage gain, however, is higher for completers in health jobs, 6.9% compared to 0.8% for Illinois workers in health jobs.

The flexibility of the enhanced methodology (three-quarter job attachment) allows us to add a third comparative dimension, earnings outcomes for jobs in the Health industry occupied by persons between 45 and 54 years old. In the four-quarter period 2013Q2 to 2014Q1, program completers in this older age bracket typically earn less (-7.4%) than other completers in the Health industry (see **Chart 7**, on the previous page). The reverse is true for Illinois workers. Older Illinois workers in the Health industry earn more (15.8%) than the average of all workers in the industry.

Conclusion

The goal of this study is to provide empirical evidence on workforce outcomes for WIA/Trade training completers who exit due to entered employment. We argue for a shift from the conventional perspective on training outcomes, i.e., the individual as the unit of analysis, to an enhanced perspective which draws from job-based measures tied to labor market status. This enhanced perspective augments the outcomes discussion with job-quality indicators, such as job attachment, and provides a more robust earnings measure that controls for spells of partial employment within a quarter. In fact, the conventional earnings measure understates job-based earnings by approximately twenty percent. Moreover, the enhanced perspective enriches the

understanding of workforce outcomes with greater flexibility for demographic group comparisons.

WIA/Trade training completers exhibit a level of job attachment similar to other Illinois workers within a year or two of transition to employment. These same individuals demonstrate significantly lower attachment in the four quarters prior to completion. Job placement for training completers leads to job attachment, whether two- or three-quarters, that is comparable to other Illinois workers. Not surprisingly, completer earnings at their new jobs is less than the average for other Illinois workers, nearly forty percent; however, their earnings gains over the two-year post-completion period is double digit

(13%) compared to very low gains for Illinois workers (2%).

The flexibility of the enhanced approach also allows for a more refined understanding of labor market dynamics by age and industry. Older completers in healthcare industries earn less than their younger counterparts and, yet, older Illinois workers in health jobs earn considerably more than their younger counterparts. This perspective on age-related earnings while controlling for industry suggests the importance of understanding the labor market of the job-placement target industry. In the case of healthcare industries, employers may offer high returns to experience and, if so, the placement of older training completers in this industry may inadvertently mitigate their earnings potential. Older completers are less likely to fully realize experience-based returns because their prospective work horizon is abbreviated.

The workforce outcomes methodology in this study received funding under the auspices of the Workforce Data Quality Initiative sponsored by the U.S. Department of Labor. An objective of the grant is to sustain ongoing interagency collaboration and the use of longitudinal datasets to produce quality workforce information. Based on the results from this pilot, stakeholders have moved forward to augment the outcomes methodology. For example, Illinois' Vermilion Advantage received a grant award from the U.S. Chamber of Commerce Foundation to test a data

infrastructure for mapping of career jobs held by community college graduates (https://www.iccb.org/data/?page_id=290). Partners in this project include the Illinois Department of Commerce and Economic Opportunity, Illinois Community College Board, and the Illinois Department of Employment Security. This mapping technique offers empirical-based evidence for career pathways from Community College credential programs to targeted employers, industries and geographies in Illinois. The longitudinal capability of this technique uses matriculation as the point of labor market entry and tracks career migration patterns for a three-year horizon.

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Footnotes

1. An important caveat to this analytical framework is the potential for false positives in the estimation of hires and separations. Mergers and acquisitions among employer establishments can confound the worker-employer pairing and create inaccurate counts of hires and separations. For example, Employer A merges with Employer B and a condition of the agreement is that Employer A's workers transition to Employer B's payroll. Under the strictest application of the worker-employer pairing, these workers are separated from Employer A in (t) and hired by Employer B in (t+1). However, such a conclusion doesn't align with labor market reality. That is, the workers were neither separated nor hired; rather, only their payroll designation changed. The QWI measures control for employer merger/acquisition behavior, and thus produce more precise measures of employment dynamics that are reflective of actual labor market behavior.

2. The mission of this partnership is to advance workforce development practices through data innovation and applied economic analysis. The objectives of Workforce Development Services (WDS) are: 1. To construct longitudinally-linked and matched workforce statistical data from multiple-source quarterly IDES administrative data to develop enhanced workforce outcome measures; 2. To design and implement new analytical products and promote best practices in local workforce development; and, 3. To serve as a statewide resource to address workforce policy questions and provide strategic advising on current workforce challenges, such as career pathways and sector strategies. A key feature of WDS is its warehouse of data from three IDES administrative databases: quarterly UI Wage Record database, weekly UI Benefit database, and weekly Employment Services database. Illinois State University staff validate each data transmission, "clean" individual records that fail validation, establish longitudinal links among the records, and construct statistical databases from project-specific administrative data extracts. The comprehensiveness and richness of WDS, then, permits analysts to compile employment and unemployment spells, including employment services, into data histories for individuals with flexible aggregation patterns by geography and time.

3. Training completers employed outside of Illinois are excluded from the Illinois UI Wage Record file and, thus, are out-of-scope for this study.

4. The logic of three-quarter job attachment mitigates as well the confounding effects of multiple jobholding. The prevailing perception of multiple jobholding assumes an individual holds more than one job simultaneously. The stereotype is an individual who holds a primary job (weekday job) and one or more supplemental jobs (weeknight or weekend job). In the conventional framework, average earnings reflect the summation across SSNs. In the case of concurrent multiple jobholding, the conventional approach adds the earnings from the supplemental job to the primary job and sums the combined amounts across SSNs. This approach is a significant impediment to measuring accurate outcomes for training completers as earnings can include an artificial boost from supplemental jobs that can be quite unrelated to any program training. Preliminary research indicates that while the primary job persists over time, the supplemental job often does not (see, for example, Lale, Etienne. 2015. "Multiple Jobholding over the Past Two Decades." *Monthly Labor Review* (4):1-40). Therefore, concurrent multiple jobholding confounds the conventional measurement of wage outcomes, but has a more modest effect on earnings outcomes for jobs held three consecutive quarters.