QWI Variable Descriptions   Rev. 04/12/2006

i = individual worker; t =reference quarter of a calendar year;
j = specific employer in a single Unemployment Insurance account in a state reporting system
A "job" is the association of an individual with an establishment in a given quarter/year with
$1+ UI-covered earnings

Employment Indicators (variable name and details: http://lehd.dsd.census.gov/led/library/techpapers/QWI_definitions.pdf)	Description	Technical definition[1]	Types of questions QWI answers
Employment - (also called Beginning of Quarter Employment) (Emp) **A.1.7 A.2.2**	Estimate of the total number of jobs[2] on the first day of the reference quarter. *Beginning-of-quarter employment counts are similar to point-in-time employment measures, such as the QCEW (see: www.bls.gov/cew/).*	A worker i is beginning-of-quarter employed with employer j in t if worker has positive earnings at j in $t-1$ and t.[3]	-Top area industries? -Who is filling what jobs? Who are the top employers of young workers? older workers? female workers? -Where are similar local economies?
Employment - End-of-quarter (EmpEnd) **A.1.7 A.2.2**	Estimate of the number of jobs on the last day of the quarter.	A worker i is end-of-quarter employed with employer j in t if worker has positive earnings at j in t and $t+1$.	Same as for beginning-of-quarter employment, but about workers employed on the *last* day of the quarter.
Employment - Full Quarter Employment (also called "stable jobs"). (EmpS) **A.1.8 A.2.2**	Estimate of stable jobs, i.e., the number of jobs that are held on both the first and last day of the quarter with the same employer. *This is often, but not necessarily, the same as being employed for a full quarter (e.g., an on-call substitute teacher may have earnings in each of 3 consecutive quarters but intermittently).*	A worker i is full quarter employed with employer j in t if worker has positive earnings at j in $t-1$, t, and $t+1$.	Same as for employment measures above, with emphasis on workers in more stable jobs.
Employment - Reference Quarter: Counts	This is a count of people employed in a firm at *any* time during the quarter. It is	A worker i is flow employed with employer j in t if	This measure provided for informational purposes for state partners. For total employment

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[1] For a more rigorous mathematical treatment of the construction of the QWI related to employment, job flow, non-employment and earnings, see: John M. Abowd, Bryce Stephens, and Lars Vilhuber, "The LEHD Infrastructure Files and the Creation of the Quarterly Workforce Indicators," in J.B. Dunne, Jensen Roberts, and M.J. Roberts, eds., *Producer Dynamics: New Evidence from Micro Data* (Chicago: University of Chicago Press for the National Bureau of Economic Research, forthcoming)..

[2] A 'job' in the QWI refers to a match between the records of a worker and a firm or establishment and shows the worker has wages in the specified quarters.

[3] QWI statistics are undefined in any quarter where there are not enough job records in the time series to compute the statistic. Beginning-of-quarter employment is undefined only in the first quarter of data available for any state (as the data for t-1 is unavailable). Correspondingly, end-of-quarter employment is undefined in the last quarter of available data.

(EmpTotal) **A.1.1 - A.1.6**	*not* a count of jobs.	worker has positive earnings at j in t.	we recommend using Beginning-of-quarter employment.

Employment Change Indicators (Variable name)	Description	Technical definition[1]	Types of questions QWI answers
Hires - All (HirA) (also called "Accessions") **A.1.9** **A.2.2**	Estimated number of workers who started a new job in the specified quarter. It is the sum of "Hires – New" and "Rehires within 4 quarters."	A worker i is defined as acceding to employer j in t if has positive earnings at j in t but no earnings from j in $t-1$.	-What industries are hiring the most workers and in what geographic areas? -Which industries are hiring older workers? Younger workers?
Hires - New (HirN) **A.1.11**	Estimated number of workers who started a new job. More specifically, total hires that, while they worked for an employer in the specified quarter, were not employed by that employer in any of the previous four quarters.	A worker i is defined as a new hire for employer j in t if has positive earnings at j in t but no earnings from j in $t-1$, $t-2$, $t-3$, $t-4$.	Same as above but refers to newly hired workers.
Hires – Rehires within 4 quarters (also called "Recalls") (HirR) **A.1.11** **A.2.2**	Estimated number of workers who returned to the same employer where they had worked within the previous year. Total hires that are not new hires (i.e. they had some earnings at same establishment in one or more of the quarters t-2, t-3, t-4).	A worker i is defined as a rehire for employer j in t if has positive earnings at j in t but no earnings from j in $t-1$, and positive earnings at j in one or more of the quarters $t-2$, $t-3$, $t-4$.	-What industries are most likely to rehire or recall workers? -Of those rehired, are younger or older workers more likely to be rehired? Men or women?
Hires - All Flow into Full-Quarter Employment (also called "Hires – all stable jobs") (HirAS) **A.1.10** **A.2.2**	Estimated number of workers that started a job that became a e job that lasted at least one full quarter with a given employer. It is the estimated number of total workers who began work with an employer in the last quarter and are full-quarter employed in the current quarter.	A worker i is defined as a flow into full-quarter employment with employer j in t if has positive earnings at j in t, $t-1$ and $t+1$ but no earnings from j in $t-2$.	-Which industries are hiring stable workers?

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Hires – New Hires to Full-Quarter Status (also called "New stable jobs") (HirNS) **A.1.12** **A.2.2**	Estimated number of workers who started a job that they had not held within the past year and the job turned into a job that lasted at least a full quarter with a given employer. Total number of workers who were new hires by the employer in the last quarter and are full-quarter employed in the current quarter.	A worker i is defined as a full quarter new hire with employer j in t if has positive earnings at j in t, $t-1$ and $t+1$ but no earnings from j in $t-2$, $t-3$, $t-4$, and $t-5$.	-Same as Flow into Full-Quarter Employment, but with emphasis on new hires.
Separations (Sep) **A.1.9** **A.2.2**	Estimated number of workers whose job with a given employer ended in the specified quarter.	A worker i is defined as separating from employer j in t if has positive earnings at j in t but no earnings from j in $t+1$.	-What types of workers are leaving jobs? -What types of industries are workers leaving?
Separations - Flow out of Full-Quarter Employment (also called "Separations – stable jobs") (SepS) **A.1.10** **A.2.2**	Estimated number of workers who had a job for at least a full quarter and then the job ended. It is the total number of workers full-quarter employed in previous quarter but leave their employer in the current quarter.	A worker i is defined as a flow out of full-quarter employment with employer j in t if has positive earnings at j in t, $t-1$ and $t-2$ but no earnings from j in $t+1$.	-What industries are stable workers leaving?
Job Churning (TurnOvrS) **A.2.6**	An average of the number of new workers and the number leaving. That average is divided by average employment at the firm to obtain a rate of job churning.	One half times the sum of full-quarter "Hires – All" and full-quarter separations, divided by the number of full-quarter employees.	-What industries have the most employment churning? The lowest? -What industries have the lowest and highest employment churning rates for older and for younger workers? For men compared with women?

Job Growth Indicators (variable name)	Description	Technical definition[1]	Types of questions QWI answers
Firm - Job Gains (FrmJbGn) A.1.13 A.2.3	Estimated number of jobs gained at firms throughout the quarter. .	End-of-quarter employment in t minus Beginning-of-quarter employment in t, or 0, whichever is larger	-Regions with most new jobs -Industries most likely to create jobs --Which industries are most likely to create jobs that younger workers gain?
Firm - Job Loss (FrmJobLs) A.1.13 A.2.3	Estimated number of jobs lost at firms throughout the quarter.	End-of-quarter Employment in t minus Beginning-of-quarter Employment in t, or 0, whichever is smaller, (reported in absolute value).	-Regions where job loss is highest -Industries most likely to reduce employment. --In industries with net job losses, are older workers more likely to be job losers than younger workers?
Firm - Gain of jobs lasting at least a full quarter (FrmJbGnS) A.1.15, A.2.3	Estimated number of full-quarter jobs gained at firms.	Full-quarter employment in t minus full-quarter employment in $t-1$, or 0, whichever is larger.	- Same as for job gain but the focus is on jobs that lasted a full quarter
Firm - Loss of full-quarter jobs (FrmJbLsS) A.1.15 A.2.3	Estimated number of full-quarter jobs lost at firms.	Full-quarter employment in t minus full-quarter employment in $t-1$, or 0 whichever is smaller (reported in absolute value).	- Same as for job loss but the focus is on jobs that lasted a full quarter with a given employer.
Firm - job change: net change (FrmJbC) A.1.14 A.2.3	Difference between firm job gain and firm job loss.	End-of-quarter employment in t minus beginning-of-quarter employment in t	-Regions where employment growth is fastest. -Top expanding industries.

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[1] For a more rigorous mathematical treatment of the construction of QWI related to employment, job flow, non-employment and earnings, see: John M. Abowd, Bryce Stephens, and Lars Vilhuber, "The LEHD Infrastructure Files and the Creation of the Quarterly Workforce Indicators," in J.B. Dunne, Jensen Roberts, and M.J. Roberts, eds., *Producer Dynamics: New Evidence from Micro Data* (Chicago: University of Chicago Press for the National Bureau of Economic Research, forthcoming).

| Firm - change full-quarter jobs (FrmJbCS) **A.1.15** **A.2.3** | Net growth in jobs that last a full quarter. Change in net estimate of full-quarter jobs at firms | Full-quarter employment in t minus full-quarter employment in *t-1*. | - Similar to net job flows but the focus is on jobs lasting a full quarter |

Earnings Indicators (variable name)	Description	Technical definition[1]	Types of questions QWI answers
Employees – Full quarter jobs: Average monthly earnings (EarnS) **A.1.17** **A.2.2**	Average monthly earnings of employees with stable jobs (i.e., worked with the same firm throughout the quarter).	Sum of quarterly earnings at j in t for all i who are full quarter employees, divided by the number of full quarter employees at j, divided by three (number of months in a quarter)	-Highest and lowest paying industries in an area. -Average earnings for employees in a particular industry
Employees end-of-quarter: Average monthly earnings (EarnEnd) **A.1.16** **A.2.2**	Average monthly earnings of employees who worked on the last day of the reference quarter.	Sum of quarterly earnings at j in t for all i who are end-of-quarter employees, divided by the number of end-of-quarter employees at j, divided by three.	-Similar to average earnings in stable jobs but includes jobs that lasted less than the entire quarter. -Because this includes people who did not work the entire quarter, avg. monthly earnings tend to be lower than for full-quarter workers
Hires All full-quarter jobs: Average monthly earnings (EarnHirAS) **A.1.18** **A.2.2**	Avg. monthly earnings for workers who started a job that turned into a job lasting a full quarter. That is, average monthly earnings of full-quarter employees who started working with a firm in the previous quarter.	Sum of quarterly earnings at j in t for all i who are hires (all) to full-quarter status employees, divided by the number of hires(all) to full-quarter status at j in t, divided by three.	-What are average starting wages for different types of workers in a particular industry?
Hires New full-quarter jobs: Average monthly earnings (EarnHireNS) **A.1.19** **A.2.2**	Average monthly earnings of newly stable (i.e., full-quarter employees who were new hires with a firm in the previous quarter.	Sum of quarterly earnings at j in t for all i who are full-quarter new hires, divided by the number of full-quarter new hires at j in t, divided by three.	-What are the best paying industries for new hires? In what regions can new hires get the best pay, on average?

Separations full-quarter jobs: Average monthly earnings (EarnSepS) **A.1.20** **A.2.2**	Average monthly earnings of separations from full-quarter status at an establishment.	Sum of quarterly earnings at j in t for all i who are separations from full-quarter status in $t+1$, divided by the number of separations from full-quarter status at j in $t+1$, divided by three.	-What were averages wages for workers that separate from specific industries in different regions?
Separations: Average change in monthly earnings (EarnSepC) **A.1.23** **A.2.2**	Change in average monthly earnings for workers who leave an employer in a given quarter.	Sum of earnings for i over all j who employ i in $t+1$ minus the sum of earnings for i over all j who employ i in t, for all i who separate from j in t, divided by the number of separations from j in t, divided by three.	-To help target workers for training programs, what industries are associated with the smallest and the largest average earning losses?
Hires All: Average change in monthly earnings (EarnHirAC) **A.1.23** **A.2.2**	Change in avg. earnings for workers who started a job in the reference quarter *summed across all employers* compared with the wages *summed across all employers* in the previous quarter.	Sum of earnings for i over all j who employ i in t minus the sum of earnings for i over all j who employ i in $t-1$, for all i who separate from j in t, divided by the number of separations from j in t, divided by three.	-Which industry accessions are associated with the highest average earnings gains for workers?
Total Quarterly Payroll (Payroll) **A.2.2**	Total quarterly payroll for all jobs	Sum of all earnings for all jobs in a quarter.	- What are the largest industries in my geographic area in terms of total payroll?

Demographic and Timing Variables	Definition	Technical Definition	Types of questions QWI answers
Standard Industrial Classification (SIC) codes	Standard Industrial Classification code at the SIC division level, as well as the 2, 3, and 4-digit SIC level.	See SIC documentation[4] for definitions of various SIC codes.	- Top 10 area industries. - Industries associated with greatest earnings growth for new hires.
NAICS Industry codes	North American Industry Classification System (NAICS) code at all NAICS levels.	See NAICS documentation for definitions of NAICS codes.[5]	- Similar to SIC but for NAICS industry classifications.
Ownership Code	Public or private	A00=All (1-5) A05=All Private (5)	- Use to separate employment for private sector employers.
Year	Year	4-digit calendar year	- Changes in employment growth over time
Quarter	Quarter	1-digit quarter of estimate	-Shows the cyclical nature of average earnings over a year
County	County	3-digit county FIPS code	-Counties with fastest employment growth
Metro	Metropolitan Statistical Area (MSA)	4-digit FIPS MSA code	- Same as for county, but at MSA-level geography.
WIB	Workforce Investment Board (WIB)	WIB-defined level of geography.	- Same as for county, but at WIB-level geography.
Sex	Men, women, or both	0=Both 1=Male 2=Female	- Best paying industry for demographic group such as older women
Age group	Denotes which of eight age categories are covered by the data or if the data cover all ages.	0=14-99 years 1=14-18 years 2=19-21 years 3=22-24 years 4=25-34 years 5=35-44 years 6=45-54 years 7=55-64 years 8=65-99 years	-Top industries for older workers or for women workers -Best paying industry for an age group such as men 25-34 years old.

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[4] An online Standard Industrial Classification Manual is available at:
http://www.osha.gov/pls/imis/sic_manual.html
[5] An online NAICS manual is available at: http://www.census.gov/epcd/www/naics.html