

LEHD Public Use Data Schema V4.7.0

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([Printable version](#))



Important

This specification is draft. Feedback is welcome. Please write us at ces.qwi.feedback@census.gov.

1. Purpose

The public-use data from the Longitudinal Employer-Household Dynamics Program, including the Quarterly Workforce Indicators (QWI) and Job-to-Job Flows (J2J), are available for download with the following data schema. These data are available through the LEHD website's Data page at <https://lehd.ces.census.gov/data/> and through the LED Extraction Tool at <https://ledextract.ces.census.gov/>.

This document describes the data schema for LEHD files. LEHD-provided SHP files are separately described in [lehd_shapefiles.pdf](#). For each variable, a set of allowable values is defined. Definitions are provided as CSV files, with header variable definitions. Changes relative to the original v4.0 version are listed [at the end](#).

2. File naming

The naming conventions of the data files is documented in [lehd_csv_naming.pdf](#).

3. Extends

This version reimplements some features from V4.0. Many files compliant with LEHD or QWI Schema v4.0 will also be compliant with this schema, but compatibility is not guaranteed.

4. Supersedes

This version supersedes V4.6.0, for files released as of R2020Q4.

5. Basic Schema

Each data file is structured as a CSV file. The first columns contain [\[identifiers\]](#), subsequent columns contain [\[indicators\]](#), followed by [status flags](#). In some cases, visually formatted Excel (XLSX) files are also available, containing the same information together with header lines on each sheet.

5.1. Generic structure

| Column name |
|-------------------|
| [Identifier1] |
| [Identifier2] |
| [Identifier3] |
| [...] |
| [Indicator 1] |
| [Indicator 2] |
| [Indicator 3] |
| [...] |
| [Status Flag 1] |
| [Status Flag 2] |
| [Status Flag 3] |
| [...] |

Note: A full list of indicators for each type of file are shown below in the [Indicators](#) section. While all indicators are included in the CSV files, only the requested indicators will be included in data outputs from the LED Extraction Tool.

5.2. Identifiers

Records, unless otherwise noted, are parts of time-series data. Unique record identifiers are noted below, by file type. Identifiers without the year and quarter component can be considered a series identifier.

5.2.1. Mapping for Identifiers

([lehd_mapping_identifiers.csv](#))

Each of the released files has a set of variables uniquely identifying records ('Identifiers'). The table below relates the set of identifier specifications to the released files. The actual CSV files containing the identifiers for each set are listed after this table. Each identifier can take on a specified list of values, documented in the section on [Categorical Variables](#).

| identifiers | QWI | NQWI | J2J | J2JR | J2JOD | PSEO E | PSEO F | LODE S |
|------------------------|-----|------|-----|------|-------|-----------|-----------|-----------|
| lehd_identifiers_qwi | 1 | 1 | | | | | | |
| lehd_identifiers_j2j | | | 1 | 1 | | | | |
| lehd_identifiers_j2jod | | | | | 1 | | | |
| lehd_identifiers_pseo | | | | | | 1 | 1 | |

5.2.2. Identifiers for qwi

([lehd_identifiers_qwi.csv](#))

| Variable | Type | label |
|-------------|---------|--|
| periodicity | Char(1) | Periodicity of report |
| seasonadj | Char(1) | Seasonal Adjustment Indicator |
| geo_level | Char(1) | Group: Geographic level of aggregation |
| geography | Char(8) | Group: Geography code |
| ind_level | Char(1) | Group: Industry level of aggregation |
| industry | Char(5) | Group: Industry code |
| ownercode | Char(3) | Group: Ownership group code |
| sex | Char(1) | Group: Gender code |
| agegrp | Char(3) | Group: Age group code (WIA) |
| race | Char(2) | Group: race |
| ethnicity | Char(2) | Group: ethnicity |
| education | Char(2) | Group: education |
| firmage | Char(1) | Group: Firm Age group |
| firmsize | Char(1) | Group: Firm Size group |
| year | Num | Time: Year |
| quarter | Num | Time: Quarter |

5.2.3. Identifiers for j2j

([lehd_identifiers_j2j.csv](#))

| Variable | Type | label |
|-------------|---------|--|
| periodicity | Char(1) | Periodicity of report |
| seasonadj | Char(1) | Seasonal Adjustment Indicator |
| geo_level | Char(1) | Group: Geographic level of aggregation |
| geography | Char(8) | Group: Geography code |
| ind_level | Char(1) | Group: Industry level of aggregation |
| industry | Char(5) | Group: Industry code |
| ownercode | Char(3) | Group: Ownership group code |
| sex | Char(1) | Group: Gender code |
| agegrp | Char(3) | Group: Age group code (WIA) |
| race | Char(2) | Group: race |
| ethnicity | Char(2) | Group: ethnicity |
| education | Char(2) | Group: education |
| firmage | Char(1) | Group: Firm Age group |
| firmsize | Char(1) | Group: Firm Size group |
| year | Num | Time: Year |
| quarter | Num | Time: Quarter |
| agg_level | Num | Aggregation Level Indicator |

5.2.4. Identifiers for j2jod

([lehd_identifiers_j2jod.csv](#))

| Variable | Type | label |
|----------------|---------|---|
| periodicity | Char(1) | Periodicity of report |
| seasonadj | Char(1) | Seasonal Adjustment Indicator |
| geo_level | Char(1) | Group: Geographic level of aggregation of destination job |
| geography | Char(8) | Group: Geography code of destination job |
| ind_level | Char(1) | Group: Industry level of aggregation of destination job |
| industry | Char(5) | Group: Industry code of destination job |
| ownercode | Char(3) | Group: Ownership group code of destination job |
| sex | Char(1) | Group: Gender code |
| agegrp | Char(3) | Group: Age group code (WIA) |
| race | Char(2) | Group: race |
| ethnicity | Char(2) | Group: ethnicity |
| education | Char(2) | Group: education |
| firmage | Char(1) | Group: Firm Age group |
| firmsize | Char(1) | Group: Firm Size group |
| year | Num | Time: Year |
| quarter | Num | Time: Quarter |
| agg_level | Num | Aggregation Level Indicator |
| geo_level_orig | Char(1) | Group: Geographic level of aggregation of origin job |
| geography_orig | Char(8) | Group: Geography code of origin job |
| ind_level_orig | Char(1) | Group: Industry level of aggregation of origin job |
| industry_orig | Char(5) | Group: Industry code of origin job |
| ownercode_orig | Char(3) | Group: Ownership group code of origin job |
| firmage_orig | Char(1) | Group: Firm Age group of origin job |
| firmsize_orig | Char(1) | Group: Firm Size group of origin job |

5.2.5. Identifiers for pseo

([lehd_identifiers_pseo.csv](#))

| Variable | Type | label |
|-------------------|---------|---|
| agg_level_pseo | Numeric | Aggregation level |
| inst_level | Char(1) | Tabulation level of the institution |
| institution | Char(6) | Place of the institution |
| degree_level | Char(2) | Degree level code |
| cip_level | Char(1) | Degree field level of aggregation |
| cipcode | Char(7) | Degree field |
| grad_cohort | Char(4) | First year of graduation cohort (YYYY) - All Cohorts 0000 |
| grad_cohort_years | Numeric | Number of years in graduation cohort |
| geo_level | Char(1) | Group: Geographic level of employment |
| geography | Char(8) | Group: Geography code of employment |
| ind_level | Char(1) | Group: Industry level of employment |
| industry | Char(5) | Group: Industry code of employment |

5.3. Indicators

The following tables and associated mapping files list the indicators available on each file. The descriptor files themselves are structured as follows:

- The "Indicator Variable" is the short name of the variable on the CSV files, suitable for machine processing in a wide variety of statistical applications.
- When given, the "Alternate name" may appear in related documentation and articles.
- The "Status Flag" is used to indicate publication or data quality status (see [Status Flags](#)).
- The "Indicator Name" is a non-abbreviated version of the "Indicator Variable".
- The "Description" provides more verbose description of the variable.
- "Units" identify the type of variable according to a very simplified taxonomy (not formalized yet): counts, rates, monetary amounts.
- "Concept" classifies the variables into higher-level concepts. The taxonomy for these concepts has not been finalized yet, see [label_concept_draft.csv](#) for a draft version.
- The "Base" indicates the denominator used to compute the statistic, and may be '1'.

5.3.1. National QWI and state-level QWI

([variables_qwi.csv](#))

| Indicator Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|--------------------|----------------|-------------|----------------------------------|---|-------|------------|------|
| Emp | B | sEmp | Beginning-of-Quarter Employment | Estimate of the total number of jobs on the first day of the reference quarter | Count | Employment | 1 |
| EmpEnd | E | sEmpEnd | End-of-Quarter Employment | Estimate of the number of jobs on the last day of the quarter | Count | Employment | 1 |
| EmpS | F | sEmpS | Full-Quarter Employment (Stable) | Estimate of stable jobs - the number of jobs that are held on both the first and last day of the quarter with the same employer | Count | Employment | 1 |

| Indicator or Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|------------------------------|-----------------------|--------------------|---|---|--------------|----------------|-------------|
| EmpTotal | M | sEmpTotal | Employment - Reference Quarter | Estimated count of people employed in a firm at any time during the quarter | Count | Employment | 1 |
| EmpSpv | Fpv | sEmpSpv | Full-Quarter Employment in the Previous Quarter | Estimate of stable jobs in the quarter before the reference quarter | Count | Employment | 1 |
| HirA | A | sHirA | Hires (All Accessions) | Estimated number of workers who started a new job in the specified quarter | Count | Hire | 1 |
| HirN | H | sHirN | New Hires | Estimated number of workers who started a new job excluding recall hires | Count | Hire | 1 |
| HirR | R | sHirR | Recall Hires | Estimated number of workers who returned to the same employer where they had worked within the previous year | Count | Hire | 1 |
| Sep | S | sSep | Separations (All) | Estimated number of workers whose job with a given employer ended in the specified quarter | Count | Separation | 1 |
| HirAEnd | CA | sHirAEnd | End-of-Quarter Hires | Estimated number of workers who started a new job in the specified quarter, which continued into next quarter | Count | Hire | 1 |

| Indicator or Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|--------------------------------------|---------------------------|------------------------|--|--|--------------|----------------|------------------|
| SepBeg | CS | sSepBeg | Beginning-of-Quarter Separations | Estimated number of workers whose job in the previous quarter continued and ended in the given quarter | Count | Separation | 1 |
| HirAEndRepl | EI | sHirAEndRepl | Replacement Hires | Hires into continuous quarter employment in excess of job creation | Count | Hire | 1 |
| HirAEndR | CAR | sHirAEndR | End-of-Quarter Hiring Rate | Hires as a percent of average employment | Rate | Hire | (Emp + EmpEnd)/2 |
| SepBegR | CSR | sSepBegR | Beginning-of-Quarter Separation Rate | Separations as a percent of average employment | Rate | Separation | (Emp + EmpEnd)/2 |
| HirAEndReplR | EIR | sHirAEndReplR | Replacement Hiring Rate | Replacement hires as a percent of the average of beginning- and end-of-quarter employment | Rate | Hire | (Emp + EmpEnd)/2 |
| HirAS | FA | sHirAS | Hires (All Hires into Full-Quarter Employment) | Estimated number of workers that started a job that lasted at least one full quarter with a given employer | Count | Hire | 1 |

| Indicator Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|---------------------------|-----------------------|--------------------|--|---|--------------|----------------|-------------|
| HirNS | FH | sHirNS | New Hires (New Hires into Full-Quarter Employment) | 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 | Count | Hire | 1 |
| SepS | FS | sSepS | Separations (Flows out of Full-Quarter Employment) | Estimated number of workers who had a job for at least a full quarter and then the job ended | Count | Separation | 1 |
| SepSnx | FSnx | sSepSnx | Separations in the Next Quarter (Flows out of Full-Quarter Employment) | Estimated number of workers in the next quarter who had a job for at least a full quarter and then the job ended | Count | Separation | 1 |
| TurnOvrS | FT | sTurnOvrS | Turnover (Stable) | The rate at which stable jobs begin and end | Rate | Turnover | 2*EmpS |
| FrmJbGn | JC | sFrmJbGn | Firm Job Gains (Job Creation) | Estimated number of jobs gained at firms throughout the quarter | Count | Job Flows | 1 |
| FrmJbLs | JD | sFrmJbLs | Firm Job Loss (Job Destruction) | Estimated number of jobs lost at firms throughout the quarter | Count | Job Flows | 1 |
| FrmJbC | JF | sFrmJbC | Firm Job Change (Net Change) | Difference between firm job gain and firm job loss | Count | Job Flows | 1 |
| FrmJbGnS | FJC | sFrmJbGnS | Firm Job Gains (Stable) | Estimated number of full-quarter jobs gained at firms | Count | Job Flows | 1 |

| Indicator Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|---------------------------|-----------------------|--------------------|---|--|--------------|----------------|-------------|
| FrmJbLsS | FJD | sFrmJbLsS | Firm Job Loss (Stable) | Estimated number of full-quarter jobs lost at firms | Count | Job Flows | 1 |
| FrmJbCS | FJF | sFrmJbCS | Firm Job Change (Stable; Net Change) | Net growth in jobs that last a full quarter | Count | Job Flows | 1 |
| EarnS | ZW3 | sEarnS | Average Monthly Earnings (Full-Quarter Employment) | Average monthly earnings of employees with stable jobs | Dollars | Earnings | EmpS |
| EarnBeg | ZW2B | sEarnBeg | Average Monthly Earnings (Beginning-of-Quarter Employment) | Average monthly earnings of employees who worked on the first day of the reference quarter | Dollars | Earnings | Emp |
| EarnHirAS | ZWFA | sEarnHirAS | Average Monthly Earnings (All Hires into Full-Quarter Employment) | Average monthly earnings for workers who started a job that turned into a job lasting a full quarter | Dollars | Earnings | HirAS |
| EarnHirNS | ZWFH | sEarnHirNS | Average Monthly Earnings (New Hires into Full-Quarter Employment) | Average monthly earnings of newly stable employees | Dollars | Earnings | HirNS |
| EarnSepS | ZWFS | sEarnSepS | Average Monthly Earnings (Flows out of Full-Quarter Employment) | Average monthly earnings of separations from full-quarter status at an establishment | Dollars | Earnings | SepSnx |
| Payroll | W1 | sPayroll | Total Quarterly Payroll | Total quarterly payroll for all jobs | Dollars | Earnings | 1 |

5.3.2. National QWI and state-level QWI rates

Rates are computed from published data, and are provided as a convenience.

([variables_qwir.csv](#))

| Indicator or Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|-----------------------|----------------|---------------|--|--|-------|------------|-----------------------------------|
| HirAR | AR | sHirAR | Hiring Rate (All Accessions) | All accessions as a percent of average employment | Rate | Hire | $(\text{Emp} + \text{EmpEnd})/2$ |
| HirNR | HR | sHirNR | New Hiring Rate | New hires as a percent of average employment | Rate | Hire | $(\text{Emp} + \text{EmpEnd})/2$ |
| HirRR | RR | sHirRR | Recall Rate | Recall hires as a percent of average employment | Rate | Hire | $(\text{Emp} + \text{EmpEnd})/2$ |
| SepR | SR | sSepR | Separation Rate (All Separations) | All separations as a percent of average employment | Rate | Separation | $(\text{Emp} + \text{EmpEnd})/2$ |
| HirAEndR | CAR | sHirAEndR | End-of-Quarter Hiring Rate | Hires as a percent of average employment | Rate | Hire | $(\text{Emp} + \text{EmpEnd})/2$ |
| SepBeginR | CSR | sSepBeginR | Beginning-of-Quarter Separation Rate | Separations as a percent of average employment | Rate | Separation | $(\text{Emp} + \text{EmpEnd})/2$ |
| HirAEndReplR | EIR | sHirAEndReplR | Replacement Hiring Rate | Replacement hires as a percent of average employment | Rate | Hire | $(\text{Emp} + \text{EmpEnd})/2$ |
| HirASR | FAR | sHirASR | Hiring Rate (Flows into Full-Quarter Employment) | Flows into stable employment as a percent of average stable employment | Rate | Hire | $(\text{EmpSpv} + \text{EmpS})/2$ |
| HirNSR | FHR | sHirNSR | New Hiring Rate (New Hires to Full-Quarter Status) | New hires into stable employment as a percent of average stable employment | Rate | Hire | $(\text{EmpSpv} + \text{EmpS})/2$ |

| Indicator or Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|--------------------------------------|---------------------------|------------------------|--|---|--------------|----------------|------------------------------|
| SepSR | FSR | sSepSR | Separation Rate (Flows out of Full- Quarter Employment) | Flows out of stable employment as a percent of average stable employment | Rate | Separat ion | (EmpSp v + EmpS)/ 2 |
| SepSnx R | FSnxR | sSepSn xR | Separation Rate in the Next Quarter (Flow out of Full- Quarter Employment) | Flow rate out of stable employment in the next quarter | Rate | Separat ion | (EmpSp v + EmpS)/ 2 |
| TurnOv rSR | FTR | sTurnO vrSR | Turnover Rate (Stable) | The rate at which stable jobs begin and end | Rate | Turnov er | 2*Emp S |
| FrmJbG nR | JCR | sFrmJb GnR | Firm Job Gain Rate (Job Creation Rate) | Estimated number of jobs gained at firms throughout the quarter as a percent of average employment | Rate | Job Flows | (Emp + EmpEn d)/2 |
| FrmJbL sR | JDR | sFrmJb LsR | Firm Job Loss Rate (Job Destruction Rate) | Estimated number of jobs lost at firms throughout the quarter as a percent of average employment | Rate | Job Flows | (Emp + EmpEn d)/2 |
| FrmJbC R | JFR | sFrmJb CR | Firm Job Change Rate (Net Change Rate) | Difference between firm job gain and firm job loss as a percent of average employment | Rate | Job Flows | (Emp + EmpEn d)/2 |
| FrmJbG nSR | FJCR | sFrmJb GnSR | Firm Job Gain Rate (Stable) | Estimated number of full-quarter jobs gained at firms as a percent of average stable employment | Rate | Job Flows | (EmpSp v + EmpS)/ 2 |

| Indicator Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|--------------------|----------------|-------------|--|---|-------|-----------|-----------------------------------|
| FrmJbLsSR | FJDR | sFrmJbLsSR | Firm Job Loss Rate (Stable) | Estimated number of full-quarter jobs lost at firms as a percent of average stable employment | Rate | Job Flows | $(\text{EmpSpv} + \text{EmpS})/2$ |
| FrmJbCSR | FJFR | sFrmJbCSR | Firm Job Change Rate (Stable; Net Change Rate) | Net growth in jobs that last a full quarter as a percent of average stable employment | Rate | Job Flows | $(\text{EmpSpv} + \text{EmpS})/2$ |

5.3.3. Job-to-job flow counts (J2J)

([variables_j2j.csv](#))

| Indicator Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|--------------------|-----------------|-------------|--|---|-------|------------|------|
| MHire | all_dom a2 | sMHire | Hires | Hires into a worker's main job | Count | Hire | 1 |
| MSep | all_dom s2 | sMSep | Separations | Separations from a worker's main job | Count | Separation | 1 |
| MJobStart | first_dom me | sMJobStart | Main Job Starts | New main jobs due to hires and instances when a previously existing secondary job becomes the main source of earnings | Count | Hire | 1 |
| MJobEnd | last_dom mb | sMJobEnd | Main Job Ends | End of main jobs due to separations and instances when another job becomes the main source of earnings | Count | Separation | 1 |
| EEHire | ee_dom a2 | sEEHire | Job-to-Job Hires (Continuous Employment) | Hires following a separation with no observed nonemployment spell | Count | Hire | 1 |
| EESep | ee_dom s2 | sEESep | Job-to-Job Separations (Continuous Employment) | Separations followed by a hire with no observed nonemployment spell | Count | Separation | 1 |
| AQHire | aq_dom a2 | sAQHire | Job-to-Job Hires (Brief Nonemployment) | Hires following a separation with a short nonemployment spell | Count | Hire | 1 |
| AQSep | aq_dom s2 | sAQSep | Job-to-Job Separations (Brief Nonemployment) | Separations followed by a hire with a short nonemployment spell | Count | Separation | 1 |

| Indicator or Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|------------------------------|-----------------------|--------------------|---|---|--------------|----------------|-------------|
| J2JHire | j2j_dom a2 | sJ2JHire | Job-to-Job Hires | Hires following a separation (short or no observed nonemployment spell) | Count | Hire | 1 |
| J2JSep | j2j_dom s2 | sJ2JSep | Job-to-Job Separations | Separations followed by a hire (short or no observed nonemployment spell) | Count | Separation | 1 |
| NEHire | ne_dom a2 | sNEHire | Hires from Nonemployment | Hires following any spell of nonemployment | Count | Hire | 1 |
| ENSep | en_dom s2 | sENSep | Separations to Nonemployment | Separations into any spell of nonemployment | Count | Separation | 1 |
| NEPersist | ne2_dom a2 | sNEPersist | Hires from Persistent Nonemployment | Hires following a spell of persistent nonemployment | Count | Hire | 1 |
| ENPersist | en2_dom s2 | sENPersist | Separations to Persistent Nonemployment | Separations into a spell of persistent nonemployment | Count | Separation | 1 |
| NEFull Q | ne2p_dom a2 | sNEFull Q | Hires from Full-Quarter Nonemployment | Hires following a spell of full-quarter nonemployment (does not include intermittently employed) | Count | Hire | 1 |
| ENFull Q | en2p_dom s2 | sENFull Q | Separations to Full-Quarter Nonemployment | Separations into a spell of full-quarter nonemployment (does not include intermittently employed) | Count | Separation | 1 |
| MainB | domB | sMainB | Employment (Beginning of Quarter) | Main jobs held on the first day of the quarter | Count | Employment | 1 |

| Indicator or Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|------------------------------|-----------------------|--------------------|---|---|--------------|----------------|-------------|
| MainE | domE | sMainE | Employment (End of Quarter) | Main jobs held on the last day of the quarter | Count | Employment | 1 |
| EESepS | fee_doms2 | sEESepS | Stable Job-to-Job Separations (Continuous Employment) | Separations from stable employment followed by a hire to stable employment with no observed nonemployment spell | Count | Separation | 1 |
| EEHireS | fee_doma2 | sEEHireS | Stable Job-to-Job Hires (Continuous Employment) | Hires to stable employment following a separation from stable employment with no observed nonemployment spell | Count | Hire | 1 |
| AQSepS | faq_doms2 | sAQSepS | Stable Job-to-Job Separations (Brief Nonemployment) | Separations from stable employment followed by a hire to stable employment with a short nonemployment spell | Count | Separation | 1 |
| AQHireS | faq_doma2 | sAQHireS | Stable Job-to-Job Hires (Brief Nonemployment) | Hires to stable employment following a separation from stable employment with a short nonemployment spell | Count | Hire | 1 |
| NEPersistS | fne2_doma2 | sNEPersistS | Stable Hires from Persistent Nonemployment | Hires to stable employment following a spell of persistent nonemployment | Count | Hire | 1 |

| Indicator or Variable | Alternative Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|------------------------------|-------------------------|----------------------|--|---|--------------|----------------|-------------|
| ENPersistS | fen2_doms2 | sENPersistS | Stable Separations to Persistent Nonemployment | Separations from stable employment into a spell of persistent nonemployment | Count | Separation | 1 |
| JobStayerS | f4domb_e | sJobStayerS | Stable Job Stayer | Stable main jobs that did not change during the reference quarter | Count | Employment | 1 |
| MainBS | fdomb | sMainBS | Stable Employment (Beginning of Quarter) | Stable main jobs held on the first day of the quarter | Count | Employment | 1 |
| MainES | fdome | sMainES | Stable Employment (End of Quarter) | Stable main jobs held on the last day of the quarter | Count | Employment | 1 |
| NEHireSEarn_Dest | fne2_doma2_kfqearn | sNEHireSEarn_Dest | Average Earnings following Stable Hires from Persistent Nonemployment | Average quarterly earnings following hires to stable employment from a spell of persistent nonemployment | Dollars | Earnings | NE PersistS |
| ENSEpSEarn_Orig | fen2_doms2_jfqearn | sENSEpSEarn_Orig | Average Earnings prior to Stable Separations to Persistent Nonemployment | Average quarterly earnings prior to separations from stable employment into a spell of persistent nonemployment | Dollars | Earnings | EN PersistS |
| JobStayerSEarn_Orig | f4domb_e_jfqearn | sJobStayerSEarn_Orig | Average Earnings prior to Stable Job Stayer | Average quarterly earnings in the previous quarter when workers stayed in a stable job | Dollars | Earnings | JobStayerS |
| JobStayerSEarn_Dest | f4domb_e_kfqearn | sJobStayerSEarn_Dest | Average Earnings following Stable Job Stayer | Average quarterly earnings in the quarter when workers stayed in a stable job | Dollars | Earnings | JobStayerS |

| Indicator or Variable | Alternative Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|--------------------------------------|-----------------------------|---------------------------|--|---|--------------|----------------|-----------------|
| EESepS Earn_O rig | fee_do ms2_jfq earn | sEESepS Earn_O rig | Average Earnings prior to Stable Job-to- Job Separations (Continuous Employment) | Average quarterly earnings prior to job flows with no observed nonemployment spell | Dollars | Earnings | EE Sep S |
| EEHireS Earn_D est | fee_do ma2_kf qearn | sEEHire SEarn_ Dest | Average Earnings following Stable Job- to-Job Hires (Continuous Employment) | Average quarterly earnings following job flows with no observed nonemployment spell | Dollars | Earnings | EE Hir eS |
| AQSepS Earn_O rig | faq_do ms2_jfq earn | sAQSep SEarn_ Orig | Average Earnings prior to Stable Job-to- Job Separations (Brief Nonemployment) | Average quarterly earnings prior to job flows with a short nonemployment spell | Dollars | Earnings | AQ Sep S |
| AQHire SEarn_ Dest | faq_do ma2_kf qearn | sAQHir eSEarn_ Dest | Average Earnings following Stable Job- to-Job Hires (Brief Nonemployment) | Average quarterly earnings following job flows with a short nonemployment spell | Dollars | Earnings | AQ Hir eS |

5.3.4. Job-to-job flow rates (J2JR)

([variables_j2jr.csv](#))

Rates are computed from published data, and are provided as a convenience.

| Indicator or Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|-----------------------|----------------------|-------------|--|---|-------|------------|---------------------|
| MHireR | all_dom a2_rate | sMHire R | Hires | Rate of hires into a worker's main job | Rate | Hire | ((Main B+ MainE)/2) |
| MSepR | all_dom s2_rate | sMSepR | Separations | Rate of separations from a worker's main job | Rate | Separation | ((Main B+ MainE)/2) |
| MJobStartR | first_dom me_rate | sMJobStartR | Main Job Starts | Rate of new main jobs due to hires and instances when a previously existing secondary job becomes the main source of earnings | Rate | Hire | ((Main B+ MainE)/2) |
| MJobEndR | last_dom mb_rate | sMJobEndR | Main Job Ends | Rate of end of main jobs due to separations and instances when another job becomes the main source of earnings | Rate | Separation | ((Main B+ MainE)/2) |
| EEHireR | ee_dom a2_rate | sEEHireR | Job-to-Job Hires (Continuous Employment) | Rate of hires following a separation with no observed nonemployment spell | Rate | Hire | ((Main B+ MainE)/2) |

| Indicator or Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|------------------------------|-----------------------|--------------------|--|---|--------------|----------------|---------------------|
| EESepR | ee_dom s2_rate | sEESep R | Job-to-Job Separations (Continuous Employment) | Rate of separations followed by a hire with no observed nonemployment spell | Rate | Separation | ((Main B+ MainE)/2) |
| AQHireR | aq_dom a2_rate | sAQHireR | Job-to-Job Hires (Brief Nonemployment) | Rate of hires following a separation with a short nonemployment spell | Rate | Hire | ((Main B+ MainE)/2) |
| AQSepR | aq_dom s2_rate | sAQSepR | Job-to-Job Separations (Brief Nonemployment) | Rate of separations followed by a hire with a short nonemployment spell | Rate | Separation | ((Main B+ MainE)/2) |
| J2JHireR | j2j_dom a2_rate | sJ2JHireR | Job-to-Job Hires | Rate of hires following a separation (short or no observed nonemployment spell) | Rate | Hire | ((Main B+ MainE)/2) |
| J2JSepR | j2j_dom s2_rate | sJ2JSepR | Job-to-Job Separations | Rate of separations followed by a hire (short or no observed nonemployment spell) | Rate | Separation | ((Main B+ MainE)/2) |
| NEHireR | ne_dom a2_rate | sNEHireR | Hires from Nonemployment | Rate of hires following any spell of nonemployment | Rate | Hire | ((Main B+ MainE)/2) |

| Indicator or Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|------------------------------|-------------------------|--------------------|--|--|--------------|----------------|-------------------------------|
| ENSepR | en_dom s2_rate | sENSep R | Separations to Nonemployment | Rate of separations into any spell of nonemployment | Rate | Separati on | ((Main B+ MainE)/2) |
| NEPersi stR | ne2_do ma2_rat e | sNEPers istR | Hires from Persistent Nonemployment | Rate of hires following a spell of persistent nonemployment | Rate | Hire | ((Main B+ MainE)/2) |
| ENPersi stR | en2_do ms2_rat e | sENPers istR | Separations to Persistent Nonemployment | Rate of separations into a spell of persistent nonemployment | Rate | Separati on | ((Main B+ MainE)/2) |
| NEFull QR | ne2p_d oma2_r ate | sNEFull QR | Hires from Full- Quarter Nonemployment | Rate of hires following a spell of full-quarter nonemployment (does not include intermittently employed) | Rate | Hire | ((Main B+ MainE)/2) |
| ENFull QR | en2p_d oms2_r ate | sENFull QR | Separations to Full- Quarter Nonemployment | Rate of separations into a spell of full- quarter nonemployment (does not include intermittently employed) | Rate | Separati on | ((Main B+ MainE)/2) |

5.3.5. Job-to-job flow Origin-Destination (J2JOD)

([variables_j2jod.csv](#))

| Indicator Variable | Alternate Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|--------------------------|---------------------------|---------------------------|--|--|---------|----------|-----------------|
| EE | ee_dom a2 | sEE | Job-to-Job Flows (Continuous Employment) | Job flows with no observed nonemployment spell | Count | Hire | 1 |
| AQHire | aq_dom a2 | sAQHire | Job-to-Job Flows (Brief Nonemployment) | Job flows with a short nonemployment spell | Count | Hire | 1 |
| EES | fee_do ma2 | sEES | Stable Job-to-Job Flows (Continuous Employment) | Job flows from stable employment into stable employment with no observed nonemployment spell | Count | Hire | 1 |
| AQHire S | faq_do ma2 | sAQHire S | Stable Job-to-Job Flows (Brief Nonemployment) | Job flows from stable employment into stable employment with a short nonemployment spell | Count | Hire | 1 |
| EESEarnings_Orig | fee_do ma2_jfq earn | sEESEarnings_Orig | Average Earnings prior to Job-to-Job Flows (Continuous Employment) | Average quarterly earnings prior to job flows with no observed nonemployment spell | Dollars | Earnings | EE S |
| EESEarnings_Dest | fee_do ma2_kf qearn | sEESEarnings_Dest | Average Earnings following Job-to-Job Flows (Continuous Employment) | Average quarterly earnings following job flows with no observed nonemployment spell | Dollars | Earnings | EE S |
| AQHire SEarnings_Orig | faq_do ma2_jfq earn | sAQHire SEarnings_Orig | Average Earnings prior to Job-to-Job Flows (Brief Nonemployment) | Average quarterly earnings prior to job flows with a short nonemployment spell | Dollars | Earnings | AQ Hire S |

| Indicator or Variable | Alternative Name | Status Flag | Indicator Name | Description | Units | Concept | Base |
|--------------------------------------|-----------------------------|------------------------|---|---|--------------|----------------|-------------|
| AQHire SEarn_ Dest | faq_doma2_kfqearn | sAQHireSEarn_ Dest | Average Earnings following Job-to-Job Flows (Brief Nonemployment) | Average quarterly earnings following job flows with a short nonemployment spell | Dollars | Earnings | AQHireS |

5.3.6. Post-Secondary Employment Outcomes Earnings (PSEOE)

([variables_pseoe.csv](#))

| Indicat or Variab le | Status Flag | Description | Units | Concep t |
|-------------------------------|----------------------|--|---------|-------------|
| y1_p25_earnings | status_y1_earnings | Earnings 25th Percentile in Year 1 (2016 Dollars) | Dollars | Earnings |
| y1_p50_earnings | status_y1_earnings | Earnings 50th Percentile in Year 1 (2016 Dollars) | Dollars | Earnings |
| y1_p75_earnings | status_y1_earnings | Earnings 75th Percentile in Year 1 (2016 Dollars) | Dollars | Earnings |
| y1_grads_earn | status_y1_grads_earn | Count of Employed Graduates in Year 1 (2016 Dollars) | Count | Employment |
| y5_p25_earnings | status_y5_earnings | Earnings 25th Percentile in Year 5 (2016 Dollars) | Dollars | Earnings |
| y5_p50_earnings | status_y5_earnings | Earnings 50th Percentile in Year 5 (2016 Dollars) | Dollars | Earnings |
| y5_p75_earnings | status_y5_earnings | Earnings 75th Percentile in Year 5 (2016 Dollars) | Dollars | Earnings |
| y5_grads_earn | status_y5_grads_earn | Count of Employed Graduates in Year 5 | Count | Employment |
| y10_p25_earnings | status_y10_earnings | Earnings 25th Percentile in Year 10 (2016 Dollars) | Dollars | Earnings |
| y10_p50_earnings | status_y10_earnings | Earnings 50th Percentile in Year 10 (2016 Dollars) | Dollars | Earnings |
| y10_p75_earnings | status_y10_earnings | Earnings 75th Percentile in Year 10 (2016 Dollars) | Dollars | Earnings |

| Indicator or Variable | Status Flag | Description | Units | Concept |
|--------------------------------------|------------------------|--|--------------|----------------|
| y10_grads_earn | status_y10_grads_earn | Count of Employed Graduates in Year 10 | Count | Employment |
| y1_ipeds_count | status_y1_ipeds_count | Count of IPEDS Reported Graduates of Programs Included in Year 1 Earnings | Count | Graduates |
| y5_ipeds_count | status_y5_ipeds_count | Count of IPEDS Reported Graduates of Programs Included in Year 5 Earnings | Count | Graduates |
| y10_ipeds_count | status_y10_ipeds_count | Count of IPEDS Reported Graduates of Programs Included in Year 10 Earnings | Count | Graduates |

5.3.7. Post-Secondary Employment Outcomes Flows(PSEOF)

([variables_pseof.csv](#))

| Indicat or Variab le | Status Flag | Description | Units | Concep t |
|-------------------------------|----------------------------------|--|-------|----------------|
| y1_gra ds_emp | status_y1_grads_emp | Count of Employed Graduates in Year 1 | Count | Employ ment |
| y1_gra ds_emp _instate | status_y1_grads_emp_ins tate | Count of Graduates Employed in Same State as Educational Institution in Year 1 | Count | Employ ment |
| y5_gra ds_emp | status_y5_grads_emp | Count of Employed Graduates in Year 5 | Count | Employ ment |
| y5_gra ds_emp _instate | status_y5_grads_emp_ins tate | Count of Graduates Employed in Same State as Educational Institution in Year 5 | Count | Employ ment |
| y10_gra ds_emp | status_y10_grads_emp | Count of Employed Graduates in Year 10 | Count | Employ ment |
| y10_gra ds_emp _instate | status_y10_grads_emp_in state | Count of Graduates Employed in Same State as Educational Institution in Year 10 | Count | Employ ment |
| y1_gra ds_nme | status_y1_grads_nme | Count of Graduates Jobless or Marginally Employed in Year 1 | Count | Employ ment |
| y5_gra ds_nme | status_y5_grads_nme | Count of Graduates Jobless or Marginally Employed in Year 5 | Count | Employ ment |
| y10_gra ds_nme | status_y10_grads_nme | Count of Graduates Jobless or Marginally Employed in Year 10 | Count | Employ ment |

5.4. Variability measures

The following tables and associated mapping files list the variability measures available on each file. The "Variability Measure" is the short name of the variable on the CSV files, suitable for machine processing in a wide variety of statistical applications. When given, the "Alternate Name" may appear in related documentation and articles. The "Variable Name" is a more verbose description of the variability measure.

Six variability measures are published:

- Total variability, prefixed by vt_
- Standard error, prefixed by st_, and computed as the square root of Total Variability
- Between-implicate variability, prefixed by vb_
- Average within-implicate variability, prefixed by vw_
- Degrees of freedom, prefixed by df_
- Missingness ratio, prefixed by mr_

A missing variability measure indicates a structural zero in the corresponding indicator. This is currently not associated with a flag.

5.4.1. Generic structure

| Column name |
|-------------------------------------|
| [Identifier1] |
| [Identifier2] |
| [Identifier3] |
| [...] |
| [Standard error for Indicator 1] |
| [Standard error for Indicator 2] |
| [Standard error for Indicator 3] |
| [...] |
| [Total variation for Indicator 1] |
| [Total variation for Indicator 2] |

| Column name |
|--|
| [Total variation for Indicator 3] |
| [...] |
| [Between-implicate variability for Indicator 1] |
| [Between-implicate variability for Indicator 2] |
| [Between-implicate variability for Indicator 3] |
| [...] |
| [Average within-implicate variability for Indicator 1] |
| [Average within-implicate variability for Indicator 2] |
| [Average within-implicate variability for Indicator 3] |
| [...] |
| [Degrees of freedom for Indicator 1] |
| [Degrees of freedom for Indicator 2] |
| [Degrees of freedom for Indicator 3] |
| [...] |
| [Missingness ratio for Indicator 1] |
| [Missingness ratio for Indicator 2] |
| [Missingness ratio for Indicator 3] |
| [...] |

Note: A full list of indicators for each type of file are shown in the [Indicators](#) section. In the tables below, only a sample of variability measures are printed, but the complete list is available in the linked CSV schema files.

5.4.2. National QWI and state-level QWI

([variables_qwiv.csv](#))

| Variability measure | Alternate name | Variable name | Units | Base |
|---------------------|----------------|--|-------|------|
| st_Emp | st_B | Standard error of Beginning-of-Quarter Employment | Count | 1 |
| st_EmpEnd | st_E | Standard error of End-of-Quarter Employment | Count | 1 |
| st_EmpS | st_F | Standard error of Full-Quarter Employment (Stable) | Count | 1 |
| ... | | | | |
| vt_Emp | vt_B | Total variation of Beginning-of-Quarter Employment | Count | 1 |
| vt_EmpEnd | vt_E | Total variation of End-of-Quarter Employment | Count | 1 |
| vt_EmpS | vt_F | Total variation of Full-Quarter Employment (Stable) | Count | 1 |
| ... | | | | |
| vb_Emp | vb_B | Between-implicate variability for Beginning-of-Quarter Employment | Count | 1 |
| vb_EmpEnd | vb_E | Between-implicate variability for End-of-Quarter Employment | Count | 1 |
| vb_EmpS | vb_F | Between-implicate variability for Full-Quarter Employment (Stable) | Count | 1 |
| ... | | | | |
| ... | | | | |
| df_Emp | df_B | Degrees of freedom for VT of Beginning-of-Quarter Employment | Count | 1 |
| df_EmpEnd | df_E | Degrees of freedom for VT of End-of-Quarter Employment | Count | 1 |

| Variability measure | Alternate name | Variable name | Units | Base |
|----------------------------|-----------------------|---|--------------|-------------|
| df_EmpS | df_F | Degrees of freedom for VT of Full-Quarter Employment (Stable) | Count | 1 |
| ... | | | | |
| mr_Emp | mr_B | Missingness ratio for Beginning-of-Quarter Employment | Count | 1 |
| mr_EmpEnd | mr_E | Missingness ratio for End-of-Quarter Employment | Count | 1 |
| mr_EmpS | mr_F | Missingness ratio for Full-Quarter Employment (Stable) | Count | 1 |

5.4.3. National QWI and state-level QWI rates

([variables_qwirv.csv](#))

| Variability measure | Alternate name | Variable name | Units | Base |
|---------------------|----------------|--|-------|------|
| st_HirAR | st_AR | Standard error of Hiring Rate (All Accessions) | Rate | 1 |
| st_HirNR | st_HR | Standard error of New Hiring Rate | Rate | 1 |
| st_HirRR | st_RR | Standard error of Recall Rate | Rate | 1 |
| ... | | | | |
| vt_HirAR | vt_AR | Total variation of Hiring Rate (All Accessions) | Rate | 1 |
| vt_HirNR | vt_HR | Total variation of New Hiring Rate | Rate | 1 |
| vt_HirRR | vt_RR | Total variation of Recall Rate | Rate | 1 |
| ... | | | | |
| vb_HirAR | vb_AR | Between-implicate variability for Hiring Rate (All Accessions) | Rate | 1 |
| vb_HirNR | vb_HR | Between-implicate variability for New Hiring Rate | Rate | 1 |
| vb_HirRR | vb_RR | Between-implicate variability for Recall Rate | Rate | 1 |
| ... | | | | |
| ... | | | | |
| df_HirAR | df_AR | Degrees of freedom for VT of Hiring Rate (All Accessions) | Rate | 1 |
| df_HirNR | df_HR | Degrees of freedom for VT of New Hiring Rate | Rate | 1 |
| df_HirRR | df_RR | Degrees of freedom for VT of Recall Rate | Rate | 1 |
| ... | | | | |
| mr_HirAR | mr_AR | Missingness ratio for Hiring Rate (All Accessions) | Rate | 1 |

| Variability measure | Alternate name | Variable name | Units | Base |
|----------------------------|-----------------------|---------------------------------------|--------------|-------------|
| mr_HirNR | mr_HR | Missingness ratio for New Hiring Rate | Rate | 1 |
| mr_HirRR | mr_RR | Missingness ratio for Recall Rate | Rate | 1 |

5.4.4. Job-to-job flow counts (J2J)

Soon.

5.4.5. Job-to-job flow rates (J2JR)

Soon.

5.4.6. Job-to-job flow Origin-Destination (J2JOD)

Soon.

6. Categorical Variables

Categorical variable descriptions are displayed above each table, with the variable name shown in parentheses. Unless otherwise stated, every possible value/label combination for each categorical variable is listed. Please note that not all values will be available in every table.

6.1. agegrp

([label_agegrp.csv](#))

| agegrp | label |
|--------|------------------|
| A00 | All Ages (14-99) |
| A01 | 14-18 |
| A02 | 19-21 |
| A03 | 22-24 |
| A04 | 25-34 |
| A05 | 35-44 |
| A06 | 45-54 |
| A07 | 55-64 |
| A08 | 65-99 |

6.2. education

([label_education.csv](#))

| education | label |
|-----------|---|
| E0 | All Education Categories |
| E1 | Less than high school |
| E2 | High school or equivalent, no college |
| E3 | Some college or Associate degree |
| E4 | Bachelor's degree or advanced degree |
| E5 | Educational attainment not available (workers aged 24 or younger) |

6.3. ethnicity

([label_ethnicity.csv](#))

| ethnicity | label |
|-----------|------------------------|
| A0 | All Ethnicities |
| A1 | Not Hispanic or Latino |
| A2 | Hispanic or Latino |

6.4. firmage

([label_firmage.csv](#))

| firmage | label |
|---------|--|
| 0 | All Firm Ages |
| 1 | 0-1 Years |
| 2 | 2-3 Years |
| 3 | 4-5 Years |
| 4 | 6-10 Years |
| 5 | 11+ Years |
| N | Firm Age Not Available For Public-Sector Firms |

6.5. firmsize

([label_firmsize.csv](#))

| firmsize | label |
|----------|---|
| 0 | All Firm Sizes |
| 1 | 0-19 Employees |
| 2 | 20-49 Employees |
| 3 | 50-249 Employees |
| 4 | 250-499 Employees |
| 5 | 500+ Employees |
| N | Firm Size Not Available For Public-Sector Firms |

6.6. ownercode

([label_ownercode.csv](#))

| ownercode | label |
|-----------|---|
| A00 | State and local government plus private ownership |
| A01 | Federal government |
| A05 | All Private |

6.7. periodicity

([label_periodicity.csv](#))

| periodicity | label |
|-------------|----------------|
| A | Annual data |
| Q | Quarterly data |

6.8. quarter

([label_quarter.csv](#))

| quarter | label |
|---------|--|
| 1 | 1st Quarter of the Year (January-March) |
| 2 | 2nd Quarter of the Year (April-June) |
| 3 | 3rd Quarter of the Year (July-September) |
| 4 | 4th Quarter of the Year (October-December) |

6.9. race

([label_race.csv](#))

| race | label |
|------|---|
| A0 | All Races |
| A1 | White Alone |
| A2 | Black or African American Alone |
| A3 | American Indian or Alaska Native Alone |
| A4 | Asian Alone |
| A5 | Native Hawaiian or Other Pacific Islander Alone |

| race | label |
|------|----------------------------------|
| A6 | Some Other Race Alone (Not Used) |
| A7 | Two or More Race Groups |

6.10. seasonadj

([label_seasonadj.csv](#))

| seasonadj | label |
|-----------|-------------------------|
| S | Seasonally adjusted |
| U | Not seasonally adjusted |

6.11. sex

([label_sex.csv](#))

| sex | label |
|-----|-----------|
| 0 | All Sexes |
| 1 | Male |
| 2 | Female |

6.12. Industry

6.12.1. Industry levels

([label_ind_level.csv](#))

| ind_level | label |
|-----------|-----------------------|
| A | All Industries |
| S | NAICS Sectors |
| 3 | NAICS Subsectors |
| 4 | NAICS Industry Groups |

6.12.2. Industry

([label_industry.csv](#))

Only a small subset of available values shown. The 2017 NAICS (North American Industry Classification System) is used for all years. QWI releases prior to R2018Q1 used the 2012 NAICS classification (see [Schema v4.1.3](#)). For a full listing of all valid 2017 NAICS codes, see <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2017>.

| industry | label | ind_level |
|----------|--|-----------|
| 00 | All NAICS Sectors | A |
| 000 | All NAICS Subsectors | A |
| 0000 | All NAICS Industry Groups | A |
| 11 | Agriculture, Forestry, Fishing and Hunting | 2 |
| 111 | Crop Production | 3 |
| 1111 | Oilseed and Grain Farming | 4 |
| 1112 | Vegetable and Melon Farming | 4 |
| ... | | |
| 2382 | Building Equipment Contractors | 4 |
| 2383 | Building Finishing Contractors | 4 |
| 2389 | Other Specialty Trade Contractors | 4 |
| 31-33 | Manufacturing | 2 |
| 311 | Food Manufacturing | 3 |
| 3111 | Animal Food Manufacturing | 4 |
| 3112 | Grain and Oilseed Milling | 4 |

| industry | label | ind_level |
|----------|---|-----------|
| 3113 | Sugar and Confectionery Product Manufacturing | 4 |
| ... | | |

6.13. Educational Institution

6.13.1. Institution Levels

([label_inst_level.csv](#))

Educational institutions are tabulated individually in the current data release. Future releases may aggregate to institutions to higher levels, such as state or Census Division.

| inst_level | label |
|------------|--------------------------------|
| I | Institution |
| S | State of institution |
| D | Census division of institution |
| N | All institutions |

6.13.2. Institution

([label_institution.csv](#))

Institution identifiers are sourced from the [U.S. Department of Education, Federal Student Aid office](#). This list has been supplemented with records for regional groupings of institutions (may be used in future PSEO tabulations).

| institution | label | city | institution_state | inst_level | stateflags |
|-------------|-------------------------------------|-----------------|-------------------|------------|------------|
| ... | | | | | |
| 00137000 | University of Colorado Boulder | Boulder | CO | I | 08 |
| 00232500 | University of Michigan | Ann Arbor | MI | I | 26 |
| 00309000 | Ohio State University | Columbus | OH | I | 39 |
| 00332900 | Pennsylvania State University (The) | University Park | PA | I | 42 |
| 00389500 | University of Wisconsin - Madison | Madison | WI | I | 55 |
| 00955800 | University of Texas | Austin | TX | I | 48 |
| ... | | | | | |

6.14. Degree level

([label_degree_level.csv](#))

The degree levels are sourced from the [National Center for Education Statistics \(NCES\)](#), [Integrated Postsecondary Education Data System \(IPEDS\)](#).

| degree_level | label |
|--------------|----------------------------------|
| 00 | All Degree Levels |
| 01 | Certificate < 1 year |
| 02 | Certificate 1-2 years |
| 03 | Associates |
| 04 | Certificate 2-4 years |
| 05 | Baccalaureate |
| 06 | Post-Bacc Certificate |
| 07 | Masters |
| 08 | Post-Masters Certificate |
| 17 | Doctoral - Research/Scholarship |
| 18 | Doctoral - Professional Practice |

6.15. Classification of Instruction Programs (CIP)

6.15.1. CIP levels

([label_cip_level.csv](#))

| cip_level | label |
|-----------|--------------------|
| A | All Degree Fields |
| 2 | 2-Digit CIP Family |
| 4 | 4-Digit CIP Codes |
| 6 | 6-Digit CIP Codes |

6.15.2. CIP Codes

([label_cipcode.csv](#))

CIP codes are sourced from the [National Center for Education Statistics \(NCES\)](#), [Integrated](#)

[Postsecondary Education Data System \(IPEDS\)](#). Data are reported using 2020 CIP codes, for all years. In 4-digit CIP tabulations, select degree levels are collapsed to the 2-Digit CIP family, using custom codes (e.g., 01.XX, 02.XX, etc.).

| cipcode | label | cip_level | CIPFamily | CIPDefinition |
|----------------|--|------------------|------------------|--|
| 00 | All Instructional Programs | A | 00 | All CIP Codes |
| 01 | Agricultural/Animal/Plant/Veterinary Science and Related Fields | 2 | 01 | Instructional programs that focus on agriculture, animal, plant, veterinary, and related sciences and that prepares individuals to apply specific knowledge, methods, and techniques to the management and performance of agricultural and veterinary operations. |
| 01.00 | Agriculture, General | 4 | 01 | Instructional content is defined in code 01.0000. |
| 01.0000 | Agriculture, General | 6 | 01 | A program that focuses on the general principles and practice of agricultural research and production and that may prepare individuals to apply this knowledge to the solution of practical agricultural problems. Includes instruction in basic animal, plant, and soil science; animal husbandry and plant cultivation; soil conservation; and agricultural operations such as farming, ranching, and agricultural business. |
| 01.XX | Agricultural/Animal/Plant/Veterinary Science and Related Fields (Consolidated 0100-0199) | 4 | 01 | Instructional programs that focus on agriculture, animal, plant, veterinary, and related sciences and that prepares individuals to apply specific knowledge, methods, and techniques to the management and performance of agricultural and veterinary operations. |
| 03 | Natural Resources and Conservation | 2 | 03 | Instructional programs that focus on the various natural resources and conservation fields and prepare individuals for related occupations. |

6.16. Grad Cohort

grad_cohort is a 4-digit number representing the first year of the graduation cohort. The number of years in the cohort is reported in the separate [Grad Cohort Years](#) variable.

If **grad_cohort**=2010 and **grad_cohort_years**=3, then the cell includes graduates from 2010, 2011, and 2012.

When tabulating across all cohorts, the value **0000** will be used for **grad_cohort**.

6.17. Grad Cohort Years

grad_cohort_years is the number of years in the cohort of reference (see [Grad Cohort](#)). It varies by [Degree level](#). Bachelor's degrees (05) are reported in 3 year cohorts, all other degrees are reported in 5 year cohorts. The **grad_cohort_years** will take a value (3,5). As tabulations are not done across degree types, the appropriate value will be reported in **grad_cohort_years** when **grad_cohort**=0000.

6.18. Geography

6.18.1. Geographic levels

Geography labels for data files are provided in separate files, by scope. Each file 'label_geography_SCOPE.csv' may contain one or more types of records as flagged by [geo_level](#). For convenience, a composite file containing all geocodes is available as [label_geography.csv](#). The 2019 vintage of [Census TIGER/Line geography](#) is used for all tabulations as of the R2020Q1 release.

Shapefiles are described in a [separate document](#).

([label_geo_level.csv](#))

| geo_level | label | description |
|-----------|--|---|
| B | Metropolitan (complete) | Identifies 5-digit CBSA code for metropolitan areas provided by the Census Bureau's Geography Division. Balance of state including micropolitan areas are identified by custom codes as [ST]999 |
| C | Counties | Identifies 5-digit FIPS/ANSI code for counties |
| D | Divisions | Identifies 1-digit multi-state Census Divisions |
| M | Metropolitan/Micropolitan (state part) | Identifies 7-digit code constructed from the 2-digit state FIPS code and the 5-digit CBSA code provided by the Census Bureau's Geography Division |
| N | National (50 States + DC) | Custom code using '00' to denote national scope |
| S | States | Identifies 2-digit FIPS/ANSI codes |

| geo_level | label | description |
|-----------|----------------------------|---|
| W | Workforce Investment Areas | 2-digit state FIPS code and the 6-digit WIA identifier provided by LED State Partners |

6.18.2. National and state-level values

([label_fipsnum.csv](#))

The file [label_fipsnum.csv](#) contains values and labels for all entities of [geo_level](#) 'N' or 'S', and is a summary of separately available files.

| geography | label | geo_level |
|-----------|---------------------------|-----------|
| 00 | National (50 States + DC) | N |
| 01 | Alabama | S |
| 02 | Alaska | S |
| 04 | Arizona | S |
| 05 | Arkansas | S |
| 06 | California | S |
| 08 | Colorado | S |
| ... | | |
| 45 | South Carolina | S |
| 46 | South Dakota | S |
| 47 | Tennessee | S |
| 48 | Texas | S |
| 49 | Utah | S |
| 50 | Vermont | S |
| 51 | Virginia | S |
| 53 | Washington | S |

([label_geography_division.csv](#))

The file [label_geography_division.csv](#) contains values and labels for all entities of [geo_level](#) 'D'. For more information on which states comprise each division, see the map [here](#).

| geography | label | geo_level |
|-----------|-----------------------------|-----------|
| 1 | New England Division | D |
| 2 | Middle Atlantic Division | D |
| 3 | East North Central Division | D |
| 4 | West North Central Division | D |
| 5 | South Atlantic Division | D |
| 6 | East South Central Division | D |
| 7 | West South Central Division | D |
| 8 | Mountain Division | D |
| 9 | Pacific Division | D |
| Z | Unclassified | D |

6.18.3. State postal codes

Some parts of the schema use (lower or upper-case) state postal codes.

([label_stusps.csv](#))

| geography | stusps |
|-----------|--------|
| 00 | US |
| 01 | AL |
| 02 | AK |
| 04 | AZ |
| 05 | AR |
| 06 | CA |
| 08 | CO |
| 09 | CT |
| 10 | DE |
| 11 | DC |
| 12 | FL |

| geography | stusps |
|-----------|--------|
| 13 | GA |
| 15 | HI |
| 16 | ID |
| 17 | IL |
| 18 | IN |
| 19 | IA |
| 20 | KS |
| 21 | KY |
| 22 | LA |
| 23 | ME |
| 24 | MD |
| 25 | MA |
| 26 | MI |
| 27 | MN |
| 28 | MS |
| 29 | MO |
| 30 | MT |
| 31 | NE |
| 32 | NV |
| 33 | NH |
| 34 | NJ |
| 35 | NM |
| 36 | NY |
| 37 | NC |
| 38 | ND |
| 39 | OH |
| 40 | OK |
| 41 | OR |
| 42 | PA |
| 44 | RI |
| 45 | SC |

| geography | stusps |
|-----------|--------|
| 46 | SD |
| 47 | TN |
| 48 | TX |
| 49 | UT |
| 50 | VT |
| 51 | VA |
| 53 | WA |
| 54 | WV |
| 55 | WI |
| 56 | WY |
| 72 | PR |
| 78 | VI |

6.18.4. Detailed state and substate level values

Files of type 'label_geography_[ST].csv' will contain identifiers and labels for geographic areas entirely comprised within a given state '[ST]'. State-specific parts of cross-state CBSA, in records of type [geo_level](#) = M, are present on files of type 'label_geography_[ST].csv'. The file [label_geography_metro.csv](#) contains labels for records of type [geo_level](#) = B, for metropolitan areas only.

| Scope | Types | Format file |
|---------------|---------|--|
| US | N | label_geography_us.csv |
| DIVISION | D | label_geography_division.csv |
| METRO | B | label_geography_metro.csv |
| States | | |
| AK | S C W M | label_geography_ak.csv |
| AL | S C W M | label_geography_al.csv |
| AR | S C W M | label_geography_ar.csv |
| AZ | S C W M | label_geography_az.csv |
| CA | S C W M | label_geography_ca.csv |
| CO | S C W M | label_geography_co.csv |

| Scope | Types | Format file |
|-------|---------|--|
| CT | S C W M | label_geography_ct.csv |
| DC | S C W M | label_geography_dc.csv |
| DE | S C W M | label_geography_de.csv |
| FL | S C W M | label_geography_fl.csv |
| GA | S C W M | label_geography_ga.csv |
| HI | S C W M | label_geography_hi.csv |
| IA | S C W M | label_geography_ia.csv |
| ID | S C W M | label_geography_id.csv |
| IL | S C W M | label_geography_il.csv |
| IN | S C W M | label_geography_in.csv |
| KS | S C W M | label_geography_ks.csv |
| KY | S C W M | label_geography_ky.csv |
| LA | S C W M | label_geography_la.csv |
| MA | S C W M | label_geography_ma.csv |
| MD | S C W M | label_geography_md.csv |
| ME | S C W M | label_geography_me.csv |
| MI | S C W M | label_geography_mi.csv |
| MN | S C W M | label_geography_mn.csv |
| MO | S C W M | label_geography_mo.csv |
| MS | S C W M | label_geography_ms.csv |
| MT | S C W M | label_geography_mt.csv |
| NC | S C W M | label_geography_nc.csv |
| ND | S C W M | label_geography_nd.csv |
| NE | S C W M | label_geography_ne.csv |
| NH | S C W M | label_geography_nh.csv |
| NJ | S C W M | label_geography_nj.csv |
| NM | S C W M | label_geography_nm.csv |
| NV | S C W M | label_geography_nv.csv |
| NY | S C W M | label_geography_ny.csv |
| OH | S C W M | label_geography_oh.csv |
| OK | S C W M | label_geography_ok.csv |

| Scope | Types | Format file |
|-------|---------|--|
| OR | S C W M | label_geography_or.csv |
| PA | S C W M | label_geography_pa.csv |
| PR | S C W M | label_geography_pr.csv |
| RI | S C W M | label_geography_ri.csv |
| SC | S C W M | label_geography_sc.csv |
| SD | S C W M | label_geography_sd.csv |
| TN | S C W M | label_geography_tn.csv |
| TX | S C W M | label_geography_tx.csv |
| UT | S C W M | label_geography_ut.csv |
| VA | S C W M | label_geography_va.csv |
| VT | S C W M | label_geography_vt.csv |
| WA | S C W M | label_geography_wa.csv |
| WI | S C W M | label_geography_wi.csv |
| WV | S C W M | label_geography_wv.csv |
| WY | S C W M | label_geography_wy.csv |

6.19. Aggregation level

6.19.1. J2J

([label_agg_level.csv](#))

Measures within the J2J and QWI data products are tabulated on many different dimensions, including demographic characteristics, geography, industry, and other firm characteristics. For Origin-Destination (O-D) tables, characteristics of the origin and destination firm can be tabulated separately. Every tabulation level is assigned a unique aggregation index, represented by the `agg_level` variable. This index starts from 1, representing a national level grand total (all industries, workers, etc.), and progresses through different combinations of characteristics. There are gaps in the progression to leave space for aggregation levels that may be included in future data releases.

agg_level is currently reported only for J2J data products.

The following variables are included in the [label_agg_level.csv](#) file:

| Variable | Description |
|----------------|---|
| agg_level | index representing level of aggregation reported on a given record |
| worker_char | demographic (worker) characteristics reported on record |
| firm_char | firm characteristics reported on record. These will be the characteristics of the destination firm in O-D tabulations |
| firm_orig_char | characteristics of origin firm reported on record (O-D tabulations only) |
| j2j | Flag: Aggregation level available on J2J counts tables |
| j2jr | Flag: Aggregation level available on J2J rates tables |
| j2jod | Flag: Aggregation level available on J2J O-D tables |
| qwi | Flag: Aggregation level available on QWI |

The characteristics available on an aggregation level are repeated using a series of flags following the standard schema:

- [cip_level](#) - degree field reporting level of table
- [inst_level](#) - institution reporting level of table

- [geo_level](#) - geographic level of table
- [ind_level](#) - industry level of table
- [by_variables](#) - flags indicating other dimensions reported, including ownership, demographics, firm age and size.

A shortened representation of the file is provided below, the complete file is available in the link above.

| agg_level | worker_char | firm_char | firm_orig_char | j2j | j2jr | j2jod | qwi | geo_level |
|-----------|------------------|--------------|----------------|-----|------|-------|-----|-----------|
| 1 | | | | 1 | 1 | 1 | 0 | N |
| 2 | Sex | | | 1 | 1 | 1 | 0 | N |
| 3 | Age | | | 1 | 1 | 1 | 0 | N |
| 4 | Sex * Age | | | 1 | 1 | 1 | 0 | N |
| 5 | Race | | | 1 | 1 | 1 | 0 | N |
| 9 | Ethnicity | | | 1 | 1 | 1 | 0 | N |
| 13 | Race * Ethnicity | | | 1 | 1 | 1 | 0 | N |
| ... | | | | | | | | |
| 129 | | Firm Size | | 1 | 1 | 1 | 0 | N |
| 257 | | NAICS Sector | | 1 | 1 | 1 | 0 | N |
| 258 | Sex | NAICS Sector | | 1 | 1 | 1 | 0 | N |
| ... | | | | | | | | |
| 1029 | Race | State | | 1 | 1 | 1 | 0 | S |
| 1033 | Ethnicity | State | | 1 | 1 | 1 | 0 | S |
| 1037 | Race * Ethnicity | State | | 1 | 1 | 1 | 0 | S |
| ... | | | | | | | | |

6.19.2. PSEO

([label_agg_level_pseo.csv](#))

Measures within the PSEO data product can be tabulated by characteristics of the graduate (e.g., institution attended, instructional program, degree level, etc.) and by characteristics of employment (state, industry). All measures may not be available on all levels of aggregation - for example, earnings variables may not be available when tabulating by place and industry of work, though counts are. Every tabulation level is assigned a unique aggregation index, represented by the `agg_level_pseo`

variable. This index starts from 1, representing a national level grand total (all institutions, graduates, industries, etc.), and progresses through different combinations of characteristics. There are gaps in the progression to leave space for aggregation levels that may be included in future data releases. Aggregation levels that are available in the PSEO release will be flagged.

The following variables are included in the [label_agg_level_pseo.csv](#) file:

| Variable | Description |
|----------------|--|
| agg_level_pseo | index representing level of aggregation reported on a given record |
| grad_char | Characteristics of graduate and program |
| firm_char | Characterstics of place of employment |
| pseoe | Flag: aggregation level available on PSEO Earnings |
| pseof | Flag: aggregation level available on PSEO Flows |

The characteristics available on an aggregation level are repeated using a series of flags following the standard schema:

- [inst_levels](#) - institution level of table
- [geo_level](#) - geographic level of table
- [ind_level](#) - industry level of table
- [by_](#) variables - flags indicating other dimensions reported, including ownership, demographics, firm age and size.

| agg_level_pseo | grad_char | firm_char | cip_level | inst_level | geo_level | ind_level | by_grad_cohort | by_degree_level | pseoe | pseof |
|----------------|---|-----------|-----------|------------|-----------|-----------|----------------|-----------------|-------|-------|
| 38 | Degree Level * Institution ID | | A | I | N | A | 0 | 1 | 1 | 1 |
| 40 | Degree Level * CIP 2-digit * Institution ID | | 2 | I | N | A | 0 | 1 | 1 | 1 |
| 42 | Degree Level * CIP 4-digit * Institution ID | | 4 | I | N | A | 0 | 1 | 1 | 0 |

| agg_level_pseo | grad_char | firm_char | cip_level | inst_level | geo_level | ind_level | by_grad_cohort | by_degree_level | pseo_e | pseo_f |
|----------------|---|-----------------------------------|-----------|------------|-----------|-----------|----------------|-----------------|--------|--------|
| 44 | Degree Level * Start Year for Graduation Cohort * Institution ID | | A | I | N | A | 1 | 1 | 1 | 1 |
| ... | | | | | | | | | | |
| 188 | Degree Level * Start Year for Graduation Cohort * Institution ID | NAICS Sector * Census Division | A | I | D | S | 1 | 1 | 0 | 1 |
| 190 | Degree Level * CIP 2-digit * Start Year for Graduation Cohort * Institution ID | NAICS Sector * Census Division | 2 | I | D | S | 1 | 1 | 0 | 1 |
| 192 | Degree Level * CIP 4-digit * Start Year for Graduation Cohort * Institution ID | NAICS Sector * Census Division | 4 | I | D | S | 1 | 1 | 0 | 0 |
| ... | | | | | | | | | | |
| 188 | Degree Level * Start Year for Graduation Cohort * Institution ID | NAICS Sector * Census Division | A | I | D | S | 1 | 1 | 0 | 1 |
| 190 | Degree Level * CIP 2-digit * Start Year for Graduation Cohort * Institution ID | NAICS Sector * Census Division | 2 | I | D | S | 1 | 1 | 0 | 1 |

| agg_level_pseo | grad_char | firm_char | cip_level | inst_level | geo_level | ind_level | by_grad_cohort | by_degree_level | pseo_e | pseo_f |
|----------------|--|----------------|-----------|------------|-----------|-----------|----------------|-----------------|--------|--------|
| 192 | Degree Level * CIP 4-digit * Start Year for Graduation Cohort * Institution ID | NAICS Sector * | 4 | I | D | S | 1 | 1 | 0 | 0 |
| ... | | | | | | | | | | |

7. Status Flags

([label_flags.csv](#))

Most indicators in the LEHD data products have associated status flags. Each status flag in the tables above contains one of the following valid values. The values and their interpretation are listed in the tables below. Unless otherwise specified in this section, a status flag will take the values described in 7.1 Standard Status Flags.

7.1. Standard Status Flags



Important

Note: Currently, the J2J and PSEO tables only contain status flags '-1', '1', '5'. Status flags with values 10 or above only appear in online applications, not in CSV files.

| flag | label |
|------|--|
| -2 | no data available in this category for this quarter |
| -1 | data not available to compute this estimate |
| 1 | OK |
| 5 | Value suppressed because it does not meet US Census Bureau publication standards. |
| 6 | Value calculated from other released measures - no significant distortion |
| 7 | Value calculated from other released measures - some of which have significantly distorted data |
| 9 | Data significantly distorted - fuzzed value released |
| 10 | Aggregate of cells - no significant distortion |
| 11 | Aggregate of cells not released because component cells do not meet U.S. Census Bureau publication standards |
| 12 | Aggregate of cells - some of which have significantly distorted data |

7.2. IPEDS Count Status Flag

([label_flags_ipeds_count.csv](#))

Graduate counts are provided from public use data from the [Integrated Postsecondary Education Data System \(IPEDS\)](#). Counts are linked to graduation cohorts in the PSEO data and included in the PSEO tables. In a small number of cases, misalignment in programs (CIPCODE) is observed between the

IPEDS and PSEO counts. In these cases, the IPEDS counts adjusted to be consistent with those on PSEO, and the count is flagged accordingly.

| flag | label |
|------|--|
| 1 | IPEDS counts as reported |
| 2 | IPEDS counts edited for consistency with PSEO categories |
| 3 | IPEDS counts not available |

8. Metadata

([variables_version.csv](#))

8.1. Version Metadata for QWI, J2J, and PSEO Files (version.txt)

Each data release is accompanied by one or more files with metadata on geographic and temporal coverage, in a compact notation. These files follow the following naming convention:

```
version_[type].txt
```

where each component is described in more detail in [lehd_csv_naming.pdf](#).

The contents contains the following elements:

| Component | Source | Description |
|-----------|-----------------------------------|---|
| product | [type] | Type as described in lehd_csv_naming.pdf |
| fas | [fas] | (optional - concatenated with product) used for QWI to distinguish separate tabulations from the legal [fas] values as described in lehd_csv_naming.pdf |
| geo | [stusps] or METRO | Covered [geography] (uppercase state postal code including entire nation or the word METRO) |
| geonum | [geography] | Numeric geography code |
| start | yyyy:q (QWI, J2J) yyyy (PSEO) | Start year and quarter |
| end | yyyy:q (QWI, J2J) yyyy (PSEO) | End year and quarter |
| schema | Vx.y.z | Version of the schema |
| release | RyyyyQq | Release quarter (identifies when the data was created) |
| internal | various | Internal identifier used for provenance tracking |

For instance, the metadata for the latest_release QWI release of Delaware (obtained from [here](#)) has the following content:

```
QWI_F DE 10 1998:3-2019:3 V4.6.0 R2020Q2 qwipu_de_20200416_0913
QWI_FA DE 10 1998:3-2017:4 V4.6.0 R2020Q2 qwipu_de_20200416_0913
QWI_FS DE 10 1998:3-2017:4 V4.6.0 R2020Q2 qwipu_de_20200416_0913
```

Similarly, the metadata for the latest_release release of Delaware J2J tabulations (obtained from [here](#)) has the following content:

```
J2J DE 10 2000:2-2019:2 V4.6.0 R2020Q2 j2jpu_de_20200620_0943
```

Some J2J metadata may contain multiple lines, as necessary.

The PSEO metadata will contain separate lines for the PSEOE and PSEOF tables. The year range for PSEO tables is based on the [Grad Cohort](#), the start year of the graduation cohort. An example for Colorado institutions has the following content:

```
PSEOE CO 08 2001-2015 V4.5.0 2019Q1 pseopu_co_20190617_0839
PSEOF CO 08 2001-2015 V4.5.0 2019Q1 pseopu_co_20190617_0839
```

8.2. Additional Metadata for J2JOD Files (avail.csv)

([variables_avail.csv](#))

Because the origin-destination (J2JOD) data link two regions, we provide an auxiliary file with the time range that cells containing data for each geographic pairing may appear in a data release.

| variable | type | label |
|----------------|---------|---|
| geo_level | Char(1) | Geographic level of destination region |
| geography | Char(8) | Geography code of destination region |
| geo_level_orig | Char(1) | Geographic level of origin region |
| geography_orig | Char(8) | Geography code of origin region |
| start_year | Num | First year regional pair may be observed |
| start_quarter | Num | First quarter regional pair may be observed |
| end_year | Num | Last year regional pair may be observed |
| end_quarter | Num | Last quarter regional pair may be observed |

The reference region will always be either the origin or the destination. National tabulations contain records where both origin and destination are [geo_level=N](#); state tabulations contain records where [geo_level](#) in (N,S); metro tabulations contain records where [geo_level](#) in (N,S,B). Data may be suppressed for certain combinations of regions and quarters because the estimates do not meet Census Bureau publication standards.

8.3. Metadata on Indicator Availability

([variables_lags.csv](#))

Each [Indicator](#) potentially requires leads and/or lags of data to be computed, and thus may not be available for certain time periods. Only two QWI will be available for all quarters of the time span described by start and end in the [version.txt](#) files: EmpTotal and Payroll. The date range for QWI, QWIR, J2J, and J2JR can be found in [version.txt](#); the date range for J2JOD can be found in [avail.csv](#).

For each indicator, the following files contain the quarters of data required to be available relative to the overall date range described in the metadata for the release:

- [lags_qwi.csv](#)
- [lags_j2j.csv](#)

The files are structured as follows:

| variable | type | label |
|------------------------------|------|--|
| Indicator Variable | Num | Name of the Indicator |
| Quarters_Required_Prior | Num | Number of quarters of data required to compute indicator relative to start quarter |
| Quarters_Required_Subsequent | Num | Number of quarters of data required to compute indicator relative to end quarter |

9. Changes

For a description of how schema files are versioned, see [main directory](#).

9.1. This version (revisions)

- 2020-06-26: Initial release

9.2. Changes from 4.6.0

- Merge PSEO schema files into official release version
- Minor formatting changes

9.3. Changes from 4.5.0-draft

- Additional status flags on PSEO Earnings
- Additional measures on PSEO Flows to report unobserved/marginally employed
- Earnings reported at 2-digit CIPCODE level
- Institution code changed to 8-digits
- Updated to 2020 CIPCODE

This revision: Thu Jul 2 21:11:53 UTC 2020