Linking BEA Surveys of Foreign Direct Investment in the United States with BLS Register and Survey Data: Twenty First Century Methods and Preliminary Findings

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Motivation

The Bureau of Labor Statistics (BLS) publishes detailed estimates of employment and wages in the United States, based on the Quarterly Census of Employment and Wages (QCEW) Business Register. Meanwhile, the Bureau of Economic Analysis (BEA) collects information on foreign direct investment (FDI) to measure U.S. assets overseas and foreign ownership of U.S. operations. We have heard from potential users that linking these data to produce detailed employment estimates for U.S. parents of multinational companies and foreign-owned businesses in the United States would be useful to researchers and policymakers. Producing additional estimates from linked data leverages existing infrastructure, and does not add to respondent burden.

The QCEW is a comprehensive source of data on U.S. establishments. At the establishment level, total employment and compensation data are collected, as well as the industrial classification and geographic location of each establishment. Linking BEA data to the QCEW also allows for linking to other BLS surveys, because the QCEW serves as the frame for BLS surveys of employers. For example, the QCEW is the sampling frame for the large Occupational Employment Survey (OES), which collects detailed measures of employment by occupation at the establishment level. Thus, linking BEA data to the QCEW allows for direct estimates of employment and compensation by detailed levels of geography and industry, as well as indirect sample-based estimates of employment by occupation via other BLS surveys.

A collaboration between BLS and BEA in the early 1990s produced tabulations on "Employment And Wages In Foreign-Owned Businesses In The United States" for 1989, 1990, and 1991 data, as well as tabulations of "Occupations In Foreign-Owned Manufacturing Establishments In The United States" for 1989 data. The current collaboration has produced a pilot analysis of the domestic employment in the largest US-based multinational manufacturing companies in 2004 data, and work is ongoing to link BEA data on foreign-owned businesses in 2012 and 2013. However, this data linking work will be most valuable when the data has been linked for multiple years, allowing observations of changes over time in foreign investments and employment patterns.

With single years of data, we can examine differences in employment, wages, and occupational structure between US employers that are foreign-owned and those that are domestically owned (or between those that have overseas affiliates and those that do not). We can also examine patterns by the country of foreign owner (or country of foreign affiliates). With multiple years of data, we will be able to examine the relationships between employment dynamics and changes in investment by foreign firms in US firms, or by US firms in overseas affiliates. We will also be able to identify which geographic areas of the US have had employment most affected by inward or outward foreign direct investments, and which occupations are most affected by inward or outward foreign direct investments.

We have heard from potential data users that local governments are interested in learning about the country distribution of foreign interests that invest in their regions, at greater geographic detail than the state-level information collected by BEA. The SelectUSA initiative in 2011 established an office in the Commerce Department to attract and retain international investment in the United States. We have spoken with staff members of this office who have expressed an interest in the sort of linked data that this project could produce as a helpful tool in their work.

The central challenge of linking BLS employment data with BEA survey data is that BEA collects information on foreign direct investment (FDI) through mandatory surveys at the enterprise level, while BLS collects the QCEW data at the Unemployment Insurance Account level. Although both datasets contain Employer Identification Numbers (EINs) used for tax purposes, large employers may have many EINs, and may use different EINs in reporting to BEA surveys than they use in reporting to the Unemployment Insurance systems whose data are compiled into BLS' QCEW.

This paper lays out the conceptual framework for developing indicators of employment and wages related to FDI by linking survey micro-data from BEA with BLS business register micro-data. This paper describes the methodology for generating these measures, the linking process and results, as well as some of the challenges and caveats associated with this approach. The paper then presents preliminary results and opportunities for future work.

Section I: The QCEW Business Register

The QCEW Business Register is a list of active employer business establishments in the United States, Washington DC, Puerto Rico, and the Virgin Islands. Its principal sources of information are the mandatory quarterly reports filed by all employers covered by the Unemployment Insurance system of the fifty States, the District of Columbia, Puerto Rico and the Virgin Islands. Employers report to their State Workforce Agencies (SWA's) in compliance with State Unemployment Insurance (UI) laws, and for Federal civilian workers, in compliance with the Unemployment Compensation for Federal Employee (UCFE) program. Each quarter, business and government employers report monthly employment and quarterly wages.

As of the fourth quarter of 2014, there are 9.4 million worksites with 139 million employees reported in the QCEW.

Sources of data for the QCEW:

- **Status Determination Forms.** All new employers subject to UI coverage must file a Status Determination Form with their State Employment Security Agency (SESA). This form includes basic identification information, including business name, mailing and physical location address, type of organization, Federal Employer Identification Number (EIN), and more. The Status Determination Form also requests information to identify the establishment's industrial activity (NAICS) code, county code (or township in the New England area), and the ownership code (private sector, or Federal, State or local government). The assignment of the industry code is based on the establishment's primary economic activity, which is determined by its principal product or group of products produced or distributed, or services rendered. Inclusion of EINs on this form is due to the Federal Unemployment Tax Act (FUTA). This law affects payments of unemployment compensation to workers who have lost their jobs. Most employers pay both a federal and a state unemployment tax. FUTA provides a substantial offset for federal taxes for employers that pay into State UI taxes. Thus, employers have a tremendous incentive to report the same EINs to both State and federal systems. Because the employer pays the FUTA tax; the EIN can be matched between the IRS and the state to verify that these payments have been made.

- **Quarterly Contribution Report (QCR).** All liable employers are required to file a QCR with the SESAs for their UI accounts. These reports, like the Status Determination Forms, are administered by the UI program. All of the QCR forms request employment values for each month of the quarter and total wages, taxable wages, and UI taxes due for the quarter. This information and the taxes that are due are necessary for the operation of the UI tax system, but they are also an important source of statistical data. Employers are asked to report, among other items, the total number of covered workers (full and part-time) who earned wages (subject to UI taxes) during the pay period(s) which includes the 12th of each month in the quarter and the total payroll for the quarter. This is the official OMB definition of employment. This report is mandatory for employers with a single location as well as employers with multiple locations in the State.

The latter group of employers reports a summary of these data for all of their establishments covered under the same State UI account on the QCR.

- **Multiple Worksite Reports (MWRs).** Approximately 7.5 million worksites were reported as single establishment employers. Employment and wages data and other business identification information for the remaining 1.9 million worksites were collected from quarterly Multiple Worksite Reports (MWRs). The MWR employers represent about 1.4% of total employers, but they constitute 17% of the total number of worksites and a stunning 41% of the Nation's employment. Information on the MWR form is used to more accurately classify employment and wage data of multiple establishment employers by industry and by location within states. The MWR is mandatory in 26 states and compliance in the voluntary states is also very high. The EIN provides linkages among establishments of the same business enterprise across States. Also collected are the physical location address of each worksite, a worksite description (normally a store or unit number or other information meaningful to the employer), and various other business identification information. This more comprehensive disaggregation of multi-establishment accounts is available in the QCEW Business Register which is almost entirely at the establishment level and thus provides more accurate industrial and geographic information for all establishments.

- **Annual Refiling Survey (ARS).** The purpose of the BLS Annual Refiling Survey is to review and, if necessary, update the classification codes (industrial, geographical, and ownership) currently assigned to the establishments stored on the QCEW Business Register. The survey covers approximately one-third of the establishments in the QCEW Business Register which are reviewed annually. Due to budget limitations, establishments with zero to three employees are excluded. In addition to the industrial classification review, the respondent is also requested to review and update information for the business establishment's 1) physical location address; 2) mailing address; and, 3) county, township, island, or parish in which the establishment is located.

Data collected on the QCR, MWR, and RFEW are edited by the SESA staff and corrected, as necessary. There are 150 separate edits designed to detect a wide range of invalid and inconsistent values. These edits have been refined and enhanced over time reflecting the many years of data editing experience of state, regional and national office staff. In order to assure accurate linkages between new and existing establishments, there are two components of QCEW Business Register matching process: automated matching and analyst matching. The computer automated matching links approximately 97 percent of all establishments each quarter through a process which links State Employment Security Agencies' identification numbers (SESA-ID). Every time a link is made, an identifier is assigned to the link to distinguish which type of match was made such as a breakout or consolidation.

An example of the data available from the QCEW is the following table of employment in large US counties from the September 17, 2015 press release (available at http://www.bls.gov/news.release/cewqtr.nr0.htm):

Table A. Large counties ranked by March 2015 employment, March 2014-15 employment increase, and March 2014-15 percent increase in employment

Employment in large counties					
March 2015 employment (thousands)		Increase in employment, March 2014-15 (thousands)		Percent increase in employment, March 2014-15	
United States	37,412.4	United States	2,872.7	United States	2.1
Los Angeles, Calif.	4,204.3	Los Angeles, CA	86.4	Utah, Utah	6.7
Cook, Ill.	2,470.3	Harris, Texas	66.6	Adams, Colo.	5.8
New York, N.Y.	2,346.5	New York, N.Y.	60.5	Denton, Texas	5.8
Harris, Texas	2,288.8	Dallas, Texas	56.6	Montgomery, TX	5.8
Maricopa, Ariz.	1,803.5	Maricopa, Ariz.	52.0	Lee, Fla.	5.7
Dallas, Texas	1,570.9	King, Wash.	42.5	Chatham, Ga.	5.3
Orange, Calif.	1,501.2	Santa Clara, CA	38.5	Calcasieu, La.	5.3
San Diego, Calif.	1,352.1	Clark, Nev.	37.0	Clay, Mo.	5.3
King, Wash.	1,254.9	Orange, Calif.	36.4	Weld, Colo.	5.2

Miami-Dade, Fla. 1,074.6	Cook, Ill. 36.1	Collier, Fla. 5.2
		Williamson, TN 5.2

Section II: BEA data on Foreign Direct Investment

The Bureau of Economic Analysis conducts surveys of both U.S. Direct Investment Abroad and Foreign Direct Investment in the United States. Preliminary efforts to match selected data from surveys of U.S. Direct Investment Abroad with BLS data are described in Handwerker, Kim, and Mason (2012). This paper focuses on efforts to match the complete data from BEA's 2012 Benchmark Survey of Foreign Direct Investment in the United States[1] with the QCEW.

BEA's 2012 Benchmark Survey of Foreign Direct Investment in the United States collects mandatory reports from all U.S. business enterprises (from here on referred to as affiliates) in which there is foreign direct investment by an entity (e.g. an individual, corporation, estate, trust, or government) that has at least a 10 percent controlling interest in the affiliate. Such benchmark surveys take place every five years; in the intervening years, larger businesses must make similar reports, but data from smaller businesses are imputed. The reports capture a comprehensive set of data, including:

- Balance sheet details, such as total assets, liabilities, and owner's equity
- Value added
- Employment and employee compensation
- Sales and net income
- Expenditures and trade in goods
- Expenditures in research and development

For the purposes of linking the BEA FDI dataset with QCEW establishment data, affiliate employment totals provide a target to measure how successfully establishments were matched to their parent affiliates. BEA employment represents the number of full and part-time employees on the affiliate's payroll at the end of the fiscal year. The BEA definition of employment is similar but not identical to the BLS. We use the same reference month when comparing BEA affiliate employment and the sum of employment for all matching QCEW establishments: as BEA affiliate employment is generally given at the end of each affiliate's fiscal year, we compare this employment level to employment during the same time period for the matched QCEW establishments.

For this matching project, BLS is focusing on the US affiliates of foreign-owned multinationals in 2012 for which there is non-zero employment. These are the group of affiliates for which establishment matches are attempted. As reported in the preliminary tabulations, average employment of these affiliates is 688.50 (standard deviation is 4,627.01). There is considerable variation among affiliate employment (Table 1). 35.82% of all affiliates are quite small, employing less than 10 employees; they account for less than 0.18% of total employment for the affiliates with positive employment. Affiliates with 2,500 or more employees, on the other hand, account for 75.82% of total employment.

Table 1: Size distribution of US affiliates of foreign-owned enterprises

Total number of employees	Percent of affiliates	Percent of employment
1 – 9	35.82%	0.18%
10 – 19	9.87%	0.20%
20 – 99	22.78%	1.61%
100 – 249	10.33%	2.40%
250 – 999	12.32%	9.20%
1000 – 2499	4.50%	10.61%
2500+	4.38%	75.82%

[1] A detailed description of the data is available in the BEA publication "Foreign Direct Investment in the United States (FDIUS): Preliminary 2012 Data," found at http://www.bea.gov/international/fdius2012_preliminary.htm. Revised statistics will be released in mid-November 2015. A more thorough introduction to these data is given in Mataloni (1995), available online at http://bea.gov/scb/pdf/internat/usinvest/1995/0395iid.pdf

Country Group of Affiliate Owners

Tables 2 shows the 3 top country groups of "Ultimate Beneficial Owners (UBO)" for affiliates with positive employment that are eligible to be matched both in terms of the number of affiliates as well as total employment. As shown in Table 2, Europe accounts for the largest percentage of foreign-owned US affiliates, both in terms of number of affiliates (44.28%) and total employment (63.48%). On average, US affiliates whose ultimate beneficial ownership are European enterprises are far larger than those of other country groups 987.21 employees per affiliate as compared to 688.50 for all affiliates). Asia and Pacific owned affiliates account for the next highest percentages (31.13% of affiliates, but only 17.44% of total employment given smaller average affiliate size of 385.79 employees) followed by Canada (13.03% of affiliates, 11.94% of total employment).

Table 2: Top 3 groups of counties of UBO in terms of percent of affiliates of foreign-owned enterprises and percent of employment

Country Group	Ranking	Percent of affiliates	Percent of employment	Average number of employees (Standard deviation)
Europe	1	44.28%	63.48%	987.21 (6,126.76)
Asia and Pacific	2	31.13%	17.44%	385.79 (1,930.61)
Canada	3	13.03%	11.94%	631.07 (4,734.33)

Industry of Affiliate

Table 3 shows the top 4 industry groups both in terms of the number of affiliates and in terms of total affiliate employment. In terms of the number of affiliates, the top 4 industry groups represent 74.01% of all affiliates. In terms of total employment, the top 4 industry groups represent 64.61% of all affiliate employment. Three sectors are included in both lists: Manufacturing (1st in terms of the number of affiliates and in terms of total employment); Wholesale trade (2nd in terms of the number of affiliates, 3rd in terms of total employment; and Financial activities (3rd in terms of number of affiliates, 4th in terms of total employment). Professional, scientific, and technical services is 4th in terms of the number of affiliates but is not in the top 4 in terms of total affiliate employment, where it is replaced by Retail trade in 2nd.

Table 3: Top 4 industry groups in terms of percent of affiliates of foreign-owned enterprises and percent of employment

	Ranking based upon:			
	Percent of total number of affiliates		Percent of employment	
Ranking	Industry	Percent	Industry	Percent
1	Manufacturing	28.82%	Manufacturing	36.86%
2	Wholesale trade	21.72%	Retail trade	10.74%
3	Financial activities	13.27%	Wholesale trade	9.17%
4	Professional, scientific, and technical services	10.20%	Financial activities	7.83%

Geographic Distribution of Affiliate Employment

Finally, while BEA inward FDI data are reported at the enterprise level, affiliates are required to break out their employment by state in which their employees are employed. Table 4 shows the top 10 states in terms of the percent of total affiliate employment as collected by BEA. The top 10 states contain 55.23% of all affiliate employment by state. Table 4 also compares the percent of total affiliate employment to the percent of all QCEW establishment employment within the same 10 states. Compared to all QCEW establishment employment, affiliate employment is more highly concentrated in New York and New Jersey, and less concentrated in California and Florida.

Table 4: Top 10 states in terms of percent of total employment

State	US affiliate employment		QCEW establishment employment		Percent difference
	Ranking	Percent	Ranking	Percent	
California	1	10.42%	1	11.28%	-0.85%
Texas	2	8.13%	2	8.08%	0.05%
New York	3	7.73%	3	6.46%	1.27%
Pennsylvania	4	4.84%	6	4.21%	0.63%
Illinois	5	4.54%	5	4.25%	0.29%
Florida	6	4.14%	4	5.60%	-1.46%
New Jersey	7	4.08%	11	2.85%	1.23%
Ohio	8	4.03%	7	3.79%	0.24%
Michigan	9	3.79%	8	2.96%	0.84%
North Carolina	10	3.52%	9	2.94%	0.58%

US Affiliates with Zero Employment

Finally, Table 5 shows the top 3 industry groups (4-digit NAICS) for the affiliates that report zero employment. These 3 industry groups account of 61.40% of affiliates that report zero employment.

Table 5: The top 3 NAICS industry groups for US affiliates of foreign-owned enterprises with non-employment

Industry group (4-digit NAICS)	Percent of total affiliates
Real estate	54.01%
Holding companies, except bank holding companies	3.97%
Other financial investment activities and exchanges	3.42%

Section III: Matching process

As noted in Handwerker and Mason (2013), EINs define business enterprises for tax purposes and are useful for linking establishments with their parents firms. While Elvery, Foster, Krizan, and Talan (2006) noted that most employers have just one EIN, EINs do not uniquely identify all firm; some firms may be comprised of multiple EINs. Handwerker and Mason (2013), for instance, show some evidence that some firms may use different EINs in different states. Additionally, firms involved in mergers and acquisitions have at least two EINs—at least one associated with the acquired firm and at least one associated with the acquiring firm. For those firms that have multiple EINs, a more fundamental problem is the EINs used in filing UI (the source of the QCEW) needn't be the same EINs used in filing for other purposes, such as BEA mandated reports. For example, Handwerker and Mason (2013) show that EINs listed in SEC filings do not always appear in the QCEW.

Every establishment in the QCEW is associated with one EIN and each US affiliate for which establishments are to be linked has at least one EIN associated with it and often a listing of EINs are provided (for any enterprises that are consolidated within the report in which there is a 50% of greater ownership). Thus, the fundamental challenge in finding all of the establishments in the QCEW that comprise the US affiliates of foreign-owned multinational enterprises is that of finding all of the establishment EINs for each affiliate. It is then a trivial step to combine the two data sources. This is done in a two-step process, first by automatically matching the EINs reported by each affiliates to all of the EINs in the QCEW, and second by manually reviewing these matches to remove mistakenly matched EINs and adding additional EINs that were not automatically matched.

Automated matching

The first step is automated. All of the reported BEA EINs are matched to those in the QCEW, and BEA reported affiliate employment is compared to that derived by summing employment for all of the QCEW establishments with matching EINs. This step is insufficient, as seen by assessing a simple metric that groups together matches that are "close" in terms of BEA and BLS employment; specifically, if derived BLS employment is within 20% of reported BEA affiliate employment. Only 39.59% of affiliates are considered to have "close" matches to the QCEW after automated matching, although these affiliates with "close" matches have 55.78% of all affiliate employment. Furthermore, not all of the automated matches are made correctly. Sometimes there are errors in EINs, and so the matched establishments in the QCEW do not actually belong to the affiliate. The "closeness" of the match is not always a good indicator for this kind of problem, and so every affiliate requires analyst review.

Analyst matching

After automated matching, a second, much more time-intensive manual matching step is undertaken. In this step, analysts are assigned affiliates to review the automated matches. Assignments are made based on the quality of the automated match and the size of the affiliate: poorly matched, large affiliates are assigned first. An additional consideration is whether an affiliate is overmatched (BLS employment is greater than BEA) or under-matched (BEA employment is greater than BLS). This approach seeks to maximize the effectiveness of limited analyst resources. Reviewing the automated matches is time-consuming, and affiliates that are undermatched in the automated step are much more time consuming for analysts to review than affiliates that are overmatched in the automated step. In cases assigned thus far, review takes 11.8 minutes on average for overmatched affiliates (with a standard error of 1.1 minutes) and 20.9 minutes on average for undermatched affiliates (with a standard error of 0.5 minutes). This is because it takes longer to find additional information about an affiliate, such as additional brand or trade names or plant locations, than it does to discern that some of the QCEW establishments matched automatically are incorrectly matched. The amount of time analysts spend reviewing matches also increases by the size of the affiliate: on average there is a 0.7 minute increase (with a standard error of 0.1) per 1,000 employees.

To facilitate the review, for each assignment the analyst is provided with measures of the quality of the automated match as well as information on the assigned affiliate and its matched establishments. The quality of the automated match is determined by the difference in affiliate employment and the sum of employment for the matched QCEW establishments. Affiliate information includes the affiliate name as well as any provided names of its consolidated subsidiaries, the address of the affiliate, the industry classification of the affiliate, a list of states in which it has employees, and a list of the matching EINs and matching establishments. For each matched establishment, in addition to the EIN associated with the establishment, the establishment's industry classification, establishment names and address data, and employment are also given.

The approach the analyst takes in reviewing the match depends in large part on whether the automated match is overmatched or undermatched. Overmatched affiliates are less time-consuming in part because all of the information necessary to determine invalidly matched establishments for the affiliate are already present. This is accomplished by comparing names, addresses, and industry classifications for the affiliate to those of the matched establishments. It is sometimes necessary to independently review outside resources via a web-search, the affiliate's website, any SEC 10-k filings made by the affiliate, or other resources such as Wikipedia or Bloomberg among many others. For undermatched affiliates, it is necessary to search for additional EINs via name or address matching (where additional names and addresses are determined via web-search or through reviewing SEC 10-k filings).

By removing mismatched EINs and adding any EINs that were not matched, differences in BEA-provided affiliate employment and the sum of QCEW establishment can generally be reconciled. If extensive review of the affiliate shows the matched establishments to be correct and complete and BEA affiliate employment and derived QCEW establishment employment are close, the analyst signs off on the affiliate as being complete. It is sometimes the case, however, that despite extensive analyst review, it is not possible to reconcile BEA affiliate employment and derived employment for the matched QCEW establishments. In this case, the affiliate is recorded and sent to BEA for review. Aside from mismatched EINs, another potential reason for discrepancy is when the affiliate contracts with a Professional Employment Organization (PEO) for all or part of its workforce. If the affiliate includes these employees as part of their total employment reported to BEA, it is not usually possible to match these employees in the QCEW establishment data. PEOs generally group together employees from multiple employers' establishments under one EIN.

Section IV: Quality of Matches

Table 6 shows the number of EINs for each affiliate at three points in the matching process. Mentioned previously were the number of EINs that BEA provided for the affiliates that are being linked to establishments: 3.2 EINs on average (with a standard deviation of 14.7). Of these affiliates and their EINs provided, only 64.7% of the affiliates had a matching EIN in the QCEW after the automated matching procedures were run.[2] On average, 1.9 (with a standard deviation of 3.7) of the EINs provided by BEA were found in the QCEW. Finally, to date 68% of the affiliates have been assigned to analysts to be reviewed. For the most part, the BEA-provided EINs that are in the QCEW are correct: only 0.1 (with a standard deviation of 0.4) of the BEA-provided EINs per affiliate are removed by the analyst. However, the EINs provided by BEA and in the QCEW are not complete. 0.9 (with a standard deviation of 4.2) EINs on average are added by analysts. After removing mismatched EINs and adding EINs that were not accounted for by the automated matching procedures, there are 2.6 (with a standard deviation of 5.9) EINs on average.

Table 6: Mean number of EINs

Point in matching process	Percent of affiliates	Mean number of EINs (Standard deviation)	Mean number of removed EINS (Standard deviation)	Mean number of added EINS (Standard deviation)
Before automated matching: BEA provided data	100.0%	3.2 (14.7)	NA	NA
After automated matching: BLS matched data	64.7%	1.9 (3.7)	NA	NA
After analyst review (as of 2/26/16): BLS matched data	68.0%	2.6 (5.9)	0.1 (0.4)	0.9 (4.2)

Focusing our analyst review on the largest affiliates has greatly improved the quality of matches. Table 7 provides a summary of match quality after automated matching and after a great deal of analyst review had been completed. In this table, we classify matches by whether the BEA affiliate employment is within 20% of the sum of QCEW establishment employment, and also by whether the BEA affiliate employment is greater or less than the sum of QCEW establishment employment. As is clear from the table, automated matching alone is insufficient, with only 39.6% of affiliates and 55.8% of employment being "close" matches (those that are not "close" matches are overwhelmingly affiliates with less than 100 employees reported to BEA). After reviewing 68% of the affiliates, most of which were large, the number of "closely" matched affiliates increased by only 8.9 percentage points, but total employment in affiliates that were considered "closely" matched increased to 80.3%. Much work was devoted to finding additional establishments in the QCEW for those affiliates that were initially "undermatched." Our matching efforts continue, now focusing on much smaller affiliates. We expect to finish this work soon.

Table 7: BEA and BLS employment for the matched affiliates

Time of match	Percent within 20% of BEA employment ("close")		Percent in which total QCEW employment < employment reported to BEA ("undermatched")	
	Affiliates	Employment	Affiliates	Employment
After automated matching	39.6%	55.8%	64.0%	77.6%
After analyst review (as of 2/26/16)	48.5%	80.3%	60.0%	64.9%

Section V: Opportunities for future work

We continue to investigate ways to improve our matching methods and processes, including automating some of our internet searching, and seeking out additional commercial databases that could aid our analysts. We anticipate that

[2] There are a substantial number of foreign-owned affiliates without any reported employment (with industry characteristics described in Table 5). We match these affiliates to the QCEW even when we do not expect to find any employment matches, and they are included in this table.

our analysts will have completed a full review of the 2012 BEA FDI data soon, and we are working with BEA to plan publication tables of employment in foreign-owned establishment in the United States, focusing on the geographic detail available in the QCEW and the occupational detail available by matching to OES data.

We are also interested in leveraging the work done in matching data for 2012 to match datasets for other years. We have also begun to match a sample of the 2013 BEA FDI data in order to develop cost estimates for repeated matches of the FDI data. Determining the establishments that comprise the US affiliates of foreign-owned enterprises in 2012 is a very time-intensive process. However, there are efficiencies in matching establishments for the same enterprises in different years. Most affiliates have very similar establishment composition from year to year and so much less analyst time is required for continuing affiliates. Furthermore, we are also interested in returning to matching work between BLS employment data and BEA surveys of the U.S. parents of multinational enterprises.

The central task of this matching work is linking the EINs that enterprises report to BEA or the SEC to the EINs that these companies use in reports of their employment to the state-level Unemployment Insurance systems, which are compiled into the Quarterly Census of Employment and Wages. There are many other uses at BLS for such enterprise-EIN links, including links to other enterprise-level data, publication of data by enterprise size, coordination of surveys across enterprises, and enterprise-level disclosure review. We are working with BEA to prepare a new Memorandum of Understanding that would, if approved, allow us to merge the enterprise-EIN links found in this project with other sources of enterprise-EIN links at BLS, to leverage the work of this project in as many ways as possible.

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