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Memorandum: Data Needs for Research on Domestic Outsourcing in the United States

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Memo

Re: Data Needs for Research on Domestic Outsourcing in the U.S.
From: Annette Bernhardt and Susan Houseman
Date: January 2017

Available evidence points to substantial growth in U.S. firms' outsourcing of various functions to domestic as well as foreign suppliers, a phenomenon sometimes called the vertical disintegration of the firm. Although receiving less attention than its offshore counterpart, domestic outsourcing is changing how work in the U.S. is organized across firms and industries. Good data allowing documentation of such supply networks is critical to the accuracy of many analyses, including employment impact analyses of a wide range of federal, state, and local economic policies; occupational workforce projections; and sector and industry productivity statistics. Moreover, although there are many reasons why firms outsource tasks, domestic outsourcing may be an important mechanism by which some firms cut labor costs including compensation, thereby contributing to the growth in earnings inequality. Yet, large data gaps limit the ability to conduct research on how outsourcing is changing the organization of work and affecting workers' earnings and other aspects of job quality.

In this memo, we offer strategies to improve the data to document and analyze the prevalence of domestic outsourcing in the U.S. and its effects on wages and other measures of job quality. The memo builds on a white paper we recently released with our co-authors Rose Batt and Eileen Appelbaum, [Domestic Outsourcing in the U.S.: A Research Agenda to Assess Trends and Effects on Job Quality](#).

We broadly define domestic outsourcing as firms or governmental entities located in the U.S. contracting with other firms or individuals located in the U.S. for the provision of goods and services. Types of contractors include suppliers of services (such as business services or staffing firms), suppliers or vendors of goods (such as manufacturing inputs), franchisees, and independent contractors (such as freelancers, independent consultants, or on-demand platform workers).

Specifically, we:

1. Provide an overview of data collected by government agencies that can be used to document employment in contractor firms and the number of independent contractors, link contractor industries with the firms using their services, and assess the effects of outsourcing on job quality;
2. Review the limitations of existing government data;
3. Outline steps that can be taken in the short- and medium-term to improve data on domestic outsourcing. While we focus on improving government data, we also identify strategies to leverage private sector data.

A. Existing government surveys and administrative data

1. Household surveys

The Current Population Survey (CPS), the monthly household survey of the Bureau of Labor Statistics, provides detailed information on individuals' demographic characteristics, and for the employed, information on job characteristics, including occupation, industry of employment, hours, earnings and work status (self-employed unincorporated, self-employed incorporated, and wage and salary). The American Community Survey (ACS) gathers similar data, though with less precision depending on the variable. In both surveys, along with other household surveys (e.g. the National Longitudinal Survey and the Survey on Income and Program Participation), contract workers may be identified to the extent that they are employed in a contract industry—i.e., one that primarily or exclusively provides services to other businesses, which includes many industries in the professional and business services sector, including staffing firms. Researchers have used measures of the unincorporated self-employed as an indicator of independent contractors, though this is an imperfect measure.

The Supplement to the CPS on Contingent and Alternative Work Arrangements (CWS)—conducted five times between 1995 and 2005 and scheduled to be administered again in 2017—collects additional information for several categories of contract workers:

- *temporary help workers*,
- *on-site contract company workers* defined as those who report that their employer contracts them or their services out, that they usually work for one customer, and that they usually work at the customer's worksite, and
- *independent contractors*, which includes freelancers and independent consultants

The CWS is designed to collect information on temporary help workers and other contract workers who work at the client organization's worksite. For temporary help workers and for contract company workers who report that they primarily work for one client, individuals are queried on the client for whom they performed services. For these categories contract workers, therefore, the survey provides a link between industry of the employer (temporary help or contract company) and the industry where they perform work. To permit analysis of trends in contingent and alternative work arrangements, the questions from the previous CWS Supplements will be repeated in the May 2017 Supplement. In addition, several questions designed to measure (1) in-person jobs obtained through Internet-based or mobile apps provided by intermediary companies (e.g., Uber), and (2) online micro-tasks that are completed through Internet-based intermediary companies (e.g., Amazon Mechanical Turk).

2. Establishment surveys

The Census Bureau and Bureau of Labor Statistics conduct a variety of establishment and firm surveys that provide some information on domestic outsourcing. The Economic Census (conducted every five years) and the various annual industry surveys (e.g., Annual Survey of

Manufacturers, Annual Services Survey) collect information on an establishment's expenditures on purchased materials and services inputs. The information collected in these Census surveys are the primary source data for the input-output tables for the economy constructed by the Bureau of Economic Analysis. I-O tables, in turn, have been used to infer basic trends in outsourcing (domestic and offshore) and the industries supplying and using outsourced materials and services inputs. The level of detail collected in Census surveys on purchased services is far less than that collected for materials inputs, but has increased in recent years. Notably, breakouts on purchases of temporary help and professional employer organization (PEO) services have been added to industry surveys. In addition, experimental questions were added to the 2012 Economic Census and the Company Organization Survey for wholesale and manufacturing establishments and firms on their provision and use of contract manufacturing services.

While the Economic Census and annual industry surveys collect data on expenditures for various contract services, a module in the 2015 Annual Survey of Entrepreneurs collects, for the first time in a business survey, detailed information on the categories of workers used. Specifically, the 2015 survey collects information on six mutually exclusive worker types: full-time paid employees, part-time paid employees, paid day laborers, temporary staffing obtained through an agency, leased employees, and contractors, subcontractors, independent contractors and outside consultants. The survey also asks respondents to estimate the share of work performed by each category of worker. The sample frame for this firm-level survey includes all nonfarm businesses (partnerships, proprietorships, and all types of corporations) with employees and annual receipts of at least \$1,000.¹

In contrast to these Census surveys, BLS establishment surveys do not collect information on the organization's provision or use of contract services. Rather, they primarily collect data on jobs held by the organization's employees at the establishment level. Data from the Current Employment Statistics program and the Occupational Employment Statistics program, for example, have been used to study basic trends in employment (CES) and employment-by-occupation (OES) in industries that exclusively or primarily provide contract services (e.g., professional and business services, including temporary help services). Similarly, data from the Survey of Occupational Injuries and Illnesses and the National Compensation Survey may be used to compare safety records and benefits, respectively, in industries providing contract services with those in other industries.

3. *Administrative data*

Administrative data provide another source of information that alone or linked with other data sets can be used to shed light on trends in contracting out and the effects on worker outcomes.

- *State unemployment insurance administrative data* provide information for covered wage and salaried workers on quarterly earnings, and in several states, hours worked; these UI

¹ Young firms, defined as those less than 10 years old, are oversampled, and large firms are sampled with certainty. For a discussion of the survey and sample frame, see Lucia Foster and Patrice Norman, "The Annual Survey of Entrepreneurs: An Introduction." Updated version of working paper CES 15-40R, U.S. Census Bureau, May 2016.

data are linked with other household and employer data sets in the Longitudinal Employer-Household Dynamics (LEHD) files. The LEHD data, for example, may be used to examine the effects of employment in contract services industries on employment stability and earnings.

- *IRS tax data* provide earnings information for both wage and salary employment and self-employment. Among other things, IRS data provide an alternative source of information on independent contractor employment.
- *Enforcement and compliance data* are collected by various agencies including the Wage and Hours Division at DOL, the Occupational Safety and Health Administration, and Equal Employment Opportunity Commission. These administrative data potentially may be used to shed light on whether outsourcing is associated with a higher incidence of employment and labor law violations.

B. Limitations of existing data

A robust data infrastructure to support research on domestic outsourcing would allow researchers to:

1. Estimate the number of workers who are employed by contractor companies or who provide services to firms as independent contractors, and document trends of each over time.
2. Link and document the industry and firm characteristics of user firms and contractor firms for specific contract services.
3. Link firm-level data with worker-level data in order to analyze the impact of contracting out on job quality outcomes such as wages, benefits, and other working conditions.

The main constraints in studying domestic outsourcing stem from data limitations in the first two items: identifying workers and firms engaged in providing contract services and linking them to firms that use those services. In addition, the level of detail on the characteristics of workers' jobs in linked employee-employer data is insufficient.

Specifically:

- *Data identifying employees of contract companies and independent contractors are incomplete.*
 - For employees, most household surveys only collect information on the industry of the employer, not the contracting relationships between that company and other companies. As a result, status as an employee of a contract company (as we broadly define) can only be inferred probabilistically based on BEA input-output tables. This can be useful as a rough approximation in cases where industries primarily provide services under contract to other businesses (e.g. the professional and business services sector) but it is inadequate for identifying the full universe of contractor companies.

- In the monthly basic CPS, data on the number and occupational characteristics of independent contractors must be inferred from questions on self-employment status. Self-employed unincorporated may be a poor measure for those who primarily are employed as independent contractors. The current survey instrument collects information on up to two jobs and so may miss independent contractor work if individuals hold more than two jobs or have multiple assignments during a week. Moreover, the survey may miss a variety of tasks that individuals perform for pay if respondents do not regard these tasks as formal “jobs” (e.g., casual “gig” work or pay received from sales on platforms such as Etsy and Airbnb). These shortcomings in the data may become more serious with the growth of on-line platforms.
 - The CWS collects information on those who regard themselves as independent contractors, freelancers or independent consultants on their main job; it therefore will miss those who work side jobs as independent contractors. In addition, the CWS is designed to only collect information on contract company workers if they are assigned to work at a single client’s worksite and consequently only captures a small subset of domestic outsourcing.
- *Data identifying contractor companies and companies using contract services are incomplete.*
 - In establishment and firm surveys, information is generally not collected on whether the establishment/firm is a contractor company (the recent questions pertaining to manufacturing services in the Company Organization Survey, Economic Census, and annual surveys are exceptions). This represents one of the biggest barriers to research on contracting out.
 - The BEA’s input-output tables are the primary source of information on *industries* (not specific establishments or firms) using materials and services inputs and the *industries* supplying these inputs. The source data for the I-O tables, in turn, primarily come from Economic Census (conducted every five years) and annual industry surveys, which collect information on the dollar value of purchased inputs by category. The level of detail is quite high for material input purchases. Although the level of detail on some categories of purchased services has expanded in the Economic Census and annual industry surveys in recent years (e.g., with breakouts for temporary help services, PEO services, and, on an experimental basis, manufacturing services), the information collected on purchased services is generally highly aggregated. As a result, imputations of services inputs in the I-O tables are crude and prone to error.² In addition, the data combine expenditures on imports and domestic inputs; BEA estimates domestic

²An example of imputation errors in the allocation temporary help services to user industries (a problem that should be alleviated with additional data collection on purchases of temporary and PEO services in Census establishment surveys) is shown in Matthew Dey, Susan Houseman, and Anne Polivka, “Manufacturers’ Outsourcing to Staffing Services.” *Industrial and Labor Relations Review* 65(3): 533-559, 2012.

purchases using simple assumptions about the industry distribution of purchased imported goods and services inputs.

- Limited information on the industries that use contract-company workers is collected in the CWS. Specifically, for temporary help workers and for contract company workers working at the client's worksite and primarily working for one client during the reference week, the CWS collects information from respondents on the clients to whom these workers are assigned. However, these two categories of workers are only a subset of the universe of contract company workers and the industries that use them.
- Detail on job characteristics of workers is insufficient in linked worker-employer data.
 - The CPS collects detailed data on workers' demographic and job characteristics, including wages, hours, and occupation, which are linked with employer-level data in the LEHD files. CPS samples are relatively small and have a short longitudinal structure, however, limiting their usefulness in studying the effects of contracting out on worker outcomes.
 - Quarterly administrative data collected by states for unemployment insurance purposes, which are linked with other worker and establishment-level data sets in the LEHD, only provide information on workers' quarterly earnings and, in several states, on their hours. Ideally hours and occupation for workers would also be available to rigorously study the effects of outsourcing on employment and earnings. The OES, which is the primary source of information on the distribution of occupations by industry collects information at the establishment, not the worker, level.

Besides limitations in the types of information currently being collected, there are concerns about the accuracy of certain data items that have been collected. For example, in the CWS, inaccurate reporting by respondents about their status as temporary help workers has been well documented, which has prompted concern that individuals may similarly be confused about the questions requiring them to identify themselves as independent contractors (which is not a well-defined term) or as employed by an entity that contracts their services to other businesses. (The latter has proved especially challenging for contract workers performing their task off-site or for more than one client.) Cognitive testing of questions in the 2015 Annual Survey of Entrepreneurs on use of contract labor suggest that employers may have difficulty accurately reporting the share of workers in contract versus regular employment relationships.

C. Strategies to improve data on contracting out

In the short-term term, we see a number of promising strategies for improving data on domestic outsourcing: augmenting existing government and private surveys, forging public-private research partnerships, conducting in-depth industry studies, and better leveraging information in existing surveys and administrative data. Over the medium-term, there likely will be a need to substantially revamp worker and employer surveys and expand data sharing between the government and the private sector to keep pace with the changing nature of work.

1. Short-term strategies

Augment existing government and private surveys: Current statistical agency efforts to collect additional data on domestic outsourcing primarily involve (1) the refiling of the CWS in May 2017, which asks households limited questions about their status as contract company workers and independent contractors, and (2) a module to the 2015 Annual Survey of Entrepreneurs that asks firms about their use of contract workers and independent contractors, temporary help workers, and PEOs. Given resource constraints and the difficulty workers often have identifying their status as employees of a contract firm, leveraging existing government employer surveys is likely to be a more useful strategy than developing new household, firm, or establishment surveys in the short-run. In addition, leveraging existing private survey instruments to collect data on contracting out may provide timely information and guidance to statistical agencies in the development of future surveys. The following are a few possibilities:

1. *Collect more detail on services expenditures in annual Economic Census surveys:* Pilot testing should be done to assess the ability of establishments to report expenditures at a more detailed level for purchased services categories that are currently aggregated into, for example, transportation and warehouse services; purchased repairs and maintenance to buildings, structures, and offices; and purchased professional and technical services. The latter category in particular encompasses a wide variety of services at this point, and the industries providing those services account for a sizable portion of the economy's output and employ significant numbers of workers. Greater detail would allow greater accuracy in input-output data and in our ability to analyze trends in contracting out.
2. *Pilot collection of information on provision and use of contract services in BLS Refiling Survey:* The BLS surveys establishments about once every five years on their activities for the purpose of assigning accurate industry codes to establishments. The BLS is converting the Refiling Survey from an annual to a quarterly survey and will experiment with adding a small number of questions for a subset of sampled establishments (either in the survey itself or in a follow-up survey), providing BLS with a "quick response" survey capabilities. The Refiling Survey may be a particularly suitable instrument for collecting information on functions or tasks that establishments outsource or provide to other businesses, because respondents are identifying the activities that the establishment performs in-house. Using the Refiling Survey to measure outsourcing activities could be piloted for selected industries and/or contract services, drawing on information developed in detailed case studies. Successful questions could then be candidates for inclusion in recurring BLS and Census establishment surveys, including the Economic Census and the OES.
3. *Collect information on contractor status in Survey of Occupational Injuries and Illnesses (SOII) and the Census of Fatal Occupational Injuries (CFOI):* There have long been concerns that outsourcing, on average, leads to higher rates of workplace injuries and death, but the information collected in the SOII and CFOI provide little or no information on the nature of the contract relationship and consequently do not allow researchers to study possible causal relationships between outsourcing and workplace safety. Systematically collecting in these surveys Federal Employer Identification Numbers

(EINs) for both the host and the legal employer of injured workers as well as the workers' occupation would address this data gap.³

4. *Private surveys*: A number of organizations regularly poll individuals and organizations on economic issues (e.g., Rand, Gallup, Pew, the Conference Board, the Bureau of National Affairs). The Rand American Life Panel was recently used to collect valuable information on contingent and alternative work arrangements.⁴ The Gallup Daily survey of individuals on economic issues may be a good vehicle for capturing information on independent contractor work, including “gig” work. Particularly in era of tight budgets, private surveys can provide timely information on various contract arrangements and guide statistical agencies in their development of future survey instruments.
5. *Assess new regimen of questions on the use of contract workers and independent contractors in the Annual Survey of Entrepreneurs*. As noted, the 2015 ASE includes a module that asks firms about their use of worker types. This will be one of the first attempts to ask firms to report on their use of contractors, subcontractors, independent contractors and outside consultants. The validity of firms' answers to these questions should be assessed where possible. For example, distinguishing between workers who are employees of a contractor or subcontractor and those who are self-employed as independent contractors would be highly desirable in future surveys (currently these categories are combined). At that point, validity could be tested for reporting on the use of independent contractors (using tax data). Testing validity of the reported use of contract company workers would be more difficult, but should be explored at least for on-site contracted workers, given the importance of this practice.

Industry studies: As we outline in Section 6 of our white paper, [Domestic Outsourcing in the U.S.: A Research Agenda to Assess Trends and Effects on Job Quality](#), we see an important role for in-depth industry studies of domestic outsourcing that integrate multiple sources of data to document the changing structure of production networks and analyze the impact of contracting out on job quality. Because forms of contracting out often vary by industry, these studies can serve as a key source of information to help guide the development of new questions to augment those in existing government establishment surveys.

Better leveraging existing survey and administrative data

1. *Exploiting administrative tax data*: Academic and government researchers are already moving to analyze tax data to better estimate the number of independent contractors and trends in their share of the workforce over time (though this task may be complicated). If not already planned, one important analysis would be to examine whether data on the

³ See recommendations in Leslie I. Boden, Emily A. Spieler, and Gregory R. Wagner, “The Changing Structure of Work: Implications for Workplace Health and Safety in the U.S.,” Paper prepared for the Future of Work Symposium, U.S. Department of Labor, 2016. https://www.dol.gov/asp/evaluation/completed-studies/Future_of_work_the_implications_for_workplace_health_and_safety.pdf

⁴ See Lawrence F. Katz and Alan B. Krueger, “The Rise and Nature of Alternative Work Arrangements in the United States, 1995-2015,” Working paper, Harvard University, 2016, http://scholar.harvard.edu/files/lkatz/files/katz_krueger_cws_v3.pdf?m=1459369766.

firms/establishments issuing 1099 forms can be used to estimate industry-specific trends in the use of independent contractors.

2. *Linking data*: We see significant potential for research on domestic outsourcing in the recent progress that has been made linking large public datasets across multiple units of analysis. Promising examples include:
 - a. Linking IRS data with household survey data to better identify and characterize independent contractors, as is being done in a forthcoming paper by Katharine Abraham, John Haltiwanger, Kristin Sandusky, and James Spletzer..
 - b. Linking OES data to LEHD data at the establishment level (or at least at the detailed industry level), which could be used to study the effects of contracting out on wages.⁵ One could imagine a similar matching strategy using 1099 tax data.
 - c. Linking enforcement or compliance data from enforcement agencies (Wage and Hour, OSHA, EEOC) with establishment survey data.

2. *Medium-term strategies*

Establishment surveys: The ultimate goal is to integrate questions on purchased services and better identification of contractor establishments into all Census industry surveys that match the level of detail collected for materials purchases. This might take the form of incorporating questions that measure business functions, allowing consistent measures across industries. If successful, the BEA would then be able to add supplementary tables that organize the input-output data by business function rather than by commodity.⁶

Household surveys: In the long term, the core work-related questions in the CPS and ACS will need to evolve to match the realities of work in the 21st labor market. The concept of a “main job” as the unit of analysis will need to give way to a more flexible set of questions that allow workers to report multiple forms of income-generating activity, whether as employees or independent contractors or small business owners, with full detail on each.

Provide researchers with greater access to government confidential data: Our understanding of the growth of domestic (and foreign) outsourcing and its implications for workers is limited by the data that have been collected on the phenomenon. But our understanding is also limited by researchers’ ability to access, link, and analyze existing micro survey and administrative data. Although the creation and expansion of Census Data Research Centers has greatly improved such access, the process is still cumbersome, time-consuming, and expensive. In addition, the data sets available through these centers are limited. The plan to gradually add BLS data to these centers is important and should be expedited. The Commission on Evidence-Based Policy

⁵ Such an analysis could approximate analysis of contracting out in Germany, reported in Deborah Goldschmidt and Johannes Schmieder, “The Rise of Domestic Outsourcing and the Evolution of the German Wage Structure,” *Quarterly Journal of Economics*, forthcoming.

⁶ See Sharon Brown, “Business Processes and Business Functions: A New Way of Looking at Employment,” *Monthly Labor Review*, December 2008, <https://www.bls.gov/mlr/2008/12/art3full.pdf>.

Making is charged with making recommendations to increase access while protecting data confidentiality. Improving future access is a critical step to documenting and understanding the implications of the changing nature of the employment relationship.

Public/private research collaborations: With the advent of cloud-based technologies, the private sector is increasingly generating up to date, high-quality data of interest to labor market researchers. However, often these data are not collected with labor market analyses in mind and therefore are inadequate for many analyses. In the longer-term, it would be worthwhile to explore the feasibility of public/private collaborations to address weaknesses in government data. For example, JPMorgan Chase's new dataset of on-demand platform users (or big data from the on-demand companies themselves) would constitute excellent sampling frames for in-depth worker surveys conducted in collaboration with US statistical agencies.