

# Identifying Factoryless Goods Producers in the U.S. Statistical System November, 2016

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## Abstract

Since 1945, international trade has surged and the global economy has undergone rapid change leading to the rise of global value networks and the relocation of production activities across national borders (Bernard and Fort, 2015). As described on its website, “The North American Industry Classification System (NAICS) was developed under the direction and guidance of the Office of Management and Budget (OMB) as the standard for use by federal statistical agencies in classifying business establishments for the collection, tabulation, presentation, and analysis of statistical data describing the U.S. economy.”<sup>2</sup> Currently, establishments that outsource all transformational activities, known as *factoryless goods producers* (FGPs), are not uniquely identified in the NAICS, and thus may be inconsistently classified across U.S. statistical programs with a possible impact on U.S. economic measures.

Doherty (2013, 2015) points out that outsourcing of manufacturing activities and the subsequent fragmentation of the traditional production model (where all production activities are handled within the same establishment or firm) are not consistent with the current structure of the NAICS, which is based on the similarity in processes establishments use to produce goods or services. Consequently, Doherty (2013, 2015) also notes that to allow for consistent classification of FGPs a definitional model is needed that reflects modern-day production decisions made by firms in response to ongoing changes in global economic conditions.

In response to this challenge, the Bureau of Labor Statistics (BLS) initiated research to explore key FGP concepts and characteristics. This paper summarizes the results of two field tests conducted by BLS, where about 550 establishments in each test were mailed a paper classification form and then a subset of respondents were selected for telephone debriefing interviews. Results suggested that the classification scheme originally developed may not align well with how establishments operate, and the language used to describe FGP characteristics is ambiguous and possibly industry specific. This paper will summarize results from the field tests, present lessons learned, and describe future challenges and research related to classifying FGPs.

**Key Words:** factoryless goods producers, outsourcing, economic classification, manufacturing

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<sup>2</sup> What is NAICS and how is it used? Active URL:  
<https://www.census.gov/eos/www/naics/faqs/faqs.html>

## 1. Overview

Since 1945, international trade has surged and from the mid-1990s the global economy has also undergone rapid changes leading to the rise of global value networks and increasing fragmentation of production across national borders (Bernard and Fort, 2015; Sturgeon et al., in print). These changes in production have complicated how business activities are classified for economic reporting.

As described on its website, “The North American Industry Classification System (NAICS) was developed under the direction and guidance of the Office of Management and Budget (OMB) as the standard for use by federal statistical agencies in classifying business establishments for the collection, tabulation, presentation, and analysis of statistical data describing the U.S. economy. Use of the standard provides uniformity and comparability in the presentation of these statistical data. NAICS is based on a production-oriented concept, meaning that it groups establishments into industries according to similarity in the processes used to produce goods or services.”<sup>3</sup> Currently, establishments that outsource (contract out) all transformational activities,<sup>i</sup> known as *factoryless goods producers* (FGPs), are not uniquely identified in the NAICS, and thus, according to Doherty (2013, 2015) are inconsistently classified across U.S. statistical programs with a possible impact on U.S. economic measures.

Three general types of establishments are involved in the production of goods:

1. integrated manufacturers (IMs),
2. manufacturing service providers (MSPs), and
3. factoryless goods producers (FGPs).

Integrated manufacturers control design, manufacturing, and selling within the same enterprise. Manufacturing service providers typically manufacture products for other companies following their design or previously agreed upon specifications. Since FGPs are a relatively new development, the U.S. Economic Classification Policy Committee (ECPC) published the following description in 2012 defining them.<sup>4</sup>

*The factoryless goods producer (FGP) outsources all of the transformation steps that traditionally have been considered manufacturing, but undertakes all of the entrepreneurial steps and arranges for all required capital, labor, and material inputs required to make a good. Characteristics of FGPs include:*

- *Owns rights to the intellectual property or design (whether independently developed or otherwise acquired) of the final manufactured product;*
- *May or may not own input materials;*
- *Does not own production facilities;*
- *Does not perform transformation activities;*
- *Owns the final product produced by manufacturing service provider partners; and*
- *Sells the final product.*

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<sup>3</sup> Ibid.

<sup>4</sup> Economic Classification Policy Committee, Office of Management and Budget. Active URL: [https://www.census.gov/eos/www/naics/fr2010/ECPC\\_Recommendation\\_for\\_Classification\\_of\\_Outsourcing.pdf](https://www.census.gov/eos/www/naics/fr2010/ECPC_Recommendation_for_Classification_of_Outsourcing.pdf)

*The FGP can provide information on the purchase of the manufacturing service, that is, the cost of the contract, but would not necessarily have production worker payroll or capital expenditures on plant and equipment. However, it can provide data on the number of units that were produced and the market value of the final product.*

A coordinated interagency effort involving the Office of Management and Budget, the U.S. Census Bureau, the Bureau of Labor Statistics, the Bureau of Economic Analysis, and the Federal Reserve Board exists to better understand FGPs, and to determine if a simple set of survey questions can be developed to reliably identify them. Previous research will be described first, followed by Bureau of Labor Statistics (BLS) research.

## **2. Previous Research**

Bernard and Fort (2013) used data on reported establishment activities in the Census of Wholesale Trade conducted by the Bureau of the Census in 2002 and 2007 to provide evidence of FGPs in the U.S. economy. As Bernard and Fort (2013) note, FGPs may be formally in the wholesale sector but unlike traditional wholesale establishments, FGPs design the goods they sell and coordinate the production activities. Bernard and Fort (2013) defined FGPs based on a combination of activities at the plant; that is, the wholesale establishment must perform design (pre-production activities) *and* be involved in manufacturing in some capacity (physical transformation activities). It's worth noting how this definition contrasts with that developed by the ECPC in that an FGP does not own production facilities or perform transformation activities.

Because the relevant Census questions changed between 2002 and 2007, Bernard and Fort (2013) used slightly different definitions to identify FGPs, but the end result was that reclassifying FGP establishments to the manufacturing sector using their definition would have shifted between 595,000 to 1,311,000 workers from wholesale to manufacturing sectors in 2002, and between 431,000 workers to 1,934,000 workers in 2007.

As Bernard and Fort also point out, there are several reasons why distinguishing FGPs from traditional wholesale establishments may be important for economic welfare or policy. First, FGPs represent a new type of production function in the global economy involving extreme fragmentation of tasks. Second, the types of workers employed by FGPs may differ significantly from those at integrated manufacturing plants or traditional wholesalers reflecting different types of jobs and wages. Third, the relative importance of research and development and innovation is likely to be more important at FGPs. Consequently, Bernard and Fort note that potential differences between FGPs and traditional manufacturers and wholesalers "introduce the possibility of very different wage, employment, and productivity dynamics if factoryless goods production grows in aggregate activity."

Working with the ECPC definition of FGPs, Murphy (2015) describes steps taken by the Census Bureau to develop effective survey questions to identify FGPs. An initial attempt included the addition of three questions to the 2007 Economic Census. However, this effort proved unsuccessful at reliably identifying FGP locations, and as Murphy (2015) noted, "the data were not edited or published as part of the 2007 Economic Census."

A second attempt occurred in the 2012 Economic Census. As noted by Murphy (2015), "These questions were applied consistently to all manufacturing and wholesale trade

industries [forms] and were also included on selected service industry questionnaires including design industries and company headquarters.”

Some of the key findings from respondent debriefings conducted after the 2012 Economic Census test were that respondents interpreted contract manufacturing services (CMS) and purchases of merchandise for resale differently (some reported total shipments or total cost of goods sold in response to questions about contract manufacturing activities), a question that asked about purchasing CMS did not clearly identify FGPs, item nonresponse was relatively high and raised concerns about possible nonresponse bias, and even after the debriefing interviews, researchers had trouble determining the FGP status of establishments. Consequently, an ensuing Federal Register notice issued by the Office of Management and Budget stated, “... that results of preliminary research on the effectiveness of survey questions designed to identify Factoryless Goods Producers (FGP) shows inconsistent results. These results indicate that questions tested in the 2012 Economic Census fail to yield responses that provide accurate and reliable identification and classification of FGPs.”<sup>5</sup>

The Census Bureau plans to continue its line of research by including special research questions in the 2017 Economic Census. As noted by Murphy (2015), some key questions that remain include if outsourcing transformation is a concept best handled at the establishment<sup>6</sup> or enterprise level?<sup>7</sup> Also, “For producers with multiple product lines, is the FGP concept applicable when one or more product lines is directly manufactured while one or more other product lines are based on outsourcing?” And, “Can adequate survey questions be developed to collect a reliable indicator of FGP status at the establishment level?”

In addition to research at the establishment level, the Census Bureau has tested similar questions at the enterprise level in the Enterprise Statistics Program (ESP), specifically in the Company Organization Survey (COS). Questions have been tested, evaluated, and revised since 2010. Based on this testing, the prevalence of pure FGPs,<sup>8</sup> or enterprises that outsource all of the manufacturing transformation, was found to be relatively rare, although this was a qualified observation because of uncertainty about the validity of the survey responses.<sup>9</sup> According to Murphy (2015), pre- and post-collection interviews conducted at the enterprise level identified problems with question interpretation similar to those found at the establishment level.

Based on these results, Murphy (2015) states that the Census Bureau plans to modify the existing questions to provide a definition of intellectual property that is more widely understood by respondents. In addition, the provision and purchase of contract manufacturing services will be tied more directly to the ownership and control of

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<sup>5</sup> Federal Register /Vol. 79, No. 153 /Friday, August 8, 2014 /Notices, Active URL:

[https://www.census.gov/eos/www/naics/federal\\_register\\_notices/notices/fr08au14.pdf](https://www.census.gov/eos/www/naics/federal_register_notices/notices/fr08au14.pdf)

<sup>6</sup> An establishment is defined as a single physical location where business is conducted or where services or industrial operations are performed.

<https://www.census.gov/econ/susb/definitions.html>

<sup>7</sup> An enterprise is a business organization consisting of one or more domestic establishments that were specified under common ownership or control. The enterprise and the establishment are the same for single-establishment firms. Each multi-establishment company forms one enterprise - the enterprise employment and annual payroll are summed from the associated establishments.

<https://www.census.gov/econ/susb/definitions.html>

<sup>8</sup> A “pure” FGP meets all of the criteria specified in the ECPC definition.

<sup>9</sup> Personal communication with John Murphy.

intellectual property. Murphy (2015) also notes that FGP research at the enterprise level has revealed ownership and control of intellectual property as important issues, and that expenditures on research and development (R&D) may also be correlated with FGP status and high levels of CMS purchase. Finally, Murphy (2015) concludes, “It is becoming clearer that a simple set of questions is not going to lead to a definitive identification of FGP enterprises.”

### **3. Research on FGPs Conducted by the Bureau of Labor Statistics**

#### **3.1. Scoping Interviews**

As a first step toward developing survey questions that captured the intent of the FGP classification criteria proposed by the ECPC, in mid-2014, BLS researchers conducted semi-structured interviews with 11 establishments and respondents from three industry trade groups.

The objective of this initial research was to gain insights into how establishments think and talk about manufacturing processes and characteristics that identify FGPs. To accomplish this objective, respondents in different industries were contacted and asked to participate in a phone interview that touched on the concepts that had been identified in an idealistic Outsourcing Decision Tree (Figure 1, Appendix A) developed by an interagency group and used to classify FGPs:

- Transformational activities/Manufacturing
- Control of intellectual property or design
- Control of production
- Control of sales
- Entrepreneurial risk
- Contracting with unaffiliated establishments
- Contracting with affiliated foreign establishments

These interviews were referred to as “scoping” interviews, since their primary purpose was to explore and gain understanding into the relevant conceptual issues that might affect measurement error (Stettler and Featherstone, 2012). Since results from the scoping interviews were primarily used to shape the design of follow-up tests, results from the scoping interviews will be discussed in the context of those tests.

Following the completion of these scoping interviews, BLS decided to develop a draft questionnaire and to test it in two small-scale, iterative field tests (Test 1 and Test 2). These efforts are described next.

#### **2.1 Test 1**

This test consisted of two components:

1. fielding of a mail survey to collect information about FGPs, and
2. a debriefing of a sample of respondents to understand how questions on the form were interpreted and completed.

As mentioned previously, results from the scoping interviews were used to develop and refine a set of survey questions based on the ECPC’s Outsourcing Decision Tree. This initial test of a 4-page, 14-question mail survey form was sent to a sample of 549

establishments.<sup>10</sup> The sample cases were drawn from several sources including BLS' Longitudinal Data Base (LDB) with a focus on sectors likely to include FGPs, a list of likely FGPs obtained from the Producer Price Index survey sample, and a separate list of likely FGPs obtained from a research paper completed by an outside researcher. Data collection was contracted out.

Whereas previous Census testing had involved only two questions, the form used in Test 1 included far more questions in an effort to test the various criteria included in the Outsourcing Decision Tree. In addition, an attempt was made to collect revenue estimates for different types of activities to allow for classification based on the largest revenue source.

Debriefing interviews were conducted with 44 respondents who reflected a variety of establishments based on selection criteria such as industry sector (manufacturer, wholesaler, headquarters), size (1-49, 50-249, and 250+), establishment employment count, and answers to specific survey questions (for example, did the establishment "Arrange for products to be manufactured outside of the U.S.?).

### **2.1.1 Test 1 Results**

Despite nonresponse follow-up efforts (phone and mail reminders), the survey response rate was 21.7 percent (AAPOR RR1). Although we can only speculate about causes of the low response, one key hypothesis was that the form did not get to the appropriate person within larger enterprises so that a person with the ability, authority, and willingness was available to complete the form (Williams and Brick, 2015A). Other possibilities are that the length of the form, the general topic, the perception of potentially sensitive questions dealing with outsourcing, or the timing of the survey led to high nonresponse.

A key lesson learned in Test 1 (which confirmed findings from the scoping interviews and Census research) was that some vocabulary used in the Outsourcing Decision Tree was not consistently understood by respondents. For example, a question asking about control of intellectual property was found to be problematic. Most respondents were able to define the concept, but tended to base their interpretations on legal definitions, which led to a high number of "no" responses when asked about their control over intellectual property associated with manufactured products, despite actually having control over the associated design.

Since the scoping interviews had found that the concept of entrepreneurial risk led to widely divergent interpretations, a question that asked about "loss due to unsold product" was used in an attempt to capture the relevant concept. However, this approach did not work well, as most respondents thought in terms of inventory or unsold product and described worksite processes for minimizing product loss – for example, due to overproduction or poor quality.

The scoping interviews had also revealed that very few respondents knew what the phrase *transformational activities* referred to, so on the Test 1 form, a question asked "Are there any products manufactured at the worksite listed in Question 2?"

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<sup>10</sup> A copy of the form is available from the authors.

Somewhat surprisingly, debriefing interviews showed that this seemingly straightforward question seemed to miss some instances of manufacturing. Examples of omissions included assembly, mixing, and refining, which participants failed to see as manufacturing. Therefore, to throw a wider conceptual net, the wording for the Test 2 test was changed to “*Are any products manufactured or any goods produced at the worksite listed in Question 2?*”

Respondents reported that they were able to accurately report product lines that accounted for the largest share of revenue for the sampled worksite, and generally seemed able to focus on the target worksite when answering the questions. Although not discussed yet, these results are encouraging because some approaches could possibly use revenue ascribed to different product lines as a way of classifying establishments, especially establishments (or enterprises) with complex, fragmented approaches to manufacturing.

Results from the Test 1 debriefings were used to revise the wording on the data collection form. Rather than discuss all those results now, more detailed results from Test 1 testing will be discussed in the context of results from Test 2.

## **2.2 Test 2**

Test 2 also involved mailing a revised 4-page, 14-question form to a sample of 550 establishments, selected to vary by industry and size. The sample was generated using a process similar to that used in Test 1. Phone and mail reminders were used to boost response. In an effort to reduce the number of non-deliverable cases that had occurred in Test 1, all addresses in the sample were also run through an application to check for updated addresses.

As in Test 1, recruitment for the debriefing interviews sought to obtain a range of establishments with special emphasis on establishments that had indicated either outsourcing or no outsourcing activities. Forty establishments participated in the debriefing interview.

### **2.2.1 Results from Test 2**

The response rate improved to 39.1 percent (AAPOR RR1). Whereas small enterprises and single-unit establishments made up the largest proportion of responding establishments in Test 1, the distribution of responding sample cases was more similar to the distribution for the entire sample in Test 2 (Williams and Brick, 2015B).

Since neither the basic content nor the number of questions on the form changed between Test 1 and Test 2, we conjecture that changes made in Test 2, such as updating all sample addresses before mailing and adding a line to the address block (e.g., Attention of “Department of Accounting/Finance”) led to far fewer non-deliverable cases. In addition, whereas Test 1 used a mailing address for the sampled worksite, Test 2 used an address that is required as part of unemployment insurance reporting, so it’s more likely the form arrived at the desk of someone more familiar with BLS information requests. Timing of the survey requests may also have played a role since Test 1 was conducted in early January when there are a lot of competing business activities, whereas Test 2 was conducted in the spring. As in Test 1, debriefing interviews were conducted with 40 respondents who represented a variety of establishments based on the selection criteria.

Although qualitative in nature, we believe we have been able to reach some general conclusions based on our research to date. In addition, we have generated recommendations for additional research to further efforts to be able to reliably use a survey form to identify FGPs. Those findings and recommendations follow.

1. Current questions seem more appropriate for single-unit establishments.

When talking to single-unit establishments, the survey concepts seemed to be clearer and the respondents' answers tended to be more accurate and reliable. Research to date has not been conclusive whether FGP is best viewed as an enterprise or establishment level concept. This same issue was noted by Murphy (2015) in related research conducted by the Census Bureau.

Findings suggest that some of the criteria used to identify FGPs (e.g., control of design) may only be relevant at the enterprise level while others (e.g., set the sales price) may be relevant at an establishment level (e.g., control of design). Larger enterprises can have more complicated management structures (e.g., business groups) where groupings of establishments act as independent enterprises within a larger enterprise. This adds a layer of complexity when the responsibility and tracking of FGP criteria are spread across multiple levels.

Records required to report revenue numbers further complicate the issue. Some respondents used records at the enterprise level while others only had records available at the establishment level. Even within a single enterprise there were inconsistencies about what type of information was available at the establishment level and what was only available at the enterprise level.

Additional Research: Further exploration at the enterprise level is needed. For example, where are key decisions made (e.g., Does the enterprise as a whole specify the design or an individual establishment?) and where is the relevant information stored? What type of information is available for specific establishments, and what is only available at the enterprise level? Would a separate single-unit form and multi-unit forms be more effective for identifying FGPs?

2. Some key FGP attributes and concepts are not clearly defined.

Although several attempts have been made to define the key characteristics of an FGP (e.g., assumes entrepreneurial risk, controls IP or design, controls production and sales), not enough detail or specificity has been provided by the ECPC to develop and evaluate survey questions. Additionally, several relevant concepts (e.g., manufacturing, arrange for manufacturing, product, inputs) need clear definitions so we can explore the best way to communicate them to respondents.

Recommendation: Cognitive researchers can develop a list of key attributes and concepts requiring definitions, but economists must provide a consensus on definitions.

Additional Research: Insights into the FGP concepts and relevant language may be gained from academics, industry groups, and other subject matter experts. Interviews with these groups should be conducted. Also, using the newly created definitions, conduct additional conversations with establishments to understand what the terms mean to them in terms of their actual business practices.



3. Classification scheme is not sufficient to classify FGPs (or IMs, MSPs, or mixtures).

Research findings confirmed that the most recent version of the Outsourcing Decision Tree (May, 2014), as well as additional detail provided in public presentations made by both BLS and Census staff, provided insufficient information to make the required classifications. Establishments did not respond consistently across all the FGP characteristics though it's not clear whether this is because of activities that are happening at these establishments or the wording of the survey questions.

Applying a strict interpretation of the decision tree (e.g., establishments must have all characteristics for all products) left a large percent of establishments unclassified, whereas using a relaxed interpretation (e.g., establishments must have some characteristics for some products) classified more establishments but likely does not align with the intended definition of an FGP.

Additionally, as the goal is to classify not just pure FGPs, but also Integrated Manufacturers (IMs), Manufacturing Service Providers (MSPs), and mixtures of the three, specific minimum criteria for each classification must be provided.

Decision Item: The intent of the decision tree was clear, but the content and structure needs to be revisited in light of research findings and subsequent discussions. BLS, Census, and others should work to identify the minimum characteristics for each of the classifications, and ensure that they are mutually exclusive. For example, in the Test 2 form, we tested six FGP characteristics. Does an establishment need all six FGP characteristics for all products to be an FGP? If not, are there some characteristics that must be present, but others that are not required individually?

4. Establishments outsource in multiple ways.

The research conducted in Tests 1 and 2 uncovered a variety of contract manufacturing arrangements, and establishments have different ways of thinking and talking about those arrangements. The Census Bureau encountered similar results in its research at the enterprise level when it was concluded that respondents tended to use a variety of definitions when asked if they purchased contract manufacturing services.

The three questions tested in the Test 2 research (Questions 6, 7, and 8) did not line up well with all of these arrangements, and led to some false negatives when respondents didn't relate their situation to the way the questions were worded, or tried to fit their company within the questions.

Examples included manufacturing done at worksites that the sampled worksite did not have any control over (e.g., headquarters) and procuring products for assembly or manufacturing, but with the components being purchased from a producer or supplier (e.g., from a catalog) and not manufactured under a contracting arrangement.

Decision Item: Identify the types of contract manufacturing arrangements that should and should not be included in the FGP construct.

Additional Research: During establishment interviews explore the types of contract manufacturing relationships that companies have and what language respondents use to describe them. Provide a list of possible arrangements (for example, order prebuilt pieces from a catalog, order raw inputs, provide detailed specifications for custom products) and see which respondents select to describe their situation.

5. Industry Specific Terminology may be needed.

For some concepts, the effectiveness of the question wording seemed to vary by industry (e.g., bakers and machine shops didn't consider their activities to be manufacturing). Additionally, we suspect that there could be industry-specific FGP classification schemes.

Recommendation: Create a list of industry-specific, manufacturing related activities (e.g., welding, printing, baking, assembly). Determine which activities should be included in the FGP classifications and which should not. One alternative might be to ask respondents what they do and then leave the classification to BLS.

Additional Research: Conduct testing to determine the highest level of commonalities within or across industries, to minimize the number of industry-specific forms that must be developed, administered, and maintained.

6. Reporting for multiple product lines can be difficult.

Many establishments have multiple product lines. Each of these product lines may contain several unique products and those products may be composed of multiple components, each with their own supply chain. Some products within an establishment may be manufactured under contract by an unaffiliated establishment, some may be manufactured directly, and some may be a combination of both. When determining how to apply FGP criteria to multiple product lines, the Test 2 form used the response options "yes, for all products," "yes, for some products" and "no, not for any products."

These vague response options were likely interpreted inconsistently, for example, the "some" option could be 1%, 99%, or anywhere in between. Additionally, respondents are likely to infer from the vague labels that a rough estimate is acceptable (or even desired) and thus use a general response process (e.g., guess or estimate) to respond to the question, rather than referring to records, or considering specific products.

On the other hand, asking for FGP characteristics at the product line level seems unrealistically burdensome. Moreover, asking for just the products related to outsourcing or just the products that make up more than 50 percent of their revenue also seems too complex and burdensome for a self-administered survey form.

Decision Item: What information is necessary for classification? Is product-level information necessary, or is the higher level approach tested sufficient? Will FGP classification use an “any” or “all” approach?

Additional Research: Additional interviews with establishments, particularly those part of a larger enterprise, may shed light on this topic. Additionally, conversations with staff working on current BLS and Census surveys that measure at the product level may provide additional insights.

7. When multiple product lines are involved, revenue may not be the best metric.

Although not on the Outsourcing Decision Tree, revenue was identified early on by BLS economists as a possible metric for identifying main business activities. However, it is often unclear how revenue is attributed and tracked within an enterprise (especially multi-unit enterprises).

For example, an enterprise may have retail sales locations, a headquarters that is responsible for contracting out manufacturing, and its own domestic manufacturing facility. While the headquarters and manufacturing facility add value to the final product, the retail sales locations actually generate the revenue. Is that revenue then attributed to the units manufactured at the domestic facility and to the units whose production was directed by the headquarters? On the other hand, a retail location of an enterprise may be responsible for the sales of products which were manufactured internationally under contract, although the retail location did not control the design, production or sales price.

Decision Item: What information is necessary for classification? Is revenue necessary, and how should it be attributed across the enterprise? Are there other metrics that could be used that may be easier to report across product lines or establishments?

Additional Research: Planned interviews with establishments, particularly those part of a larger enterprise, may shed light on this topic. Additionally, conversations with staff working on current BLS and Census surveys that measure revenue may provide additional insights.

8. Low response rates and low FGP identification rate may indicate topic sensitivity.

BLS researchers had a very difficult time recruiting for the scoping interviews, and the two mail surveys had low response rates (21% and 39%). It is currently unknown if the nonresponse is related to the subject matter or not.

Of the respondents in Test 2, when we used a strict interpretation of the FGP criteria, we only identified a few FGPs (6 out of 314). When we used a looser interpretation, we identified 14 of 314. These findings could reflect the true prevalence of FGPs, or simply be a result of FGPs systematically not responding to the survey.

Additional Research: Future research will compare characteristics from the sample frame of the non-respondents in Tests 1 and 2. In addition, a future test where FGP

questions will be asked after a large scale, production survey could shed light on this issue, as more will be known about the respondents and non-respondents.

### 3. Discussion

In their initial research on classifying FGPs in the economic census, the Census Bureau concluded that

2-3 questions would not suffice, whereas BLS in two small field tests concluded that an approach using many more questions did not achieve satisfactory results.

A key conclusion from the current testing is that the Outsourcing Decision Tree (see Appendix 1), which is currently the best tool we have for classifying manufacturing establishments, is not adequate for this task. The end result of the testing that has been described is that we are not confident of our ability to capture FGP information accurately and reliably. Instead, additional research is required, some of which will be briefly described next.

#### 3.1 Ongoing and Future Research

Both BLS and the Census Bureau have continued small-scale research conversations with businesses to better understand key FGP concepts and how they might be measured, to discuss manufacturing processes, and to explore survey questions that might capture this information without imposing too much burden.

In addition, BLS is planning a small mail survey with telephone debriefings of multiple establishments within an enterprise to try to answer the question, “Is FGP an enterprise or establishment level phenomenon?” And as noted previously, the Census Bureau will be including a new set of questions in the 2017 Economic Census. Researchers in BLS will continue to work with our partners in other federal agencies because we need to arrive at a solution that will allow for consistent classification across statistical programs. In the interim, ongoing and future research will focus on the following topics:

- Determining if FGP is an enterprise or establishment level phenomenon
- Developing standard definitions of key terms
- Exploring the value of industry-specific terminology
- Developing/refining survey questions to capture critical concepts
- Developing approaches for handling multiple product lines
- Revising the classification scheme (decision tree)
- Improving our understanding of contract manufacturing arrangements
- Investigating low response and its impact on possible nonresponse bias

As this research continues, our hope is that survey questions capable of measuring FGPs will be available by 2022.

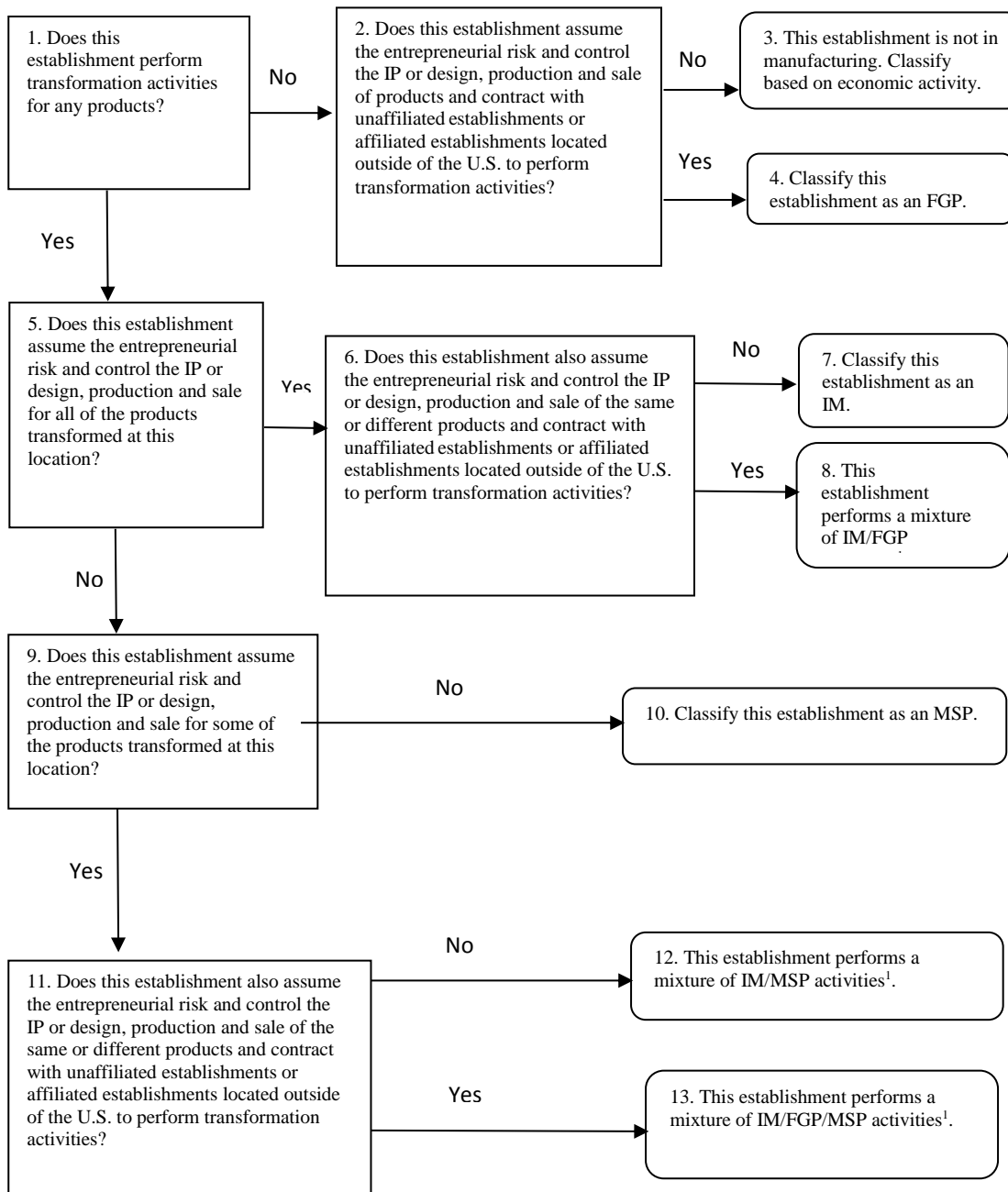
**Any opinions expressed in this paper are those of the authors and do not constitute policy of the Bureau of Labor Statistics.**

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# Appendix 1: Outsourcing Decision Tree – Ideal Definitions

May 20, 2014



<sup>1</sup> If an establishment performs a mixture of IM, FGP and/or MSP activities, it should be classified into one of the three unique subindustries, IM, MSP or FGP based on where most of their activity occurs.