

**Economic and Social Council**Distr.: General
25 April 2015

Original: English

Economic Commission for Europe**Conference of European Statisticians****Group of Experts on National Accounts****Fourteenth session**

Geneva, 7-9 July 2015

Agenda item 4

Emerging conceptual issues in global production**Identifying Factoryless Goods Producers (FGPs) – Efforts to Date****Experiences and Preliminary Results from U.S. Census Bureau Economic Programs****Prepared by U.S. Census Bureau¹***Summary*

The identification and classification of businesses that outsource manufacturing transformation is challenging in economic surveys. While there are various definitions of Factoryless Goods Producers (FGPs), most are theoretical and measurement questions and proposals derive from those theoretical constructs. The U.S. Census Bureau and other statistical agencies in the United States have undertaken several studies to identify FGPs at the establishment and enterprise level. The goal of this work is to set the foundation for studying the characteristics of FGPs and further evaluate the variables and data that can be collected to quantify the phenomenon of outsourcing transformation. Much of this work is underway and final results are not available at the time of this writing. This paper provides an overview of what is being done and provides others the ability to build on these efforts to quantify FGPs and their potential impact on various economic statistics.

¹ The opinions presented in this paper are those of the author (John Murphy, Methodology Director for Classification, U.S. Census Bureau) and do not necessarily represent the official positions of the Census Bureau or other entities that Mr. Murphy may represent in a professional capacity.

I. Introduction

1. In 2010, the United States Economic Classification Policy Committee (ECPC) published a recommendation on the classification of FGPs for the North American Industry Classification System (NAICS) United States 2012². The summary document focused on the theoretical construct that required a business to meet the following criteria for classification as an FGP:

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 the 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.*

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.

2. The ECPC understood the challenge of converting this construct into concrete survey questions and recommended that FGP classification required further study and should be implemented for data programs in data reference year 2017³.

3. The FGP concept is relatively easy to grasp at the extremes. A single unit that uses 100% outsourcing and a unit that does no outsourcing are fairly clear. The reality of the middle grey area results in considerable variation in data. A single unit business enterprise is easier to survey because all of the information on its operations is in one place. Multiunit business enterprises within a single country and multiunit, multinational enterprises have very different recordkeeping practices and often decentralized recordkeeping. Various economic programs at the Census Bureau collect data from establishments (generally defined as single physical locations) and enterprises that consist of single and multiple establishments. The Census Bureau has attempted to identify FGPs at both establishment and enterprise levels. This summary provides an overview of the efforts for establishments and enterprises and then summarizes next steps⁴.

² Economic Classification Policy Committee, Office of Management and Budget.
http://www.census.gov/eos/www/naics/fr2010/ECPC_Recommendation_for_Classification_of_Outso
urcing.pdf

³ Ibid, page 4-5.

⁴ Office of Management and Budget. Federal Register August 17, 2011 (76 FR 51240-51243)

II. Establishment Surveys

4. The first attempt by the Census Bureau to specifically identify FGPs in an establishment program involved a series of questions that were included as special inquiries in the 2007 Economic Census. The Economic Census covers 18 NAICS sectors (most notably Agriculture and Public Administration are excluded from coverage). Content for the 2007 Economic Census was prepared in 2005. At that time, the issue of FGP classification was not explicitly addressed in NAICS. Early study indicated that the most likely sectors for FGP establishments were manufacturing and wholesale trade. The initial review emphasized wholesale trade because in Census implementation, if there was no factory, there was no manufacturing.

5. Several variations of questions were included in wholesale trade and manufacturing. Establishments were asked about ownership of design and intellectual property, use of contract manufacturing services, and location of purchased contract manufacturing services (foreign or domestic).

Form WH-42411 (12/06/2006)

OTHER ESTABLISHMENT ACTIVITIES

(a) 1. *Did this establishment design, engineer, or formulate the manufactured products that it sold, produced, or shipped? (Yes/No)*

(b) 2. *Which of the following best describes this establishment's primary activity? (Mark "X" only ONE box.)*

- *Providing contract manufacturing services for others*
- *Transforming raw materials or components into new products that this establishment owns or controls*
- *Reselling goods manufactured by others (with or without minor final assembly)*
- *Other- Specify*

(c) 3. *Did this establishment purchase contract manufacturing services from other companies or other establishments of your company to process materials or components that this establishment owns or controls?*

- *Yes, primarily with establishments WITHIN the 50 States and the District of Columbia*
- *Yes, primarily with establishments OUTSIDE of the 50 States and the District of Columbia*
- *No*⁵

6. The results of these questions were interesting but admittedly incomplete. There were a number of shortcomings that hampered the ability to present reliable, publishable statistics. First, there was no pretesting of the questions and no cognitive follow up to determine if the questions were understood in a common way. Second, the questions were not included in all industries, only select industries where there was a subjective expectation of FGP activity. Third, there was no formal tabulation of the resulting data or in depth review of the results at the establishment level focusing on potentially associated variables such as cost of goods sold, employment by function, method of selling, class of customer, etc. The focus was on design and intellectual property and internal reviews were

⁵ <https://bhs.econ.census.gov/2007forms/WH42411.pdf>

done to determine if the wholesale trade margins were significantly different for potential FGPs and merchant wholesalers. A review of micro data for the largest purchasers of contract manufacturing services (CMS) showed substantial misclassification and potential misunderstanding of the concept of purchasing contract manufacturing services. The review was discontinued because identification of FGPs for margin comparison was not possible. It was clear that the questions alone were not sufficient to identify FGP locations. The results of the inquiries were not edited or published as part of the 2007 Economic Census.⁶

7. In response to the ECPC NAICS recommendation for FGP classification in NAICS 2012, an interagency task force was created to develop more refined special inquiry questions for use in the 2012 Economic Census.⁷ These questions were applied consistently to all manufacturing and wholesale trade industries and were also included on selected service industries questionnaires including design industries and company headquarters. The 2012 Economic Census effort attempted to quantify the purchases of contract manufacturing services and the related revenue associated with CMS compared to total revenue. The 2012 questions are presented below:

PURCHASE OF CONTRACT MANUFACTURING

(a) 1. *Did this establishment purchase contract manufacturing services from other companies or foreign plants of your company in 2012?*

Include:

- *Products for which the manufacturing (i.e., transforming or otherwise processing materials or components based on specifications provided by your company) was outsourced to other companies.*
- *Products for which the manufacturing was performed by your company's foreign plants.*

Exclude:

- *Services for packaging and assembling.*
- *Purchases of merchandise for resale (sale of products bought and sold without further processing or transformation).*

(b) 2. *Report the costs incurred by this establishment for contract manufacturing purchased in 2012*

(c) 3. *Report the value of sales, shipments, receipts, or revenue generated in 2012 from products whose purchases were reported as contract manufacturing costs in line 2.*⁸

8. Timing did not allow for pretesting of the questions. Census staff did conduct post collection interviews to determine if respondents understood the questions as intended. The results were not promising and the Office of Management and Budget published a Federal Register notice calling for additional research prior to a final decision on the classification of FGPs.

⁶ Bostic, William G. 2011. Initiatives to Improve the Collection of Data on Contract Manufacturing Services, July 8, 2011 Memorandum to Mark Doms, Chief Economist and Nancy Potok, Deputy Undersecretary for Economic Affairs.

⁷ Dougherty, Maureen. 2015. Factoryless Goods Production in the U.S. Statistical System. Measuring Globalization, Better Trade Statistics for Better Policy, V2, page 20.

⁸ U.S. Bureau of the Census. <https://bhs.econ.census.gov/2012forms/WH42405.pdf>

9. “During the comment period that ran from May 22, 2014, to July 21, 2014, this research continued with interviews of 2012 Economic Census respondents who answered inquiries on the purchase of contract manufacturing services (i.e., outsourcing transformation) from manufacturing, wholesale trade, and enterprise support establishments. The interview results exhibited enough inconsistency to convince the ECPC that the questions, as tested in the 2012 Economic Census, would not yield accurate and reliable identification and classification of FGP establishments by industry. Additional research is continuing and further research, testing, and evaluation are being planned that will take place over the next few years to develop a solution for the consistent identification and classification of FGPs that is accurate and reliable.”⁹

10. The ECPC and Office of Management and Budget (OMB) based this recommendation on the results of post collection interviews. The results of the interviews were collated and evaluated by social scientists at the Census Bureau. While there are several important limitations included in the summary report, the post collection interviews provided several findings. Respondents were often unclear on the definition of contract manufacturing services and purchases of merchandise for resale. Respondents often reported total shipments or total cost of goods sold in response to questions related to contract manufacturing activity. Even researchers had trouble determining the FGP status of establishments after the interviews. Of establishments interviewed that responded yes to question 1 concerning the purchase of contract manufacturing services, more were unlikely to be FGPs or were inconclusive than were labeled as likely to be FGPs. This general pattern held in total as well as when reviewed separately for manufacturing, wholesale trade and services.¹⁰

11. An initial quantitative review provided similar results. This review focused on the overall unweighted response rates for the inquiries. The unweighted response rate for wholesale trade was 61.4%, for manufacturing was 57.7% and for selected industries in NAICS Sectors 54 and 55 was 47.9%. This level of nonresponse creates a hurdle to valid analysis. Subject matter analysts studied the responses for almost 3,200 establishments. The review focused on responses to the special inquiries and a comparison of the responses to other variables such as production workers, capital expenditures, wages, cost of materials, cost of goods sold, etc. This additional work helped refine the designation as likely FGP or not likely FGP. At the most aggregated level, for units that responded that they purchased contract manufacturing services and provided non-zero responses for questions two and three, 66.4% to 92.6% were classified as likely non-FGP units when considering other variables.¹¹

12. This initial quantitative review is being updated on a more complete and thorough basis by research economists in the Census Bureau’s Center for Economic Studies. Results of that work are pending.

13. The past two attempts to identify FGP establishments in economic surveys have provided important groundwork for a more comprehensive approach heading into the 2017 Economic Census. Initial work indicates that new or revised inquiries will be needed to clearly identify FGP establishments. A planned approach from initial scoping questions

⁹ Office of Management and Budget.

http://www.census.gov/eos/www/naics/federal_register_notices/notices/fr08au14.pdf

¹⁰ Findings and Recommendations from Respondent Debriefings for the 2012 Economic Census – Factoryless Goods Production (FGP) Concept Research, St. Onge, Stettler and Willimack, U.S. Census Bureau, February 2015, page 7-9.

¹¹ Internal Census Bureau report on initial quantitative analysis of 2012 FGP inquiries, prepared by Miller, Pozzanghera, Drago, Murphy, January 2015.

through predetermined data evaluations is planned for implementation in the 2017 Economic Census. The scoping interviews will focus on terminology, recordkeeping, and identification of the appropriate party to contact for information on manufacturing transformation outsourcing. Results of this work will be used to develop new inquiries that will also be pretested in advance of the 2017 Economic Census. A more comprehensive data analysis plan will be developed based on the pending research for 2012 and any lessons learned during scoping and question development.

14. In addition to the establishment work being done by the Census Bureau, the Bureau of Labor Statistics is currently in the field with an establishment test as well. The inquiries being tested on the establishments are based on the model FGP decision tree that was created by the ECPC interagency taskforce.¹² As of this writing, the pilot test is still in the field and results are not yet available. Although using slightly different approaches to question development, both agencies are working together to leverage the results across programs.

A. Outstanding Issues for FGP Establishment Identification:

15. Is outsourcing transformation an establishment concept? While there are single location FGPs based on anecdotal findings in the popular press, is the larger problem an enterprise problem?

16. 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 transformation?

17. Can adequate inquiries be developed to collect a reliable indicator of FGP status at the establishment level?

III. Enterprise Statistics

18. The attempt to identify FGPs in the U.S. Census Bureau's Enterprise Statistics Program (ESP) has also gone through multiple iterations over the past several years. Enterprise statistics are being developed by the U.S. Census Bureau based on the annual Report of Organization (COS) and report of organization data from the 2012 Economic Census. The classification system used for enterprise statistics is a variant of NAICS. A comprehensive description of the 2012 Enterprise Classification System (ECS) is available on the Census Bureau's website.¹³ The categories used in the ECS are based on NAICS, but the basis for enterprise classification is payroll rather than the receipts basis used for establishments in the Economic Census. Coverage of the ESP closely follows the coverage of the Economic Census.¹⁴ The COS and Census report of organization provide company affiliation, and ownership and control data for the ongoing maintenance of the business register. In addition, questions concerning the purchase and provision of CMS have been incorporated on the various versions of the forms for the past several years. The main focus of the questions has remained the same but minor changes in language have been

¹² St. Onge, Heidi. Willimack, Diane. 2015. U.S. Bureau of the Census, Internal Draft: Census/BLS Joint Research Plan for Development and Testing of Questions Collecting Factoryless Goods Production.

¹³ U.S. Bureau of the Census. http://www2.census.gov/econ/esp/2007/restoring_the_esp.pdf

¹⁴ U.S. Bureau of the Census. <http://www.census.gov/econ/esp/about.html>

incorporated based on several rounds of pre-survey testing and post survey interviews. Questions have been tested, evaluated and updated since the initial attempt in 2010.

19. The FGP related questions from the 2012 NC-99001 form are:

MANUFACTURING ACTIVITIES -

Please respond even if you are not a manufacturer.

In 2012, did your company do any of the following activities related to manufacturing?

(a) 1. Operate manufacturing facilities (such as a factory, plant, or mill) where products are completed or partially produced?

Yes - Go to line 2

No - Go to line 3

(b) 2. Provide contract manufacturing services to other companies incorporating their patents, trade secrets, or proprietary technology?

Yes

No - Go to line 3

Estimate the percent of operating revenues and net sales, as reported in 3 OPERATING REVENUES AND NET SALES, from contract manufacturing services.

Less than 25%

25% - 49%

50% - 74%

75% - 99%

100%

(c) 3. Purchase contract manufacturing services from other companies or foreign subsidiaries of your company incorporating your company's patents, trade secrets, or proprietary technology?

Yes

No - Go to 4, CERTIFICATION

(i) Use 3rd party contract manufacturing services inside the United States (i.e., located in the 50 states and the District of Columbia)?

Yes

No

(ii) Use 3rd party contract manufacturing services outside the United States (i.e., located outside the 50 states and the District of Columbia)?

Yes

No

(iii) Use your company's foreign subsidiaries' or affiliates' contract manufacturing services at locations outside the United States (i.e., located outside the 50 states and the District of Columbia)?

Yes

No

(iv) Estimate the percent of the cost of sales from expenses for contract manufacturing services.

Less than 25%

25% - 49%

50% - 74%

75% - 99%

100%¹⁵

20. The responses to questions obtained from the 2012 Economic Census provide a unique opportunity for comparison to responses to similar questions for enterprises or companies obtained from the NC-99001 Report of Organization. Economists in the Center for Economist Studies are performing this review but as of the date of this writing, the results are not yet available.

21. Pre- and post-collection interviews at the enterprise level identified some of the same problems with question interpretation that were found with establishments. Prototype data tables from the 2011 COS indicate that on an enterprise basis, the prevalence of pure FGPs, or enterprises that outsource all of the manufacturing transformation, is relatively rare.¹⁶ This observation must be qualified with the limitations related to the uncertainty of the validity of the responses in the survey. While the response rates are much higher on the NC-99001 than they were for individual establishments, there are still troubling interpretation problems. Respondents tended to use a variety of definitions when responding that they purchased CMS. These included respondents answering YES that did not own or control intellectual property (IP). High levels of reported CMS purchases also came with high levels of false positives. In particular, there were a large number of wholesale trade enterprises that reported 100% outsourcing of transformation.¹⁷ Respondents appeared to be using a different definition of CMS purchases than was intended by the data collection. Respondents that reported providing contract manufacturing services defined CMS more in line with the intent of the questions. Enterprise follow-up interviews also noted that CMS decisions were often made by product line and were not necessarily enterprise wide practices. Additionally, it is not clear that the purchase of CMS from foreign affiliates was treated as if the foreign affiliate was a separate third party. Large single unit enterprises were not tabulated in the 2011 prototype tables so a source of potential FGPs were not included.

22. Although the 2012 Enterprise Statistics have not yet been released by the Census Bureau, early analysis internally is leading to additional modifications of questions. New questions are being developed to present a definition of intellectual property that is more widely understood by respondents. Provision of contract manufacturing services and purchase of manufacturing services will also be more directly tied to the ownership and control of intellectual property.

23. Overall, the attempts to identify FGP enterprises have provided some strong hints on survey direction and inquiries that might help narrow the field for FGP identification and classification. Ownership and control of IP is rising as an important issue. Expenditures on research and development (R&D) may also be correlated with FGP status and high levels of CMS purchase. It is becoming clearer that a simple set of questions is not going to lead to a definitive identification of FGP enterprises.

A. Outstanding Issues for FGP Enterprise Identification:

24. Is outsourcing transformation an enterprise concept or should the focus be on divisions and product lines?

25. Can a set of inquiries be developed to consistently identify FGP enterprises?

¹⁵ U.S. Bureau of the Census. <https://bhs.econ.census.gov/2012forms/NC99001.pdf>

¹⁶ U.S. Bureau of the Census. <http://www.census.gov/econ/esp/>

¹⁷ Gibson, Peter. 2012. Internal U.S. Bureau of the Census report. Contract Manufacturing Services: Preliminary Review of 2011 COS data, Census CMS/FGP Working Group.

26. 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 transformation?

IV. Next Steps

27. The ability to quantify outsourcing of manufacturing transformation is challenging in both establishment and enterprise data collections. FGP businesses need to be effectively identified and their characteristics evaluated to recommend the best classification within the NAICS or Enterprise Classification Systems used for establishment and enterprise data products. To further these objectives, a joint Census/BLS research initiative is in place to answer some of the outstanding questions. The project has three goals:

- (a) Identify and classify establishments (if possible);
- (b) Identify and collect data (variables) to describe the impact of outsourcing transformation; and
- (c) Identify company, enterprise, or indirect methods to quantify the impact of transformation outsourcing if direct methods are not feasible.

28. This work will consider the results of establishment efforts in the Economic Census as well as the pilot test of establishments undertaken by BLS. A draft plan has been developed that includes the following steps to organize the efforts and channel findings into action.¹⁸

Specify research objectives and develop collaborative research plan

- (i) Early stage scoping interviews with respondents - identify who to ask, where records are kept, how are terms and definitions understood by potential respondents
- (ii) Develop preliminary questions for BLS Quarterly Census of Employment and Wages (QCEW) establishment pilot study
- (iii) Revise draft FGP questions
- (iv) Cognitive testing of draft questions – parallel efforts by BLS and Census
- (v) Question content revision
- (vi) Share resulting information with stakeholders
- (vii) Revise FGP/CMS questions for use in the 2017 Economic Census

29. The Census Bureau is also working to better align the questions used for enterprises and establishments to the extent possible. This should result in a more robust understanding of the inter-relationship of establishments and enterprises and to develop consistent and reliable datasets for review and analysis. The goal is to use what has been learned to inform the final classification decisions and identify potential paths for developing indirect quantitative measures if direct measures are not feasible.

¹⁸ St. Onge, Heidi. Willimack, Diane. 2015. U.S. Bureau of the Census, Internal Draft: Census/BLS Joint Research Plan for Development and Testing of Questions Collecting Factoryless Goods Production.

30. While the process of identifying factoryless goods producers for classification purposes has moved in fits and starts over the past 10 years, the planning in advance of the 2017 Economic Census will provide additional knowledge to inform actions in the future.
