Implementing a business function classification in statistical surveys: some issues

Timothy Sturgeon
Senior Researcher, MIT Industrial Performance Center

Meeting of the Technical Subgroup on the Classification of Business Functions
Virtual meeting, 4-5 November 2020

Session 4: Issues in the implementation of the Classification of Business Functions
November 5, 7:00 – 9:00

Issues discussed in today's presentation

1. Measuring current conditions vs. recent changes
   - Developing a time series

2. Collecting data on domestic and internal sourcing
   - All four sourcing patterns are of high interest for GVC research

3. Quantification of business function data vs. binary characterization
   - Employment
   - Wages
   - International sourcing

Research and policy questions

Topics covered by various by international sourcing surveys

Topic	Included in survey?		
Domestic and international sourcing patterns	**Europe**	**Canada**	**USA**
How prevalent is domestic and international sourcing?	X	X	X
How large is international sourcing by business function			X
How do sourcing patterns vary by firm size?		see note	X
In which countries, regions, or types of countries is international sourcing carried out?	X	X	X
How do sourcing patterns vary by sector?	X	X	X
What is the mix across domestic internal and external, and international internal and external sourcing?	X	X	X
How do sourcing patterns vary by business function?	X	X	X
Employment and wages	**Europe**	**Canada**	**USA**
What is the employment breakdown across business functions?	X		X
What are the wage differences across business functions?			X
How many jobs are were lost because of international sourcing in the recent period, in which functions?	X		
How many jobs were moved back from abroad in the recent period, in which functions?	X		

Note: SIBS data is not publicly available, but it is very likely that it can be analysed by firm size.

Topics not well covered by various by official international sourcing surveys

- How large is international sourcing?
- What is the current sourcing mix?
- How large is international sourcing relative to other sourcing forms?
- How are sourcing patterns changing over time?
  - Which business functions?
  - Which sourcing locations?
  - Which types of enterprises?

1) Measuring current conditions vs. recent changes

- In the European IS/GVC surveys, questions about sourcing practices were bounded within a specific time period (changes to sourcing within in several recent years).

- This is useful for identifying new outsourcing and offshoring, however:
  - Changes in sourcing cannot always be identified as distinct from other changes to the structure of an enterprise, such as the expansion of activities in a specific function, sale of parts of the enterprise, separation of economic activities into separate legal units, acquisition of a legal unit, etc.
  - Takes source country perspective
  - Assumes outsourcing of previously in-house functions rather than “native” external sourcing
  - The approach loses efficacy as the practices of outsourcing and offshoring mature
    - Fails to capture the current organizational structure of enterprises
    - Ignores external sourcing established prior to the time period captured by the survey

Example: IT services

- Outsourcing of IT services began in the 1980s
  - Companies had no experience with IT and many turned to specialists
  - The U.S. 2010 NOS Survey found that 18% of sourcing costs for smaller firms and 9% of total sourcing costs were in domestically outsourced IT services
  - Canada's 2010 SIBS survey found that only half of manufacturing firms provided IT services internally, and that 19% outsourced domestically and 10% internationally
  - Data shown by Amitava shows that computer services is India's largest ITC-ES export, by far ($78 billion in 2017-2018, or 65% of ICT-ES exports)
  - Many smaller, younger companies have always been entirely dependent on externally provided IT services

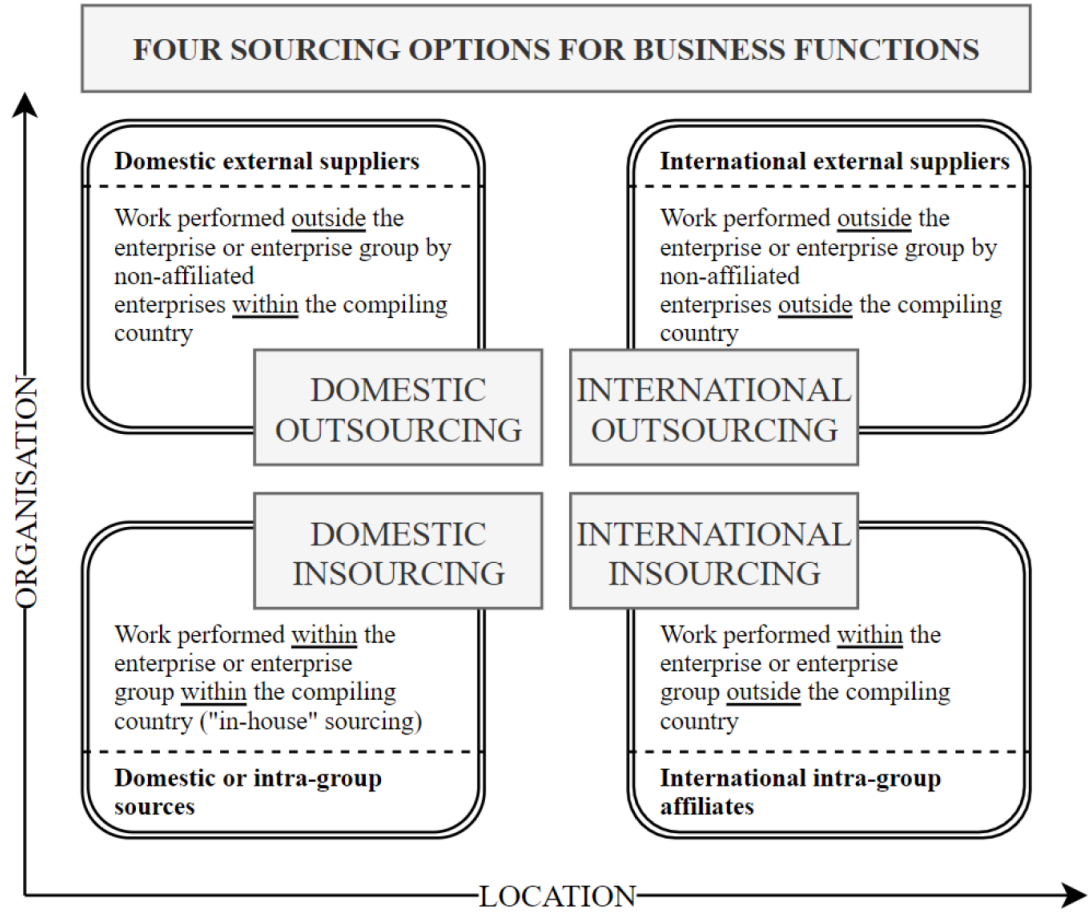
- The European survey does not capture most currently outsourced IT services
  - In the 2017/2018 European IS/GVC survey, only 1% of respondent companies said they had newly outsourced IT services in the recent period.
  - It is very likely that these enterprises outsourced IT services much earlier

- Annual or periodic snapshots of current sourcing patterns would:
  - Create an more accurate picture of sourcing patterns in the context of each survey
  - Allow for time series analysis of sourcing patterns, especially if enterprise panels were constructed
  - Policy-makers want to know how domestic and international sourcing is changing!

2. Collecting data on domestic and internal sourcing

- External domestic outsourcing
  - Likely the the most common form of outsourcing in large countries.
  - A precursor to international sourcing?
- Internal domestic sourcing
  - Signals ”core” functions
  - Signals a non-tradable function
  - Can contribute to a picture of vertical specialization at the level of whole economies
- The relative expansion (or contraction) of any form of sourcing can only be determined in relation to the other three sourcing options…

…data on all four sourcing patterns are needed



Source: adapted from Nielsen, 2008, and Eurostat’s methodology for international sourcing surveys.

Collecting data on domestic and internal sourcing

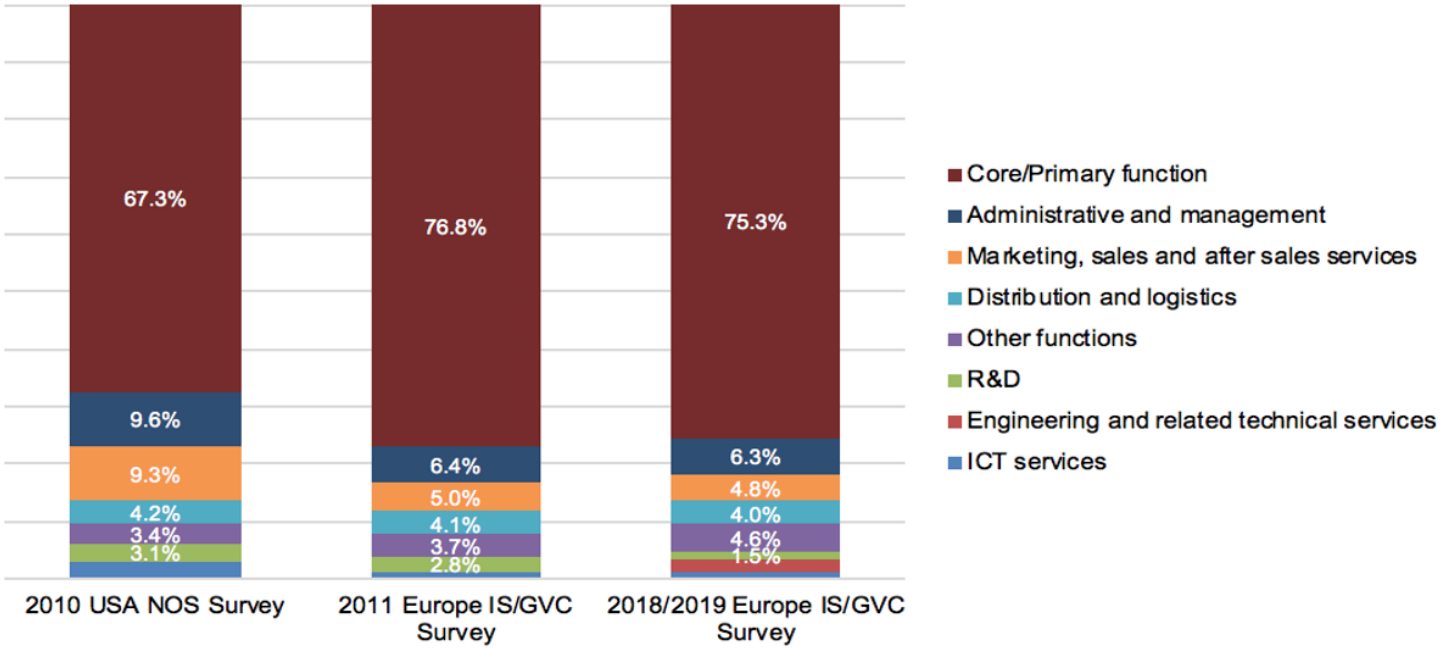
Share of enterprises in the 2017/2018 GVC/IS survey sourcing from domestic affiliates

All NACE codes	
Core business function	27%
Distribution and logistics	25%
Marketing, sales and after sales services incl. help desks and call centres	35%
ICT services	28%
Administrative and management	32%
Engineering and related technical services	27%
Research and development	35%
Other support functions	26%
Average	**29%**

Source: Eurostat 2017/2018 GVC/International Sourcing Survey

3. Quantification of business function data

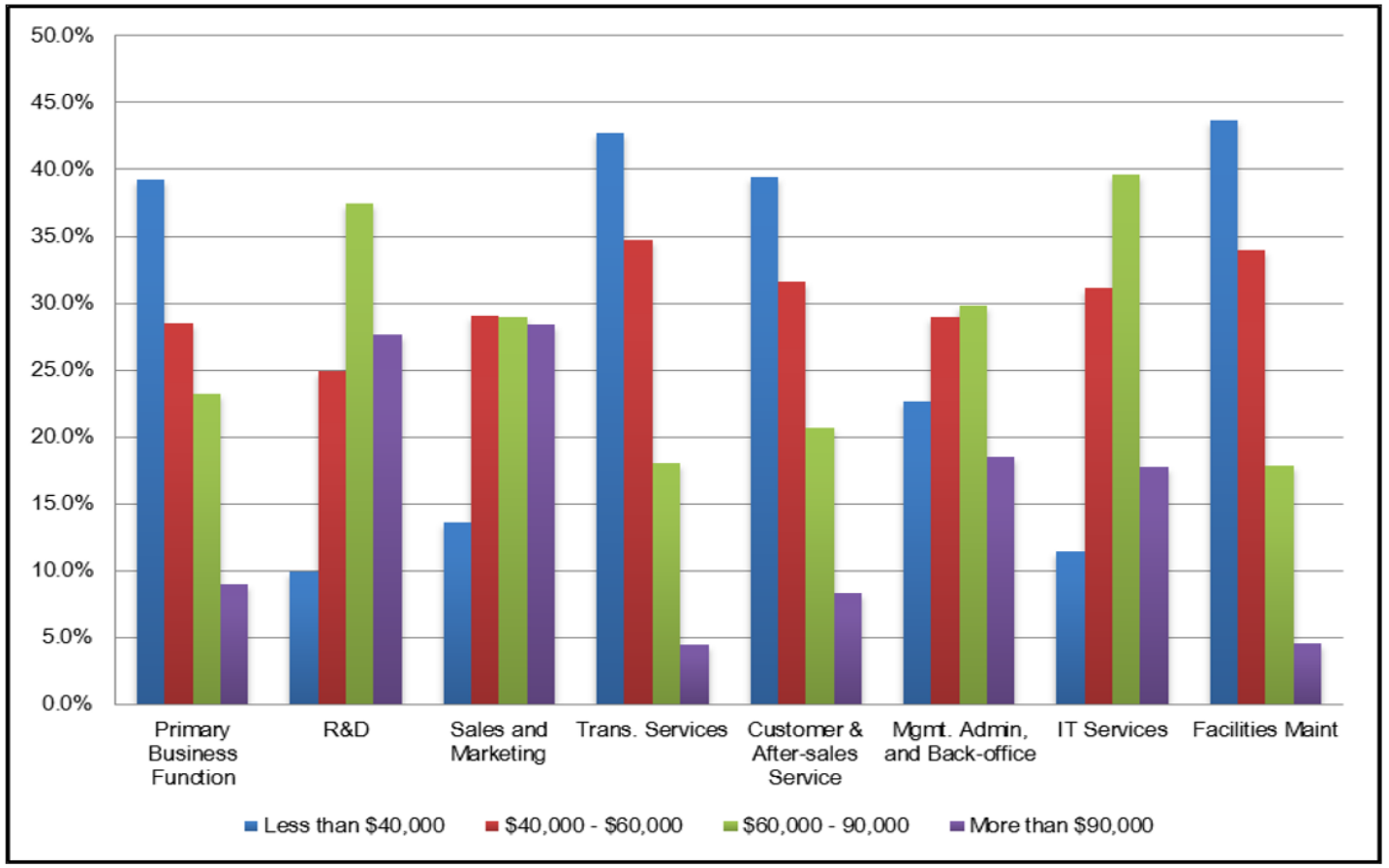
- Expansion of any form of sourcing can only be recorded as an increase in the relative importance of that form if sourcing can be quantified
- Questions about collectability have been raised, and field tests in Europe have not been very positive
- However, employment by business function has been collected in both Europe and the U.S.



Sources: 2010 NOS: Brown, Sturgeon and Cole, 2013. Eurostat IS/GVC surveys 2011 and 2018/2019.

Quantification of business function data (wages)

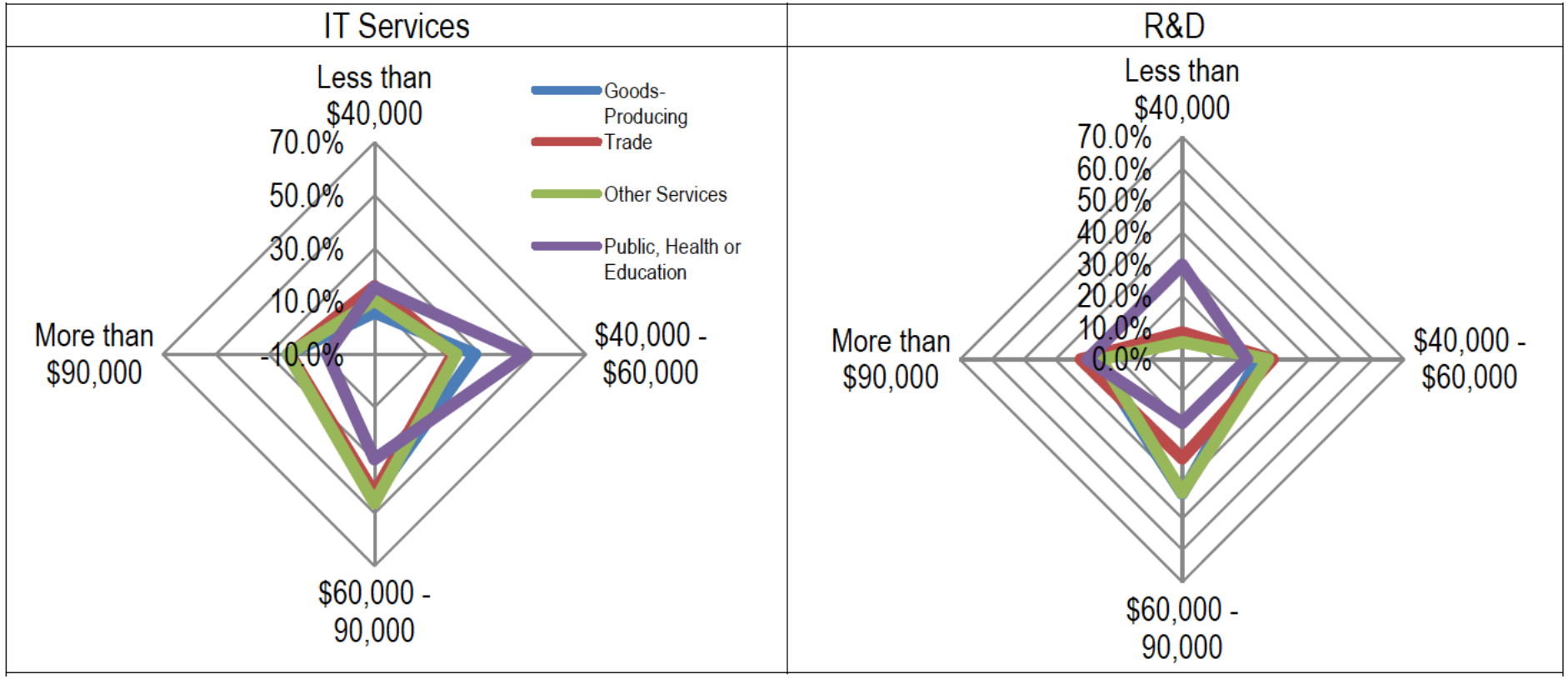
Distribution of wages in U.S. organizations by business function in the 2010 NOS



Source, Brown, Sturgeon and Cole, 2013.

Quantification of business function data (wages)

Wage Distribution in Higher Wage Business Functions by Sector in the 2010 NOS



Source, Brown, Sturgeon and Cole, 2013.

Quantification of business function data (sourcing)

- To know the magnitude of any form of sourcing, it has to be quantified:
- The 2010 NOS survey collected this information by asking respondents for the percent of total sourcing costs in each of the four options for each function. Specifically, sourcing costs were defined as follows:

1) Manufacturing: Costs represent the costs of goods sold (COGS), or the costs of materials, labor, and factory overhead;
2) Retail: Costs represent the COGS, described as what the organization pays to buy the goods that it sells to its customers;
3) Other Services: Costs of services sold (COSS) represent the costs associated with persons or machines directly applying the service, a measure of costs typically referred to as the cost of sales by accountants; and,
4) Public Administration: Costs represent spending in the organization's operating budget.

Quantification of business function data (sourcing)

Share of Large (≥500 U.S. Employees), Goods-Producing Organizations that Engage in Some External Sourcing, by Business Function

Business Function	Domestic In House	Domestic External	International Affiliate	International External	International Sourcing	N
Primary Business Function	100.0%	39.1%	44.9%	19.5%	46.8%	62
Research and Development	100.0%	30.4%	38.6%	11.3%	39.2%	55
Sales and Marketing	100.0%	25.8%	47.3%	14.0%	47.9%	57
Transportation Services	95.1%	50.4%	41.5%	28.3%	52.3%	55
Customer & After-sales Service	100.0%	14.4%	40.9%	10.2%	44.5%	57
Management, Admin, and Back-office	100.0%	19.3%	41.0%	10.4%	45.6%	61
Information Technology Systems	96.2%	57.0%	37.0%	22.0%	44.2%	56
Facilities Maintenance	96.9%	34.0%	41.7%	18.7%	45.8%	53

Share of Sourcing Costs for Large (≥500 U.S. Employees), Goods-Producing Organizations U.S. Organizations by Business Function

Business Function	Domestic In House	Domestic External	International Affiliate	International External	International Sourcing	N
Primary Business Function	83.6%	5.8%	9.2%	1.4%	10.5%	62
Research and Development	89.1%	3.0%	6.5%	1.3%	7.8%	55
Sales and Marketing	84.5%	5.8%	9.0%	0.8%	9.8%	57
Transportation Services	71.8%	13.7%	8.9%	5.6%	14.5%	55
Customer & After-sales Service	87.2%	3.0%	8.3%	1.5%	9.7%	57
Management, Admin, and Back-office	88.1%	2.9%	7.9%	1.2%	9.1%	61
Information Technology Systems	74.6%	16.6%	6.3%	2.6%	8.9%	56
Facilities Maintenance	81.8%	7.4%	8.1%	2.7%	10.9%	53

Reasons not to add complexity to business function surveys

- Respondent burden
- Answerability
- Survey length
- Data quality

Related issues

- Information can be gleaned from administrative and other complimentary statistics (micro-data linking), such as wage, FATS, and international trade.
  - These data can only help at the level of the enterprise, not the business function

THANK YOU!