

Annual Integrated Economic Survey (AIES) Pilot: Preliminary Analysis and Reporting Option Considerations

Cheukying (Rosita) Szeto

Lydia Rogers

Valerie Tseng

Supervised by Melissa Cidade and Heidi St.Onge

Economic Directorate – Annual Integrated Economic Survey

AIES & Module Design

Annual Integrated Economic Survey (AIES)



Module 1: Company-level

Module 2: Establishment-level

- Manufacturing
- Non-manufacturing

Module 3: Industry-level

- Manufacturing
- Non-manufacturing

Module 4: Add establishment(s)

Survey Design

Survey Modes

Two survey modes were available:

- Spreadsheet
- Qualtrics (recommended for businesses with < 5 units)

Process

- Respondents did not need to answer modules in a specific order
- Prompted to select either Spreadsheet or Qualtrics version at the beginning for each module

Annual Integrated Economic Survey

2021 Pilot

Module 2: Establishment-Level Data for Manufacturing Establishments


Reporting Method Options

- **Spreadsheet Reporting:** This method is recommended for companies with five or more locations. To begin this method, access the Spreadsheet Template below. For more information on reporting by spreadsheet, [click here](#).

 [Spreadsheet Template](#)

- **Online Survey Reporting:** This method is recommended for companies with four or fewer locations.

Preview Survey Questions

 [Module 2 Manufacturing Establishments Questions](#)

*Data within this module will be collected at the establishment (i.e., location) level.

How will you be completing Module 2 of the 2021 Annual Integrated Economic Survey?

☐ Spreadsheet reporting

☐ Online survey reporting

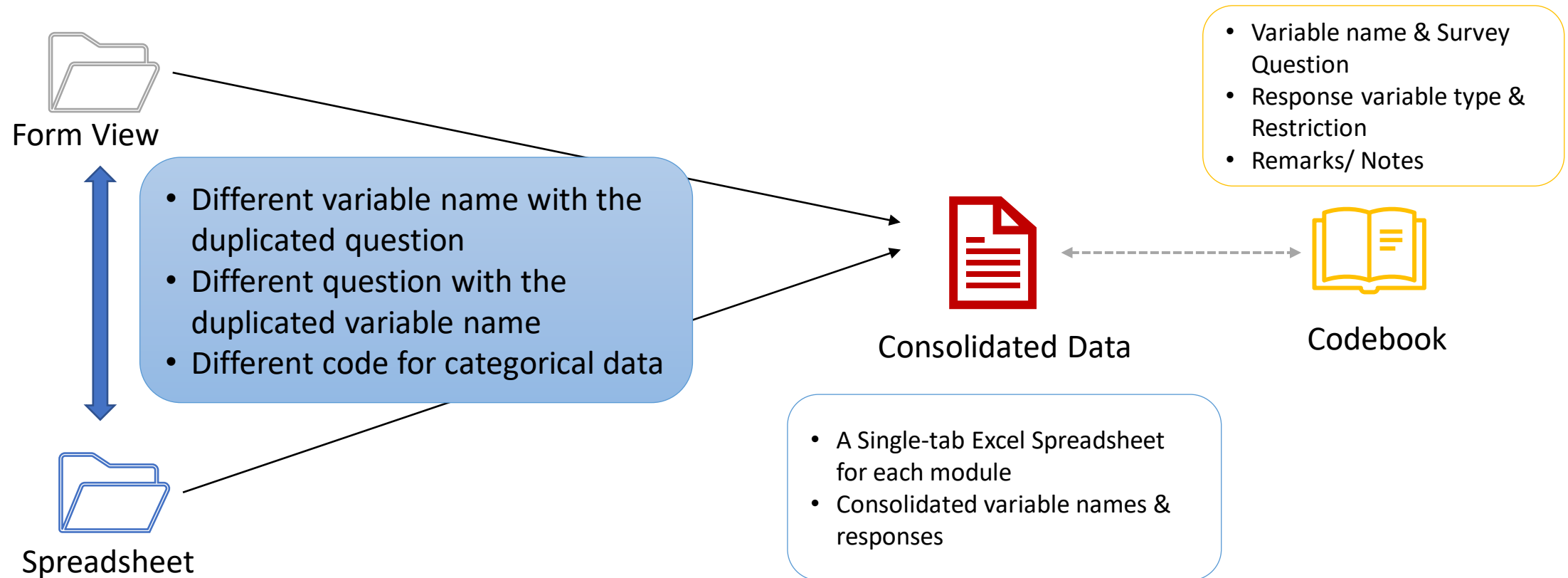
Overview



Goal

1. **Consolidate** all pilot data into an analyzable data set
2. Create a **codebook** for reference
3. **Define** Completeness and analyze response rate (Company, Establishment, Industry Level)
4. Analyze the **two modes of survey** (Spreadsheet vs. Qualtrics)
5. **Re-evaluate** and investigate current survey method

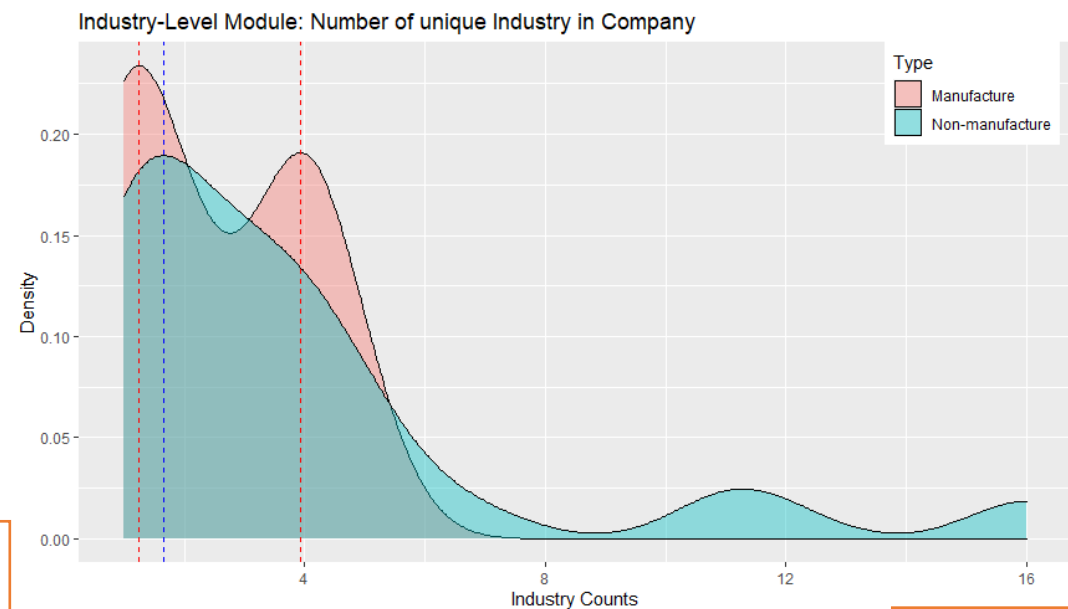
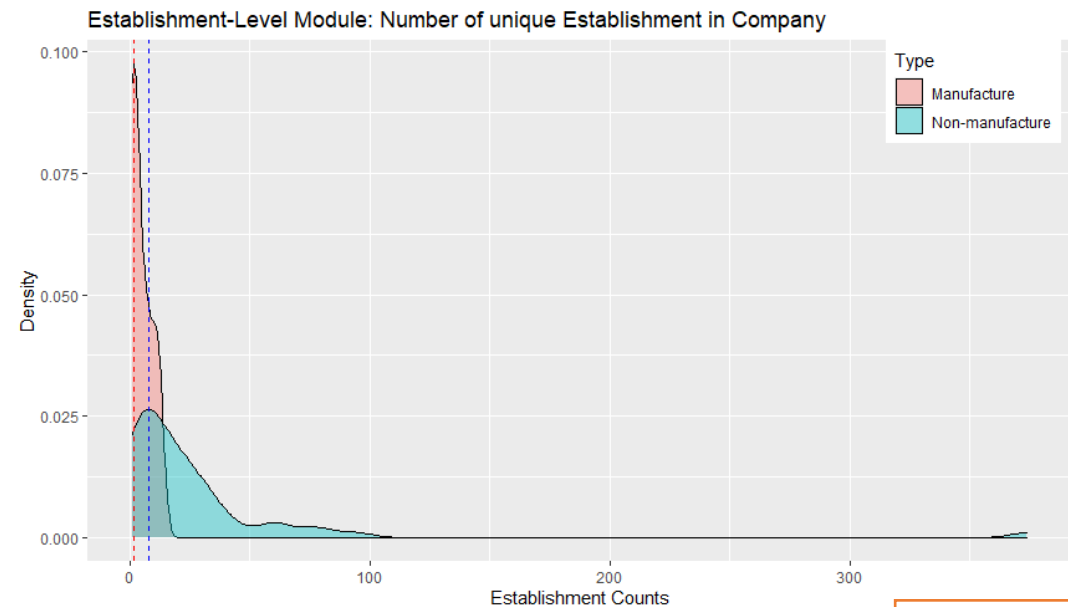
Data Consolidation Process



Summary Statistics

Number of Unique Submission by Levels				
		Company	Industry	Establishment
Company Level	Module 1	57		
	Module 2: Non-Manufacturing	57*		1524
Establishment Level	Module 2: Manufacturing	16*		77
	Module 3: Non-Manufacturing	46**	100	
Industry Level	Module 3: Manufacturing	13**	28	
	Module 4	15		38
Add Establishment				

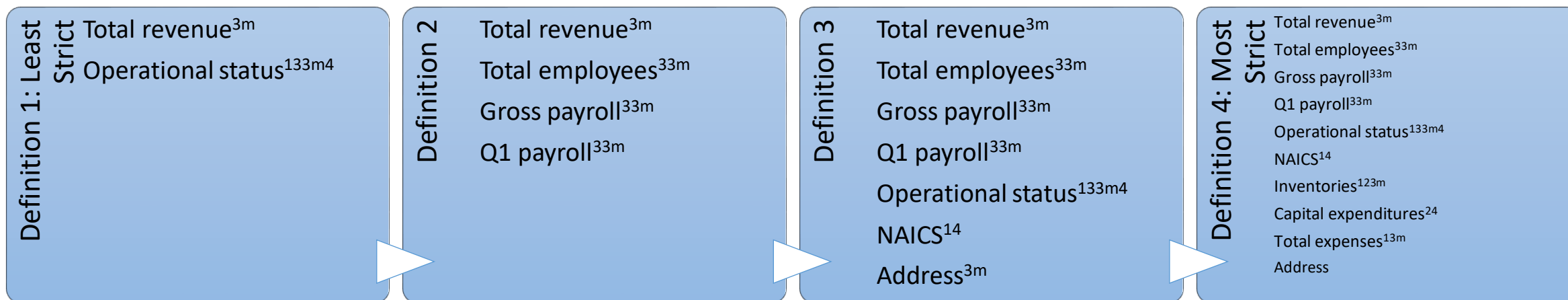
*13 companies submitted both non-mfg and mfg
**10 companies submitted both non-mfg and mfg



Defining Completeness

What is the threshold for completeness?

- Completeness is an important measurement of data quality, but there are many ways to quantify it
- Four definitions of completeness tested, with Definition 1 being the least strict and Definition 4 being the strictest.
- Some modules did not contain each variable included in the completeness definitions; for these cases, only the variables that the module contained were used to determine completeness.



Note: These Definitions apply across to all 4 modules

¹ = Not applicable to Module 1

² = Not applicable to Module 2 non-mfg

³ = Not applicable to Module 3 non-mfg

^{3m} = Not applicable to Module 3 mfg

⁴ = Not applicable to Module 4

Completeness Status by Module

How much complete data do we have?

- Definition 1 does not apply to Industry Manufacturing
- Number of complete observations decrease as definitions become more strict
- “Partial” completeness indicates that not all observations completed all questions required to be considered complete; for example, on the establishment level, a company could have incomplete or partially complete establishments as well as complete establishments.
- “Incomplete” indicates that the company submitted no data for any of the required questions for that definition

Number of Observations by Completion Status: Definition 1 (Least Strict)						
	Company Level	Establishment Level		Industry Level		Add Establishment
Completion Status	Module 1	Module 2: Non-Manufacturing	Module 2: Manufacturing	Module 3: Non-Manufacturing	Module 3: Manufacturing	Module 4
Completed	52	1320	81	152		28
Partial or Incomplete	5	252	9	32		10

Number of Observations by Completion Status: Definition 4 (Most Strict)						
	Company Level	Establishment Level		Industry Level		Add Establishment
Completion Status	Module 1	Module 2: Non-Manufacturing	Module 2: Manufacturing	Module 3: Non-Manufacturing	Module 3: Manufacturing	Module 4
Completed	50	1292	77	140	30	28
Partial or Incomplete	7	290	13	44	13	10

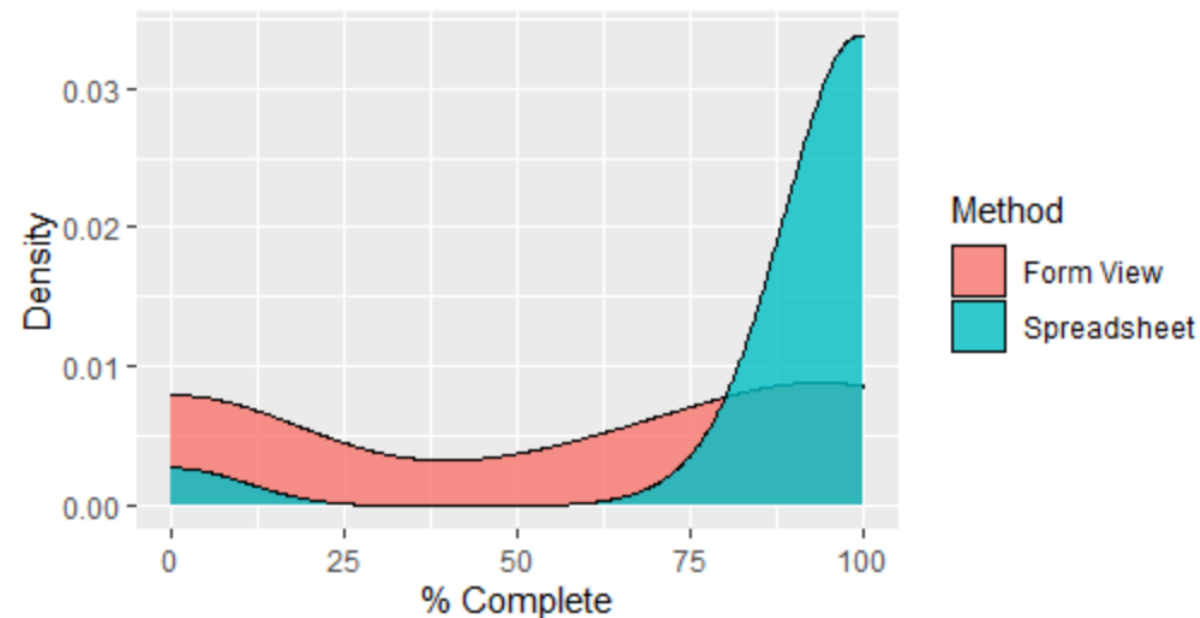
Spreadsheet vs. Form View

What did we find?

- Whether a company responded by spreadsheet or form view varied by module
- While completeness varies more for form view reporters, more companies either did or did not fully complete the survey using spreadsheet reporting
- Companies generally followed the reporting method recommendation based on size

Company Reporting Method by Module						
	Company Level	Establishment Level		Industry Level		Add Establishment
Method	Module 1	Module 2: Non-Manufacturing	Module 2: Manufacturing	Module 3: Non-Manufacturing	Module 3: Manufacturing	Module 4
Form View	67%	37%	14%	17%	10%	16%
Spreadsheet	24%	54%	11%	56%	11%	8%
Did not Complete	10%	10%	75%	27%	79%	76%

Completeness by Reporting Method Under Definition 4



Company Reporting Method by Number of Establishments		
	Less than 5 Establishments	5 or More Establishments
Form View	21	9
Spreadsheet	5	41

Note: sum is greater than total number of companies (57) due to some companies submitting data using multiple reporting methods

Current Spreadsheet Reporting Method

RECORD_CFN	Response Variable Industry	Response Variable Industry Description	Response Variable Primary Wholesale Type of Operation Code (if applicable)	Response Variable Primary Wholesale Type of Operation Description (if applicable)	Q2_26b_1	Q2_26b_2
*CFN (census file number) - Unique identifier used for downloading and uploading data *Do not modify prelisted CFN. If adding locations to this spreadsheet, add them	Industry	Industry Description	Wholesale Type of Operation Code (if applicable)	Wholesale Type of Operation Description (if applicable)	Name 1 - Enter/Update Name 1	Store/Plant - Enter/Update store/plant number
					Any corrections to this field must be entered here. Maximum length is 36 characters.	Any corrections to this field must be entered here. Maximum length is 12 characters.
1004000000	424490	Other grocery and related products merchant wholesaler	1X	Distributor	CENSUS CAT COMPANY WHOLESALERS	WHOLESALE PLANT 1
1005000000	424990	Other grocery and related products merchant wholesaler	1X	Distributor	CENSUS CAT COMPANY WHOLESALERS	WHOLESALE PLANT 2
1006000000	459910	Pet supply store			CENSUS CAT COMPANY	STORE 1006
1007000000	459910	Pet supply store			CENSUS CAT COMPANY	STORE 1007
1008000000	459910	Pet supply store			CENSUS CAT COMPANY	STORE 1008
1009000000	459910	Pet supply store			CENSUS CAT COMPANY	STORE 1009
1010000000	459910	Pet supply store			CENSUS CAT COMPANY	STORE 1010
1011000000	812910	Pet care (except veterinary) Services			CENSUS CAT GROOMING	STORE 1011
1012000000	812910	Pet care (except veterinary) Services			CENSUS CAT SHELTER	STORE 1012

Interview Methodology

Methodology

- Reached out to 56 members of AAPOR affinity group
- Conducted 18 semi-structured interviews
- Evenly divided between federal agencies and private research firms
- Participants included Survey Methodologists, Senior Research Survey Methodologists, Survey Directors, among others

Research Goals

- What modalities are used to collect data for economic surveys?
- What features and functions are utilized in spreadsheet surveys?

Interview Findings

Findings

- Take a different approach for smaller and larger enterprises
- Helpful features: cover page for instructions, a comment feature, automatic edit checks, pre-filled cells
- Conflicting views on locked cells and other cell restrictions
- Varying familiarity with Excel sheets and access to Microsoft Office

Recommendations



- Develop a separate strategy for smaller and larger enterprises
- Focus on user-centered & flexible survey
- Implement automatic error checking, flagging cells, and color coding
- Keep survey content and internal contacts consistent across years

Next Steps

Final Documentation

Report Dissemination

Additional testing and research

Incorporate Findings into design for Y1 AIES Survey

Thank You!

Please contact Melissa Cidade
(melissa.cidade@census.gov) or Heidi St.Onge
(Heidi.m.st.onge@census.gov) with any questions.