TABULATION SPLITS FOR FIRMS WITH MULTIPLE KIND-OF-BUSINESS ACTIVITY IN THE RETAIL TRADE SURVEYS

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1. Introduction

The Bureau of the Census conducts surveys on a monthly and annual basis to collect data for the retail trade sector. The sample for the Monthly Retail Trade Survey (MRTS) and the Annual Retail Trade Survey (ARTS) are probability samples selected from employer businesses contained on the Bureau's Standard Statistical Establishment List (SSEL). Certainty units as well as two panels of noncertainty units are selected. The MRTS consists of the certainty units and one of the noncertainty panels. The selected units are asked to submit reports each month of the sales of all their retail stores. The ARTS sample consists of the units in the MRTS plus the additional panel of noncertainty units.

A sampling unit having activity in more than one kind of business (KB) within the same trade area is subjected to sampling in only one of these kinds of business. This KB for sampling is the KB that generates the most annual dollar volume for the sampling unit. Even though we subject the unit to sampling in only its major KB, the necessity to tabulate data for all significant activity that the unit has exists. This was not a problem for the MRTS when we canvassed establishments. Dollar volume of each establishment was tabulated in its particular KB. However due to budget constraints, canvassing is now done at the sampling unit level (or subunit level convenient for the respondent).

The question arises as to how to account for all significant business activity a sampling unit has if only a total report is obtained. Currently in the MRTS, we create two types of tabulation records to account for multiple activity. For each sampling unit we create reporting parts, pseudo establishments or a combination of both. Reporting parts are created if the unit has indicated that it was able to report separately for particular KBs on a monthly basis. If the reporting unit can not break out the data, we create pseudo establishments that can be considered as KB split records. These split records are created using annual sales allocations that existed at the time of sampling. For most units in the current MRTS and ARTS this is the KB distribution as computed from data on the 1994 SSEL,

which had been updated with data from the 1992 Economic Censuses and the 1993 Company Organization Survey (COS). For the ARTS, we want to get the most accurate and up-to-date breakout of the KB activity that a firm with multiple kind-of-business activity has. We attempted to accomplish this by creating KB splits based on payroll from the most recent SSEL to allocate the annual sales. Basically, KB splits are percentages used to create records for the tabulation of the specific KB levels of reporting units with multiple KB activity.

2. The SSEL

On a regular basis the Census receives administrative data from other Federal agencies, in particular the Internal Revenue Service (IRS), Social Security Agency (SSA), and the Bureau of Labor Statistics (BLS). This administrative data includes business name and address, industrial classification, quarterly and annual payroll, number of employees, annual sales or receipts, and company affiliation. These data are the basis for the construction and maintenance of the SSEL. The SSEL contains all known employer business establishments in the United States. Employer businesses use the Federal Employer Identification Number (EIN) as their taxpayer identification number when reporting payroll and employment data. According to certain legal provisions, the IRS regularly transfers selected data from tax returns for the purpose of producing official statistics in the United States. The SSEL uses the EIN as the primary identifier for singleunit establishment business firms and as a secondary identifier for multi-establishment (MU) firms. Each establishment of a MU firm has a six digit company number assigned by the Census Bureau called the alpha. Based on the size of the company, the MU firms are in the MRTS as part of a certainty company (an alpha) or MU EIN (certainty or noncertainty).

The SSEL is also updated with data from other Census Bureau surveys such as the annual Company Organization Survey (COS) which provides individual establishment data for multi-establishment companies.

From year to year the SSEL can tell us what new KBs a company or MU EIN may have, what KBs a company may no longer have because of closures or sales of establishments to another company or even if the entire

company no longer exists. This information is not always provided to us by respondents to our monthly and annual surveys.

3. Creation of Reporting Parts and Pseudo Establishments in the MRTS

After sample selection but before the first monthly mailout, we must set up reporting arrangements for the sampling units. As stated in the introduction, reporting parts, pseudo establishments or a combination of both are created. The sampling units for which we create reporting parts and/or pseudo establishments meet the following criteria:

- has multiple KB activity

- the percent of annual sales for the KB with the largest dollar volume is less than 80%

- two or more of the KBs has sales greater than $10 million or represent more than 10% of the sampling unit's total annual sales.

The sampling units meeting the above criteria were contacted and asked if they could report the desired KB breakout. If they could, a reporting part (part 01, 02, etc.) was created for each KB. If the respondent could not report for each KB, pseudo establishments were created by allocating the historical sampling unit data out into the desired KBs (based on the KB representation on the 1994 SSEL). We used this allocated historical data to impute data on a monthly basis. If the respondent reported data at the total level, we raked the imputed pseudo establishment data to sum to the reported total level. If the respondent did not report monthly sales, we summed the imputed sales of its pseudo establishments as an estimate of monthly sales. In either case, the imputation procedure does not result in major distribution changes from the initial KB breakouts.

There were some instances where both reporting parts and pseudo establishments were created for a particular sampling unit. In Example 1, company XYZ had establishments in four different KBs. The company told us they could report separately for 5211, Lumber and Other Building Materials Dealers but could only report one combined monthly figure for the last three KBs. We created reporting unit XYZ, part 01 and XYZ, part 02. Part 02 had three pseudo establishments created, one for each for KB 5411, Grocery Stores, 5541, Gasoline Service Stations, and 5511, Motor Vehicles (New and Used).

Example 1

KB	$ volume (000)	Percent $ volume
5211	3,000	.15
5411	9,000	.45
5541	5,000	.25
5511	3,000	.15

A sampling unit with a large dispersion may have had no extra reporting parts created, even if the criteria noted above were met. In Example 2 below, company XYZ had establishments in 8 different KBs. We decided this would be too many report forms to mail to the company. Part 00 was created with eight pseudo establishments.

Example 2

KB	$ volume (000)	Percent $ volume
5251	3,103	10.2
5331	8,257	27.0
5531	3,062	10.0
5712	3,368	11.0
5713	2,941	9.6
5731	4,441	14.5
5932	2,034	6.7
5941	3,347	11.0

KB 5251, Hardware Stores, 5331, Variety Stores, 5531, Auto and Home Supply Stores, 5712, Furniture Stores, 5713, Floor Covering Stores, 5731, Radio, Television, and Consumer Electronic Stores, 5932, Used Merchandise Stores, and 5941, Sporting Goods Stores.

4. Creation of KB Splits in the ARTS

4.1 Creation of KB Splits Using Payroll from the SSEL

We did not want to use the MRTS pseudo establishments to create the KB splits for ARTS because,

- In many cases, the pseudo establishment sales represented more than one KB.

- The dollar volume contribution of each KB indicated by the pseudo establishments may have changed since their original creation.

With this in mind, we investigated doing the following:

- Extract from the SSEL all inscope establishments of companies and MU EINs with establishments in more than one KB.

- Sum the annualized payroll of the establishments by KB.

- Compute the annual split for each KB by dividing the KB sum by the total annualized payroll of the reporting unit.

There were some issues that we addressed before we decided to use this methodology. They were:

- *Reliability and timeliness of payroll data.* How accurately could the payroll splits determine the sales splits? How timely were the payroll data? We currently use payroll from the SSEL to help determine measures of size for sampling, to edit survey reports, and to impute for nonresponse. The correlation between payroll and sales is quite good for most retail KBs and we felt confident that using payroll splits as a proxy for sales splits would be appropriate. We attempted to confirm how well payroll would work by comparing splits computed from payroll to splits computed from sales. This was done soon after the initial sample was selected so we did have sales allocation by establishments. In general, there was no significant difference in the sales and payroll splits. As far as timeliness is concerned, we would have to use payroll from the year prior to the survey year because of the processing time of the current year survey. For example, processing for the 1997 ARTS is done in 1998. Processing of 1997 payroll is also done in 1998. At the time the splits were needed only 1996 payroll data were available.

- *Reporting units that have more than one part.* Could we identify which establishments were associated with which part of a multi-part alpha? We did not see a way to use the payroll splits for these type of units because we could not easily identify which establishments from the SSEL went with a particular reporting part.

- *Annual to monthly reconciliation.* Would more cases need to be reconciled because of the differences between initial splits and payroll splits? Part of the reconciliation between the annual and

monthly surveys includes a review of the differences between the monthly and annual estimates of retail sales for individual units. If there were any major changes for particular units between the two sets of splits, the monthly pseudo establishments could be changed based on the annual splits.

We decided to use the payroll split records only for those reporting units that had part equal to 00. Units with part 00 are the units where all the data are covered by one reporting unit (i. e., the unit is mailed one report form). If the reporting unit had a reporting part greater than 00 and had pseudo establishments, the splits were computed using the pseudo establishment data.

4.2. Creation of Splits Using Pseudo Establishments

If a reporting unit had part greater than 00 and also had pseudo establishments the annual splits were created by

- Summing the monthly sales by KB and computing an annual sales total across all KBs.

- Computing the KB splits by dividing each KB sum by the total annual sales of the reporting unit.

5. Comparison of MRTS Splits to ARTS Splits

Comparisons of splits created from pseudo establishments and the payroll allowed us to identify the following groups of reporting units (examples of splits in each group are provided below):

- Reporting units where initially 80% of the data (on an annual basis) resided in one of the two or more KBs and still did for the 1997 ARTS.

KB	MRTS Split	1997 ARTS Split
5731	--	.10
5963	1.00	.90

This reporting unit started out in the sample with KB 5963, Direct Sellers. Based on 1996 payroll, an additional KB, 5731, Radio, Television, and Electronics was identified. In the 1997 ARTS 90% of the annual sales was tabulated in 5963 and 10% in 5731.

- Reporting units where one or more of the initial splits no longer existed. This probably occurred because establishments were sold or no longer in operation.

KB	MRTS Split	1997 ARTS Split
5441	.57	1.00
5947	.43	--

This reporting unit initially had establishments in the two KBs 5441, Candy, Nut and Confectionary and 5947, Gift, Novelty, and Souvenir Stores. Based on 1996 payroll, the unit no longer had establishments in KB 5947. All the units sales were tabulated in 5441 for the 1997 ARTS.

- Reporting units with additional KBs that were not there when the initial splits were created.

KB	MRTS Split	1997 ARTS Split
5511	.46	.38
5521	--	.16
5561	.54	.46

This reporting unit initially had establishments in 5511, New Car Dealers and 5561, Recreational Vehicle Dealers. Based on 1996 payroll, the unit now has establishments in 5521, Used Cars Dealers.

- Reporting units with relatively no difference in the MRTS splits and the ARTS splits

KB	MRTS Split	1997 ARTS Split
5621	.52	.53
5651	.48	.47

This reporting unit initially had establishments that were 5621, Women's Clothing Stores and 5651, Family Clothing Stores. Based on 1996, it still had the same KB representation.

- Reporting units with differences of at least 10% between the MRTS splits and ARTS splits

KB	MRTS Split	1997 ARTS Split
5941	.34	.61
5961	.66	.39

This reporting unit initially had establishments that were 5941, Sporting Goods Stores and Bicycle Shops and 5961, Mail Order. Based on 1996 payroll the percent of sales had almost reversed.

- Reporting units that were no longer doing business,

either because they were out-of-business or bought out by another company.

There were 4,466 reporting units (1,545 companies and 2,921 MU EINs) in the MRTS that had reporting part equal to 00. Of the 4,466 reporting units, 877 (20%) had splits created from payroll. The other 3,589 reporting units had their annual sales tabulated in one KB. These 877 reporting units represent about 4% of the total 1997 ARTS estimate. In general, the KBs which represent a small percent of total retail sales gained sales by use of the payroll splits. For example, no money would have been tabbed in KB 5714, Drapery, Curtain, and Upholstery Stores for the part 00 reporting units using the MRTS split but 8 million dollars are tabulated for these part 00 units using the payroll splits.

6. Conclusion

We believe the current methodology has worked well. It has allowed us to distribute the sales into what we believe to be a more accurate representation of KB activity. This is especially true for the KBs which represent a smaller percent of the total dollar volume. This methodology has also allowed us to identify reporting units where there has been a major shift in the KB activity. This includes identifying new KB activity as well as KB activity no longer being done. One thing that we have noticed has been the changes that occur from year-to-year for companies and MU EINs that have establishments in KBs 581201 (Restaurants, Cafeterias, Contract Feeding), 581202 (Refreshment Places, Ice Cream and Soft Serve Shops, and Frozen Yogurt Shops), 5411 (Convenience Food Stores Selling Gasoline), and 5541 (Gasoline Stations with Convenience Food Stores). In particular the splits for the 1997 ARTS, based on 1996 payroll and the splits for the 1998 ARTS, based on 1997 payroll, had a number of reporting units that were in 581201 for the 1997 ARTS and in 581202 for the 1998 ARTS and in 5411 for the 1997 ARTS and in 5541 in the 1998 ARTS. Of course, the switches from 5411 to 5541 are easy to see because the percent of sales from gasoline versus food can change from year-to -year.

The processing system is user friendly enough to allow the analysts to make changes to the splits if they think there are problems with the payroll or pseudo establishment splits. It is necessary for the analysts to keep up with such things as news reports as well as company annual reports to see that all the activity of the company or EIN is being covered in the ARTS estimates. The analysts must also take into consideration the effects of changes in coding noted above may have on the year-

to-year trends at the total KB level.

We may want to consider asking multiple KB firms if they could provide more detailed allocations on an annual basis than they could on a monthly basis. That may require a bit more processing work on the Bureau's part but would produce more accurate KB estimates.

DISCLAIMER

This paper reports the general results of research undertaken by Census Bureau staff. It has undergone a more limited review than official Census Bureau Publications. This report is released to inform interested parties of research and to encourage discussion.

References:

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