

Estimates of Tip Income in Eating Places, 1982

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Information on tipping is theoretically obtainable from a variety of sources--the employees or recipients of the tips, their employers, or the tippers themselves. However, experience has indicated that tips will be seriously understated in surveys (or other reports) by the employees or recipients of the tips because of their reluctance to reveal the amount of income from this source. Employers, in turn, may either have inadequate knowledge of tipping levels or have a tendency to exaggerate them, partly as a justification for maintenance of below-average wage scales.

In order to overcome these difficulties in estimating aggregate tip earnings, the Internal Revenue Service adopted a technique similar to that used in the informal supplier study described in a previous edition of the Statistics of Income Bulletin [1]. The approach is to interview the consumer of the service as opposed to the provider. To assure respondent cooperation, the Research Division of the IRS entered into a contractual agreement with the Survey Research Laboratory (SRL), University of Illinois, to conduct the research. The SRL report, "A Survey Approach to Estimating the Tipping Practices of Consumers," [2] is the basis for this article.

The decision to use a consumer panel for purposes of this study was predicated on the belief that the tippers themselves would have reliable information on the amount of their gratuities, especially if recorded on a day-to-day basis, and would have no economic stake in biasing the results.

Methodology

The data for this study are based on a national consumer panel that has been operated

since 1975 by NPD Research, Inc. It currently contains about 10,000 households of two or more related persons and 2,800 households with one or two unrelated persons. The sample was spread uniformly over all the weeks of each quarter of the year. Each household kept a diary of all occasions of eating in a restaurant or other eating place such as a fast food establishment or cafeteria for one two-week period in each quarter.

Cooperation rates were high, with about 85-90 percent participation for two-or-more-related-person households and 75-80 percent participation for households with one or two unrelated persons. Day-to-day recording of the use of services and of the associated expenditures and tips ensured far greater accuracy and completeness of the data than other survey approaches such as retrospective interviews using personal or telephone interviewing techniques. Also, possible reporting biases--such as exaggeration of tips for prestige reasons--should be smaller than in an interview procedure where the respondent may be attempting to impress the interviewer. As a further safeguard, diaries for the first quarter of participation of a household in the panel are not used, because this is the period when inaccuracies and biases would tend to have been the highest. Panelists report for up to four years and then are replaced to reduce conditioning effects (possible biases resulting from continuous inclusion in a panel).

Nevertheless, the NPD panel is not a strict probability sample and, like other consumer panels, is not fully representative of the population. The relative frequency of low-income families and minorities in the sample is lower than their frequency in the population. An effort was made to correct for

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this by weighting the sample to independent households estimates based on Census Bureau data in considerable detail (income group, age of head, region, etc.). The weighting was done separately for related person households and unrelated person households. This procedure should substantially reduce, but not necessarily eliminate completely, the effect of differential coverage. The procedure also would have little effect on the possibility that panel members, in general, might have different behavioral characteristics than the population as a whole. One encouraging overall indicator is that the NPD estimates of expenditures in restaurants and other eating places came within a percentage point or two of the Census Bureau's retail trade aggregates for this sector, usually considered the benchmark in this field.

Results

In 1982 Americans ate out on some 14.8 billion occasions [3], spending \$84.8 billion [4]. These gross figures average out to 183 eating occasions per household for the year and close to \$6 per eating occasion (Table 1). Tips were left on only about 30 percent of all eating occasions, mainly reflecting the prevalence of eating at fast-food establishments and similar places in which tipping is not expected or common. Meals at which tipping occurred accounted for slightly over one-half of all expenditures in eating places. The average check amounted to about \$10 on such occasions compared with just under \$4 where there was no tipping.

Aggregate tips in eating places in 1982 were \$6.2 billion, or 7.4 percent of all expenditures [5]. However, on occasions where tipping occurred, tips represented 14.3 percent of the cost of the meals. This 14.3 percent can be termed the "tipping" rate and is close to the 15 percent convention often considered the typical gratuity.

The available data do not permit a precise identification of situations in which tipping is anticipated, but some approximations are possible. As part of their recording, survey respondents were asked to classify the establishments in which they ate into six general categories: family type, atmosphere specialty, coffee shop, cafeteria, fast-food and drive-in, and take-out. The first three of these (family type, atmosphere/specialty, and coffee shop) were considered restaurants where tipping would likely occur. Information was also obtained for each occasion on whether the food was taken out. It was, therefore, possible to refine this group to exclude carry-out occasions where tipping was unlikely. The result was a group of eating occasions in tipping-type sit down restaurants where the food was ordered and eaten inside. Tips on these occasions amounted to some \$5.7 billion.

In addition, respondents also were asked to enter the predominant kind of food served (hamburgers, pizza, seafood, Mexican, Chinese, etc.) or whether the food was varied. Restaurants within hotels or retail stores were also separately identified. With the additional information, it was found that the establishments readily fell within two broad categories [6]. For a number of types within the previously established tipping-type categories--full-menu, specialty sit-down type, (fish, Mexican, Chinese, ice cream with food, pancake, or pie) and hotel and retail store--tipping occurred on at least 60 percent and generally 80 percent or more of the eating occasions. The proportions were far lower, usually well under 50 percent, for the remainder of the tipping-type group. Therefore, the previously identified tipping-type group could be modified to exclude types in which the proportion of tipping occasions was less than 60 percent. For this refined group as a whole, the survey showed that tips were left on close to 80 percent of all occasions and for almost 90 percent of all expenditures. Within this refined group, tips were 12.9 percent of all expenditures and 14.5 percent of expenditures on those occasions when tips were left. The 12.9 percent rate may be considered to be a lower bound estimate of the average tipping rate--including "stiffing"--in restaurants when tipping is customary. Total tips in this category amounted to some \$5.2 billion.

Comparisons With Alternative Data Sources

The usual method of collecting data on tip income in surveys has been to ask the recipients for the amounts obtained from this as well as other income sources. Separate data on tips are usually not recorded or obtainable from such income surveys as the annual Census Bureau inquiries in the Current Population Survey or similar endeavors.

One survey in which an effort was made to identify supplemental income sources such as tips was the 1979 Research Panel of Income Survey Development Program (ISDP), conducted as a forerunner and dress rehearsal for the then Department of Health, Education, and Welfare (HEW) (now Census Bureau) Survey of Income and Program Participation (SIPP) [7]. The ISDP was primarily intended to stimulate more complete reporting of total employee earnings and was not designed to measure accurately tip income per se, however, it does support derivation of an estimate of aggregate tip income. For each separate job held by an individual, an inquiry was made (on a quarter-by-quarter basis) about whether, in addition to wages and salaries, that person received any income from commissions, tips, bonuses, and severance pay. Although tips were not recorded separately within this composite, reports for occupations such as waiters and waitresses, bartenders, and the like, should be almost exclusively tips.

The general income data from the ISDP have been identified as a significant improvement over prior Census and other income surveys [8], but, not unexpectedly, the aggregate for tip income appears to be quite low. A rough estimate of tips from this survey for the occupational category of waiters and waitresses amounted to only about one-half a billion dollars in 1979, 10 percent or less of the estimated tips for such workers derived from the NPD diary [9] or through other estimation methods. The ISDP estimate cited here was based on a projection of the data for one quarter.

Use of reports related to Social Security Administration records (employer tax reports or W-2s) to develop earnings data has been found valuable for a number of purposes, and this has been attempted also in the case of tip income. The results, however, are not much more encouraging than those cited for income surveys. Tipped employees are required to report the amount of their tips to their employers for inclusion in wage reports to the Social Security Administration and on the W-2 forms [10]. In 1978 the reported tips for eating and drinking places, estimated from a 1 percent sample of the W-2 forms, aggregated about \$700 million, or perhaps 15 percent or so of what would have been derived from the NPD diary procedure (projecting backward from 1979 NPD data).

Still another approach has been to use wage surveys to obtain estimates of tip earnings from the employers of tipped employees. The best known of these has been conducted on an intermittent basis by the Bureau of Labor Statistics (BLS). The BLS survey generally covers only a fragment of the universe in which tips occur. The most recent BLS study occurred in 1978 and related to employees in hotels and motels, including restaurants and bars in them. As explained in the BLS report summarizing the results [11], the main procedure used in determining tips in such studies was to ask employers for total receipts in each activity in which tipping was common and for the estimated tipping rate (tips as a percentage of receipts). Up to two-thirds of total earnings of tipped employees was accounted for by tips, according to this latest study. This was about three times the proportion shown for this industry on the W-2 forms for 1978 (20-25 percent).

Because of the dearth of information in this field, efforts have been made to construct estimates of tip income from expenditure data developed for purposes of the Gross National Product (GNP) accounts. Using detailed data on GNP Personal Consumption Expenditures, estimates of tip income have been prepared by the Bureau of Economic Analysis (BEA) of the Department of Commerce. The BEA estimates are obtained by applying assumed tipping rates to each expenditure category in which there was believed to be a significant amount of

tipping. Although these assumed rates may be reasonable in many cases, they are not based on systematic studies or other hard evidence. Also, the calculations have usually been based on a limited number of industries, whereas the Social Security Administration Form W-2 data (although understated) indicate that tips occur in many activities in which they had not previously been anticipated. In more recent calculations, BEA has been making some allowances for these previously assumed nontipping sectors by multiplying the tips reported for such employees on the Form W-2s by some factor, usually 5 (assuming that only one-fifth of the tips in those activities are reported on W-2s).

The present study is probably the first in which estimates of restaurant tipping have been based on reports of the tippers themselves. It was necessary for this purpose to find a source that was comprehensive in covering all sectors in which tips occur and preferably all periods of the year.

Comparisons between the NPD diary estimates and the BEA national income tipping data for all services (not only eating places) cannot be made in any substantial detail because the classification systems differ in the two sources. Overall, the BEA tipping aggregate for 1981 (the latest available figure) was a little under \$7 billion, foreshadowing a 1982 estimate of perhaps \$7.5 billion or slightly higher. The Pearl and Sudman (1983) study [2] found that tipping in restaurants and other eating places was approximately 70 percent of total tips. This indicates that the estimate for tips in restaurants and other eating places, based on BEA aggregates, would be approximately \$5.25 billion. Although this \$1 billion difference between the consumer based and the BEA based estimates cannot be traced with a great deal of precision, it appears that most of it is attributable to slight differences in tip rates in eating places and the fact that some consumers tip occasionally in "non-tipping type" restaurants. For tipping-type eating places the ratio of tips to receipts that BEA assumes in preparing its estimates is a rounded 10 percent which is close to the comparable NPD ratio of 11 percent, [12], but this 1 percent difference accounts for approximately one-half a billion dollars. Also BEA assumes no tips at all in "snack-type" places, which would include fast-food establishments, carry-outs, and the like. NPD shows very low tipping rates in such establishments, but total tips, nevertheless, amount to one-half a billion dollars or more in this sector.

Conclusion

This study estimated the amount of tips received by employees of restaurants and other eating places by measuring the amount of tips

paid out by the tippers themselves. Based on a panel of 10,000 households of two or more related members and 2,800 households containing one or two unrelated persons, it is estimated that U.S. households ate out on 14.8 billion occasions in 1982, spent some \$84.8 billion, and left \$6.2 billion in tips. When they tipped, on average, they tipped at a rate of 14.3 percent.

These consumer-based estimates for tips differ markedly from all the recipient based data and slightly from the BEA estimates. A comparison between the panel data and the HEW Income Survey Development Program data indicates self reporting of 10 percent of tip income. Estimates based on Forms W-2s are only slightly better, 15 percent or so of tip income. BLS data are not provided in a form that can be compared directly with the panel but the indications are that they would be closer to the latter than was found for the recipient based estimates.

These findings would seem to be of importance for purposes of both tax administration and economic measurement. Although we cannot be certain what fraction of this tip income was taxable, we can be fairly certain that almost all of it was reportable (on W-2s) income. The fact that only a fraction was reported strongly suggests that there is a significant amount of underreporting of tip income. From the standpoint of economic measurement, the study suggests that tip income is a somewhat larger element in employee compensation than has previously been assumed.

NOTES AND REFERENCES

- [1] McCrohan, Kevin F. and Smith, James D., "Informal Suppliers in the Underground Economy," Statistics of Income Bulletin, Volume 3, Number 1, pp. 27-33.
- [2] Pearl, Robert B. and Sudman, Seymour, A Survey Approach to Estimating the Tipping Practices of Consumers: Report Prepared for the Internal Revenue Service Under Contract TIR 81-52, Survey Research Laboratory, University of Illinois, June 1983.
- [3] Restaurant occasions are the number of restaurant eating occasions or transactions. Note that an occasion or transaction may be obtained from a single individual eating alone or from a party comprised of four persons dining together.
- [4] The annual NPD panel estimates refer to a period from December of one year through November of the next. Thus, the 1982 estimates relate to December 1981-November 1982. The calendar-year designation, 1982, will be used in the text for convenience.
- [5] As used in this report, expenditures relate to outlays for food and beverages in restaurants and other eating places. Tips are reported separately and are not included in the expenditure total.
- [6] The authors acknowledge the contribution of Dennis Cox, Chief, Compliance Estimates Group, Research Division, IRS in developing this refinement.
- [7] For a description of this program, see Ycas, M., and Lininger, C., "The Income Survey Development Program (ISDP): A Review," Proceedings of the section on Survey Research Methods, American Statistical Association, 1980, or Ycas, M. and Lininger, C., "The Income Survey Development Program: Design Features and Initial Findings", Social Security Bulletin, November 1981, Vol. 44, No. 11, a brief description of the ISDP can be found in Kasprzyk, D., "Some Research Issues for the Survey of Income and Program Participation" in Proceedings of the Section on Survey Research Methods, American Statistical Association, 1983.
- [8] Vaughan, D., Whiteman, T.C., and Lininger, C., "Quality of Income and Program Data in the 1979 ISDP Research Panel: Preliminary Findings" in Martin David (ed.), Technical, Conceptual and Administrative Lessons of the Income Survey Development Program (ISDP), New York: Social Science Research Council, 1983.
- [9] McCrohan, Kevin F. and Pearl, Robert B., "Tipping Practices of American Households: Consumer Based Estimates for 1979," Proceedings of the Social Statistics Section, American Statistical Association, 1983.
- [10] In addition, employees are required to enter on their income tax returns any tips not previously reported to their employers and entered on the W-2s. Therefore, the W-2s do not represent the full amount of reporting of tips for tax purposes.
- [11] Bureau of Labor Statistics, Industry Wage Survey: Hotels and Motels, May 1978, Bulletin 2055, U.S. Department of Labor, April 1980.
- [12] These are ratios of tips to all expenditures. Also, the "tipping-type" classification used in this comparison is less restricted than that used earlier in this report.

Table 1.--Summary of Results: Expenditures and Tips in Restaurants and Other Eating Places, 1982¹

Category	All eating places	Tipping-type eating places where food was ordered and eaten inside
Total eating occasions.....	14,773 million	5,498 million
Total expenditures.....	\$84,820 million	\$48,637 million
Occasions per household per year ²	183	68
Expenditures per occasion.....	\$5.74	\$8.85
Number of occasions with tipping.....	4,354 million	3,835 million
Percent of total occasions.....	29.5	69.8
Expenditures on tipping occasions.....	\$43,614 million	\$39,697 million
Percent of total expenditures.....	51.4	86.6
Average expenditures per occasion:		
Tipping occasions.....	\$10.02	\$10.35
Nontipping occasions.....	\$3.96	\$5.38
Total tips.....	\$6,248 million	\$5,714 million
Tips as percent of total expenditures.....	7.4	11.7
Tips as percent of expenditures on tipping occasions (tipping rate).....	14.3	14.4

¹Expenditures include outlays for food and beverages in eating places. Tips are estimated separately and are not included in expenditures.

²Based on 1980 Census estimates of 80,776,000 households.