

Income, Inequality, and Food Prices: A Critique of Broda, Leibtag, and Weinstein’s “The Role of Prices in Measuring the Poor’s Living Standards”

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Introduction and Summary

In “The Role of Prices in Measuring the Poor’s Living Standards,” Christian Broda, Ephriam Leibtag, and David E. Weinstein (2009) use proprietary data—the 2005 Nielsen Homescan dataset—to analyze differences by income level in the prices paid for food. They find that Nielsen households with incomes above \$60,000 pay somewhat more for the same food items than most households with lower incomes, with Nielsen households with incomes above \$100,000 paying the most. Based on this finding and additional regression analyses, they conclude broadly that the “poor pay less—not more—for the goods they purchase” and that not accounting for this suggests that income inequality may be between 2.5 to 5 percent less than shown by national statistics.

This paper reviews the methodology and findings of Broda *et al.* and concludes that:

- 1) Research that relies on Nielsen data to provide information about the relative prices paid by low-income households in the population, including Broda *et al.*’s conclusion that “the poor pay less,” is unlikely to be reliable. Both low- and high-income households appear to be underrepresented in the weighted and unweighted versions of the Nielsen dataset. Moreover, both the low-income and high-income households in the dataset are almost certainly unrepresentative of their counterparts in the population as a whole. In fact, the methodology almost seems designed to select the subset of lower-income households who are careful comparison shoppers, and to exclude those lower-income households who are likely to have the greatest barriers to economizing on food, particularly those with disabilities, low literacy levels, and limited or no access to the internet. These differences could account entirely for Broda *et al.*’s main finding that lower-income households pay less than higher-income ones for food.
- 2) Even if we ignore the fact that Nielsen households are almost certainly unrepresentative of households in the population as a whole, Broda *et al.*’s interpretation of their results as showing that the “poor pay less” than higher-income households for food is overstated. In addition to the income-price differences noted above, their results also show that households in the two lowest-income categories in the Nielsen data set (households with incomes under \$5,000 and those with incomes between \$5,000 and \$7,999) appear to pay modestly more for food than most other low- and moderate-income households with incomes just above them. Based on the results they present, we can’t say whether these two income categories in the Nielsen data represent a modest share of the “officially poor” or a more substantial one, but clearly some significant share of “the poor” pay more for food in their results. Moreover, a comparison of the income categories in the Nielsen dataset with those from other representative national surveys suggests that the bottom-two income categories in the Nielsen database likely represent a substantial share of officially poor households.
- 3) Broda *et al.*’s “poor pay less” interpretation of their results is also overstated because it doesn’t account for additional costs that are likely to be disproportionately borne by economizing lower-income households—these costs include time spent comparison shopping, time spent traveling to more distant stores, and inconveniences associated with buying in bulk (including storage costs and wastage)—or for the additional benefits related to store amenities that are almost certainly disproportionately realized by higher-income

households. Thus, even if we again ignore the fact that Nielsen households are almost certainly unrepresentative of households in the population, we should be very cautious about concluding that the differences Broda *et al.* find in the prices paid per food item by household income level correspond to differences of a similar magnitude in the welfare or living standards associated with those items.

- 4) While Broda *et al.* conclude that higher food prices paid by higher-income households mean that income inequality is overstated in standard income statistics—that is, that income differences in food prices should be viewed as a factor that moderates the real level of inequality—it seems more likely that the massive increase in income inequality over the last several decades has directly contributed to income-based differences in food prices. Between 1979 and 2003, the real incomes of families in the top fifth of the income distribution grew by 49 percent. By comparison, the incomes of families in the bottom fifth increased by only one percent, and those in the middle quintile by only nine percent. As a result, low- and moderate-income households have likely felt greater pressure to economize in food and other areas than they would have if their incomes had grown at a similar rate as incomes did for higher-income households.
- 5) Whether or not the poor pay more for food purchased for consumption at home is today a relatively small part of the broader and now decades-old question of whether “the poor pay more.” In 1960, food expenditures accounted for about one-quarter of the average family’s expenditures; today, they have dropped to nearly half that (about 13 percent). The food expenditure share of low-income households today (16.2 percent) is slightly higher than the average for all households, but the trend is the same. Researchers seeking to answer the question of whether the poor pay more today need to consider other factors, particularly transportation costs and financial services, that have taken on increased importance in recent decades.
- 6) Higher-income households likely benefit disproportionately from the now-widespread acceptance of credit cards by stores selling groceries. Grocery stores neither provide a discount for shoppers who pay cash nor require credit-card users to pay an additional amount to cover the costs to food retailers of accepting their credit cards (roughly \$2 for every \$100 of credit-card purchases). As a result, these costs are passed on in the form of higher prices for all food shoppers. To the extent that higher-income households are more likely to use credit cards for grocery purchases than lower-income households—which seems quite likely given general data on income differences in the use of credit cards—the generally poorer customers who don’t use credit cards (and do not receive the benefits associated with them) are subsidizing the purchases of the generally richer customers who do.
- 7) In a short section of their paper, Broda *et al.* argue that the official poverty rate overstates actual poverty today by some 60 percent because of biases in the Consumer Price Index. The current poverty line implied by this finding—roughly \$11,025 for a family of two adults and two children, rather than the current \$22,050—strains credulity. There is no reason to believe that a family of four can live a minimally decent life in 2010 on \$11,025 a year.

The following section of this paper summarizes Broda *et al.*’s methodology and findings. Section II examines the representativeness of the Nielsen dataset, especially in regard to low-income households. Section III discusses whether Broda *et al.*’s findings actually support their conclusion

that the “poor pay less,” even if we ignore the unrepresentativeness of the Nielsen dataset. Sections IV and V raise some additional issues related to the relationship between inequality and food prices, the distribution of the costs and benefits of credit card use for food purchases and the extent to which the poor pay more for financial services. Finally, Section VI discusses the distinct issue, raised briefly by Broda *et al.*, of whether the current poverty thresholds (\$22,050 for a family of four) are more than double what they should be.

Summary of Broda *et al.*

The Nielsen Dataset

To examine the relationship between prices and household income, Broda *et al.* use household-level data from the 2005 Nielsen “Homescan” dataset. This dataset contains information on food purchases made by 40,000 U.S. households.

A strength of the Nielsen dataset is that it includes price data, household income, and some other household characteristic data, and allows for direct comparisons of the prices paid for the same items (food products with the same UPC codes). However, both the price and household income data have considerable limitations. The price of each food item purchased by a household is either imputed by Nielsen based on average weekly prices paid at the store or directly entered by the household. As discussed further below, both processes for recording prices paid are subject to error.

The household income data in the Nielsen survey is relatively limited and imprecise: households are simply given a list of income ranges (shown in the x axis of **Figure 1** on the next page) and asked to select the one that their household income falls into. This method is unlikely to result in reliable income estimates for lower-income households. Even in sophisticated public surveys that rely on professional interviewers using computer-assisted interviewing tools to collect data and include an array of detailed questions about specific income sources, income tends to be underreported among low-income households, particularly income from public transfers.¹

Another major weakness of the Nielsen dataset, discussed in detail in the next section of this paper, is that it is unlikely to be representative of the U.S. population both because of the selection process and the considerable burdens involved in participating. Participants in the dataset come from a self-selected pool of people who submitted applications to Nielsen to participate. Participants who are selected by Nielsen from this pool receive a hand-held device to record grocery purchases. To be included in the specific dataset used by Broda *et al.*, participants must have used the device to provide food-purchase data to Nielsen on a weekly basis for at least 10 months in 2005.

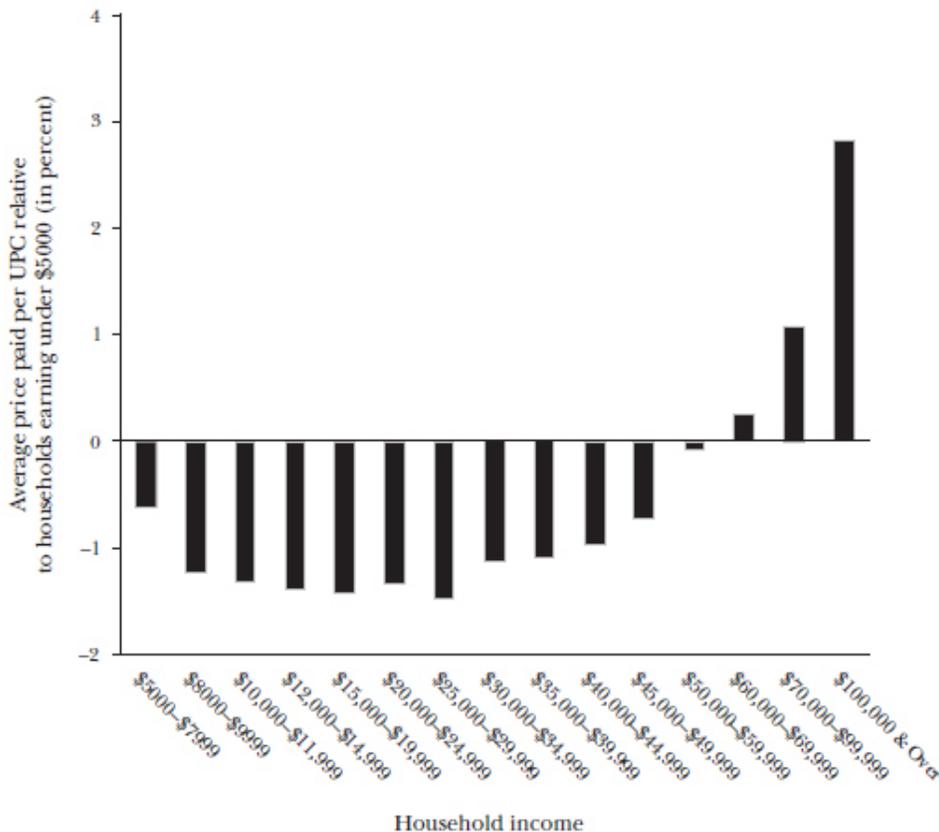
Broda *et al.*'s Analyses

Broda *et al.* start by regressing the log of the price per food unit—the log of the price either directly recorded by the household or imputed by Nielsen—on a series of dummy variables for the

¹ On this point, see, e.g., Meyer, Mok, and Sullivan (2009) who document substantial underreporting in the 2004 CPS of TANF income supplements (42 percent unreported), unemployment insurance (25 percent unreported), Supplemental Security Income (18 percent unreported), workers' compensation (54 percent unreported), and the Earned Income Tax Credit (35 percent unreported).

household income ranges in the dataset and fixed effects for each food item. The food items in this regression appear to include both random-weight items (i.e., fresh fruits, vegetables, meat, and other items with no UPC) and non-random-weight items (i.e., items with a UPC barcode), with the vast majority of items in the data being ones with UPCs.²

FIGURE 1
Relationship between Income and Prices Paid



Note: Bars represent coefficients on household income dummies in a regression of log price per unit on UPC fixed effects and income dummies.

Source: Broda, Leibtag, and Weinstein (2009), p. 83.

The figure above, from their paper, shows the percentage difference in average price paid per item relative to the price paid by households with income under \$5,000 (that is, the coefficients on each of the income-range variables in their regression). According to this analysis:

- Households with incomes in the ranges between \$8,000 and \$45,000 appear to pay about one percent less per item than households with income under \$5,000.

² Although the text is somewhat confusing on this point. The label for the y-axis of Figure 1 above, which is copied directly from the paper, refers to price paid per UPC item. However, they subsequently note that “fresh produce is the one exception to the basic rule in the data that the quality of a good is identical for all goods sold with the same barcode.”

- Households with incomes above \$70,000 appear to pay the most per food item—more than two percent more than households with incomes in the \$8,000-\$45,000 income range.
- Households with incomes below \$8,000 appear to pay between .5 to 1.3 percent more than households with incomes between \$8,000 and \$30,000.

Based on this regression, Broda *et al.* conclude “the conventional wisdom that the poor pay higher prices is not present in a dataset that precisely tracks purchases of individual goods by different households.”

They then run an additional series of regressions to determine why this pattern of differences exists. In each of these regressions, the dependent variable is the log of the price per good, and the explanatory variables include household income range and a fixed effect for each good. In this series of regressions, income range is recoded for every household by averaging the top and bottom of each income range. So, all households in the category of \$12,000 to \$15,000 are given an income equal to \$13,500, and all households in the category of \$70,000 to \$99,999 are given an income equal to \$85,000. They drop the highest-income category (\$100,000 and above) from these regressions, because “the midpoint of ‘\$100,000 and up’ is not well-defined.” These regressions also appear to include mostly UPC items and a small percentage of non-UPC ones.

The results for these regressions are summarized in **Table 1** below. As Table 1 shows:

- In a regression that includes just log household income and food item fixed effects (column one), they find that a 10 percent increase in income is associated with roughly a 0.1 percent increase in price per item.
- They then build on this model by adding in additional controls and dependent variables (column two). Controlling for household characteristics (household size, race, marital status, age of adults) slightly increases the elasticity of price paid by household income (from 0.011 to 0.013).
- When the log of the per capita income of the zip code in which the household lives is added as a dependent variable (column three), the coefficient is positive, with households that live in zip codes that are two standard deviations poorer than the average zip code paying about 1.4 percent less for the same items than households that live in zip codes that are two deviations above average. In other words, controlling for household income and other household characteristics, households living in richer neighborhoods tend to pay more for the same food items than households living in poorer ones.
- They then add the log of per capita income of the zip code in which the store is located (column four). The resulting coefficient for this variable suggests that a “store in a neighborhood with twice the per capita income of another neighborhood only has prices that are one percent higher.”
- In column five, they interact household income with the log per capita income of the zip code in which the household lives. The coefficient for the interaction term is positive,

showing that “low-income people living in poor neighborhoods tend to pay less for the same items as low-income people living in high-income neighborhoods.”

- In columns six and seven, they include controls for the retail chains that goods were purchased at, which they argue is likely to eliminate the impact of unobserved quality differences across chains on the prices paid by consumers. This addition reduces the coefficient on the log of household income to about .0089, an association about one-third lower than for log household income in column two (.013), which doesn’t control for retail chain. They argue that the difference between these two coefficients “suggests that about one-third of the higher price paid by richer households for the same good is attributable to them shopping at nicer stores while the rest is due to their shopping behavior within stores. The fact that poorer households pay less for the same goods even in the same retail chain indicates that the price differential between poor and wealthy households is likely to represent a shopping effect.” (As discussed further below, controlling only for retail chain is a fairly limited control for store quality. It seems quite likely that there are considerable quality differences between stores within retail chains.)

TABLE 1
Impact of Income on Prices Paid

<i>Dependent variable</i>	(1) <i>ln(price)</i>	(2) <i>ln(price)</i>	(3) <i>ln(price)</i>	(4) <i>ln(price)</i>	(5) <i>ln(price)</i>	(6) <i>ln(price)</i>	(7) <i>ln(price)</i>
Log Household Income	0.0108*** (0.0001)	0.0131*** (0.0001)	0.0119*** (0.0001)	0.0121*** (0.0001)	-0.0901*** (0.0045)	0.0089*** (0.0001)	0.0088*** (0.0001)
Log Income in Household's Zipcode			0.0289*** (0.0003)	0.0134*** (.0007)	-0.0746*** (.0046)		0.0068*** (.0008)
Log Income in Store's Zipcode				0.0176*** (0.0007)			0.0021*** (0.0008)
ln (Household Income) • ln(Avg. Zipcode Income)					0.0098*** (0.0004)		
UPC Fixed Effects	Yes						
Household characteristic controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Store Controls	No	No	No	No	No	Yes	Yes
<i>N</i>	1.73E+07	1.45E+07	1.45E+07	1.11E+07	1.45E+07	1.09E+07	8.64E+06
(within) <i>R</i> ²	0.0007	0.0121	0.0126	0.0148	0.0127	0.0784	0.0638

Notes: Due to limitations set by the data, the log of household income and the interaction terms were calculated based on averages of ranges. For example, a household whose annual income was \$12,300 would be in the range \$12,000–\$15,000 and would have been assigned the value of \$13,500. “Household characteristic controls” include size, age, race, marital status, and city of residence. No city controls were used in the regressions with store names. Standard errors are in parentheses.

***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Source: Broda, Leibtag, and Weinstein (2009), p. 84.

In a subsequent set of regressions, they separate items with UPCs from those without. Here, the relationship between income and prices for UPC items is similar, but somewhat smaller, than the relationship in the regressions described above. For the non-UPC (non-identical) produce items, the

coefficient for log household income is considerably higher—about five times higher than it is for UPC-only items. They conclude that the greater sensitivity to income of prices for fresh produce is mostly due to “the poor finding lower-quality versions of the same produce.”

Finally, to further investigate the role of quality variation in household purchases, they regressed the log average price paid by households for all barcode items in 128 product “groups” (these included distinct groups such as vitamins, milk, soup, and pain remedies) on the log of the household’s average expenditure per adult.³ The resulting coefficient shows how the average price paid for products in each group varies by income. They found that “the median of a one log unit increase in income is an 8.6 percent increase in the amount paid in each product group” and that “while the rich only pay slightly more for precisely the same type of eggs or milk or cheese ... than poor households,” they spend much more for these items in general, a result that “almost surely arises from higher-income households purchasing higher-quality [items in each product group] than poorer households.”

Is the Nielsen Dataset Representative of Low Income Shoppers?

As Broda *et al.* acknowledge in a footnote—but do not otherwise address—there is good reason to be concerned that the Nielsen dataset is not representative of low-income households.⁴ Other researchers have also raised this concern. For example, according to Steward and Blisard (2008, p. 155), “low-income households ... appear in the [Homescan] sample in a proportion less than their share of the total population.” However, there has been no systematic analysis of this problem.

Why might low-income households be underrepresented in the Nielsen data, and how might that bias Broda *et al.*’s results? The data most commonly used in price research is public data—data that is publicly funded and produced, and publicly available at no cost—that relies on random samples. By contrast, the Nielsen dataset is a proprietary one that does not utilize a random sample. Instead, as Harris (2005) explains, Nielsen uses direct mail and email to recruit participants, with the vast majority (80 percent) of those selected invited by email.

Although Nielsen selects participants from the pool of interested applicants based on the demographic targets (listed in the text box below), these are relatively limited (for example, there are only four income-level targets), and won’t necessarily result in a participant pool that is adequately representative of low-income households. Once selected, participants receive financial incentives—gift points that can be redeemed for various goods and sweepstakes entries—to encourage scanning. To be included in the Nielsen data used by Broda *et al.*, participants must have scanned their grocery purchases on a weekly basis for at least ten months in 2005. Based on Nielsen’s estimate that participation will take approximately one hour per week, complying with this requirement means

³ For this regression, they used a separate set of Nielsen data, one from 2003 that has a much smaller sample, but covers a wider range of goods than food.

⁴ In the text of their article, Broda *et al.* describe the Nielsen dataset as demographically representative, but they provide no specific information on the demographic (or geographic) representativeness of the data. In the footnote, they acknowledge that “there is some concern that Homescan data underrepresent households in the lowest part of the income distribution” and that “additional research is needed to estimate how this underrepresentation, if it exists may affect our results.”

The Nielsen Homescan Survey Process

Nielsen uses direct mail and email to recruit Homescan participants. People interested in participating (even if they are not directly recruited by Nielsen) can also apply for participation on the Homescan website. To be considered for participation, potential panelists must first complete a two-sided single sheet questionnaire on demographics. Once they return the questionnaire, they are sent a four-page booklet with additional questions. Households that return this questionnaire are put in the reserve pool.

Participants are selected from this pool using the following geographic and demographic targets:

- household size (grouped into four levels)
- household income (grouped into four levels)
- household-head age (grouped into four levels)
- female-head education (grouped into four levels)
- male-head education (grouped into four levels)
- presence of children (present or not present)
- race (white, black, and “Oriental” [sic])
- Hispanic (yes or no)
- household-head occupation (three levels)

The sample includes two panels: households that record all UPC-coded food purchases and a subset of these households (known as the “Fresh Foods” panel) that record both UPC-coded purchases and non-UPC coded purchases.

Once selected, households are provided with a handheld scanner and instructions. Participating households scan the bar codes of UPC-coded food purchases, enter the quantities purchased, record the date and store of each purchase, and note whether the item was purchased at the regular or promotional price, and whether they used a coupon for the purchase. If the purchase is made at a store that is part of Nielsen’s “Scantrack” system, Nielsen imputes the price paid using the average weekly price paid at the store for the item. If the purchase is made at a non-Scantrack store, households enter the price directly. Nielsen checks this entered price by comparing it to a range of prices observed elsewhere for the same or similar. If the price is out of that range, the median regional price is substituted.

Participants in the Fresh Foods panel track UPC purchases in this same way, but also track purchases of produce and other non-UPC random-weight food by directly recording product, weight or count, and price information.

Participants earn “gift points” for scanning and transmitting UPC barcodes; these points can be redeemed for electronic equipment, household items, jewelry, toys, and other items in Nielsen’s gift catalog. In addition, for every week a participant scans and sends purchase information to Nielsen they earn an entry into a sweepstakes that offers cash prizes, vacations, and automobiles as prizes.

that a household would have needed to have spent at least 43 hours in 2005 scanning and entering food purchases.

A truly random and representative sample of consumers will likely look considerably different from a group of consumers who: 1) learn about the Nielsen survey via email, direct mail, or word of mouth; 2) volunteer to participate; 3) make it through the two questionnaires that are required

before being added to the pool; 4) once selected by Nielsen, spend some 40 hours scanning and recording their food purchases on a weekly basis over a 10-month period; and 5) respond to the financial incentives offered by Nielsen for continued participation. In particular, the consumers in the Nielsen dataset may be more likely to comparison shop and economize than a truly random sample of consumers—and the propensity to engage in comparison-shopping by income level in the Nielsen dataset may vary from that in the overall population. So, for example, if the lower-income consumer in the dataset are more likely to comparison shop than lower-income consumers in the population, while the higher-income consumers in the dataset are more similar to their counterparts in the population, research using the data will likely show a greater difference in food purchase prices between lower- and higher-income households than actually exists.

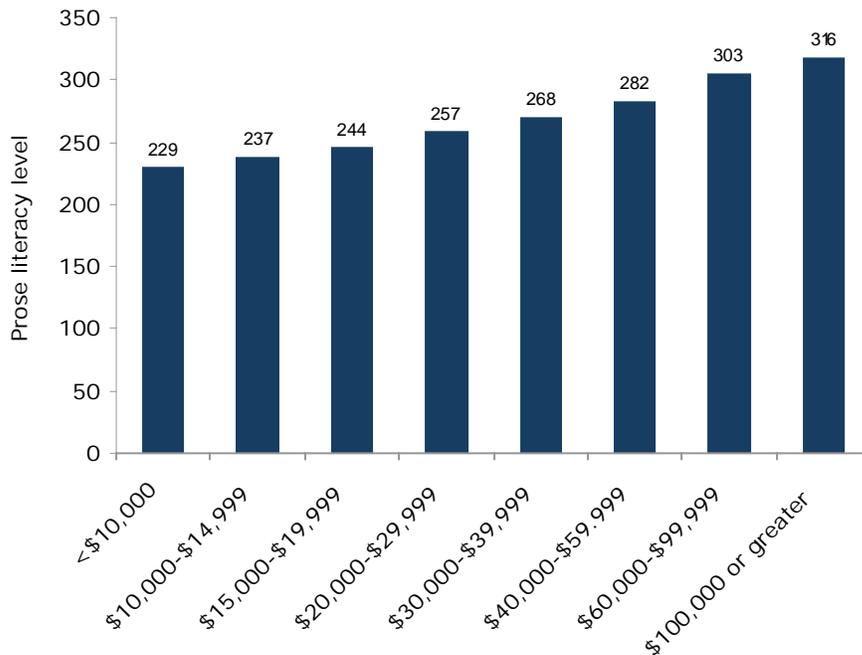
In considering whether the Nielsen data is representative of officially poor households, it is useful to consider some of the differences between these households and higher-income ones.

- Households with incomes below the poverty line are much more likely to have one or more members with a disability than higher income households. For example, She and Livermore (2009) find that almost half of working-age adults living below the poverty line have a work disability, a rate about twice that of the population overall.⁵ Given the Nielsen recruitment process, the lack of any demographic targets for including people with disabilities among the participants, and the burdens associated with participation, income-constrained households with disabled members seem likely to be underrepresented in the data. If households with disabled members face greater barriers to accessing affordable foods or have less ability to engage in economizing behaviors, their under-representation in the Nielsen data would underestimate the food costs faced by low-income families.
- Households with incomes below the poverty line are much more likely to have lower education and literacy levels (see **Figure 2** below), and more likely to speak a primary language other than English. These households seems less likely to be represented in the Nielsen dataset, and, as with households with disabled members, may face greater barriers to accessing affordable foods or have less ability to engage in economizing behaviors.
- As Jansen (2010) finds, lower-income households are less likely to use the internet, have access at home to a broadband connection, and use email.⁶ For example, 95 percent of adults with incomes above \$75,000 use the internet and 87 percent have broadband access at home; by comparison, only 57 percent of adults with incomes below \$30,000 a year use the internet, and only 40 percent have broadband access at home. Given the heavy reliance of Nielsen on email and web-based recruitment, internet users may be overrepresented among low-income households in the survey at a greater rate than among higher-income households.

⁵ Similarly, data from the 2000 Census shows that the poverty rate for families that include a member with a disability was substantially higher (12.8 percent) than it was for families without members with a disability (7.7 percent). For more on the relationship between disability and poverty, see Fremstad (2009).

⁶ Jansen also finds they are less likely to pay bills, bank, and research and buy products online.

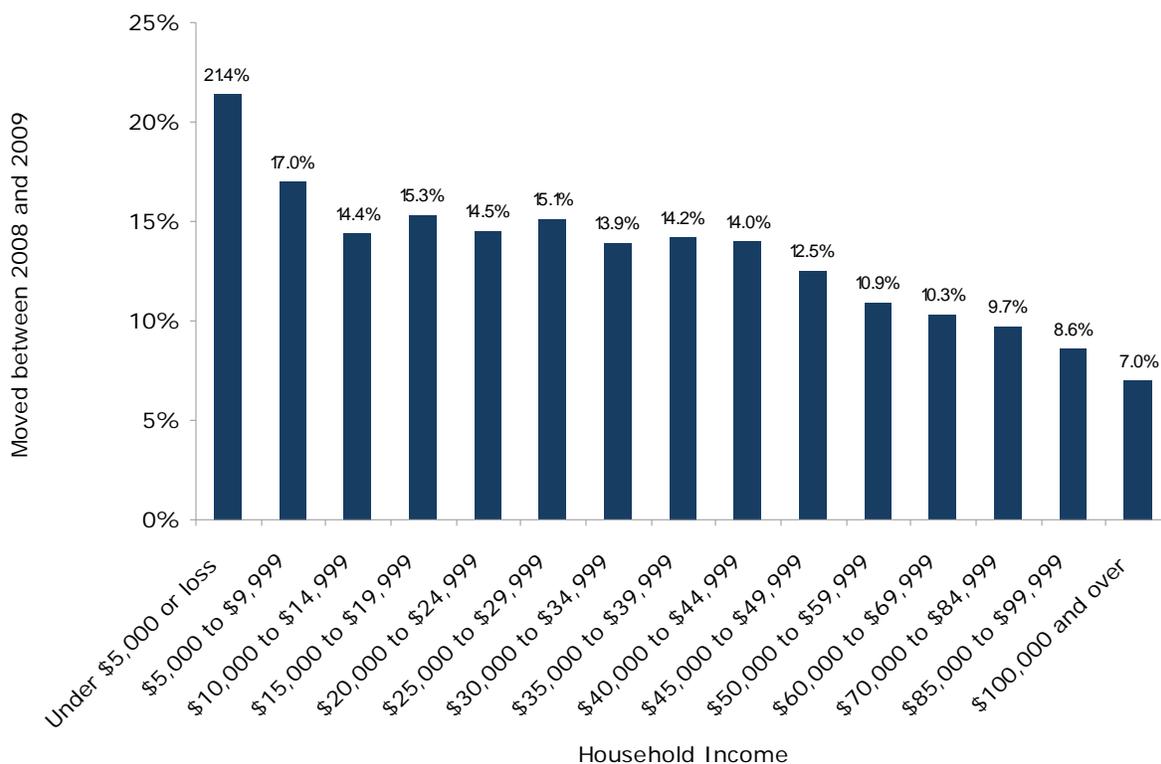
FIGURE 2
Prose Literacy Level by Income Group, 2003



Source: U.S. Department of Education (2007).

- As **Figure 3** below shows, lower-income households are more likely to have moved recently than higher-income ones. Similarly, households with incomes below 150 percent of the poverty line are twice as likely to have moved recently as households with incomes above that level (21% vs. 10%). Households that have moved recently seem less likely to either apply to participate in the Nielsen survey, or, if selected, to remain active in the survey the minimum 10-month period. As a result, the lower-income households in the Nielsen data may be disproportionately drawn from groups like the elderly who have greater time and motivation to engage in economizing behaviors than other low-income groups (such as single parents who are working and/or attending school).

FIGURE 3
Percent of Households who Moved in 2008 and 2009, by Income Group



Source: U.S. Census Bureau, Current Population Survey, 2009 Annual Social and Economic Supplement.

Thus, the methodology used by Broda *et al.* will likely select the subset of lower-income households who are careful comparison shoppers, and exclude those lower-income households who are likely to have the greatest barriers to economizing on food, particularly those with disabilities, low literacy levels, and limited or no access to the internet. These differences alone could account entirely for Broda *et al.*'s main finding that lower-income households pay less than higher-income ones for food.

Surprisingly, there is little to no research directly addressing the representativeness of the Nielsen data. As Zhen *et al.* (2009, p. 472) note, “despite its potential for greater use, relatively little is known about the properties of household-based scanner data.” In their research, Zhen *et al.* begin to address this research gap by comparing food expenditures in the Nielsen data with those in the Bureau of Labor’s Consumer Expenditure Diary Survey. Looking first at the demographics of the two surveys, they note that the CES has more of the following groups than Nielsen: households with children, Hispanic households, households with female heads not employed for pay, and households with female heads below age 35.

Using unpublished statistics provided by Zhen *et al.*, **Table 2** shows these differences for both weighted and unweighted samples, as well as differences in income groups between Nielsen and CES. As this table shows, households with incomes under \$10,000 are considerably underrepresented in the Nielsen data compared to the CES. This is the case for both the unweighted and weighted versions of the datasets. The percentage of households with income below \$10,000 in

the unweighted Nielsen data is less than half the percentage of such households in the CES; even in the weighted data it is less than two-thirds of the CES. Similarly, higher-income households—the group with incomes over \$70,000—are underrepresented in the Nielsen data compared to the CES.

TABLE 2
Differences between Nielsen and CES Data

	Unweighted Data			Weighted Data		
	Homescan	Consumer Expenditure Survey	Ratio of Homescan to CES	Homescan	Consumer Expenditure Survey	Ratio of Homescan to CES
Household size	2.36	2.503		2.554	2.483	
Presence of children	24%	33%	0.73	33%	32%	1.03
Race						
Hispanic	6%	12%	0.54	10%	11%	0.91
White	83%	84%	0.99	79%	83%	0.95
Black	10%	11%	0.92	12%	12%	0.96
Asian	2%	4%	0.59	2%	3%	0.64
Presence of female head	90%	82%	1.1	81%	82%	0.99
Female head with college degree	32%	31%	1.04	20%	30%	0.67
Female head not employed for pay	38%	47%	0.8	35%	48%	0.73
Female head below age 35	7%	19%	0.35	17%	19%	0.89
Income						
Below \$5,000	0.8%	3.3%	0.24	1.3%	3.2%	0.41
\$5,000–\$9,999	2.4%	5.2%	0.46	3.7%	5.5%	0.67
\$10,000–\$14,999	4.8%	6.7%	0.72	6.7%	7.0%	0.96
\$15,000–\$19,999	5.6%	6.2%	0.9	7.4%	6.5%	1.14
\$20,000–\$29,999	14.8%	12.0%	1.23	17.5%	12.2%	1.43
\$30,000–\$39,999	14.8%	11.4%	1.3	15.0%	11.5%	1.3
\$40,000–\$49,999	13.3%	10.2%	1.3	12.4%	10.3%	1.2
\$50,000–\$69,999	19.5%	15.0%	1.3	16.7%	15.0%	1.11
\$70,000 and over	24.1%	30.0%	0.8	19.3%	28.8%	0.67

Finally, it is worth noting that the limited research that has examined the accuracy of the food-purchase data in the Nielsen data raises additional concerns about data quality.

- Zhen *et al.* found significant underreporting of certain categories of food purchases in Homescan compared to the CES. The largest differences in percentage terms are for meats (beef, poultry, and pork), fresh fruits, eggs, fish and seafood, and fresh vegetables. Nielsen expenditures are roughly 50 percent less for all of these categories than for the CES. In an analysis of demographic factors that contribute to these differences, they found that certain households who are likely to purchase greater quantities of food—higher-income households and households with more members—tended to have larger expenditure differences across the datasets.
- Einav *et al.* (2008) examine the extent to which Nielsen participants accurately record purchases. Matching the purchase data recorded by households with sales data from a large

grocery retailer, they find recording errors in several dimensions. For some 20 percent of food-shopping trips recorded in the Nielsen data, they find no corresponding transaction in the retailer's data, suggesting that either the store or date information was recorded with error. For trips that did match, roughly 20 percent of items purchased were not recorded. Price did not match for almost half the items that were recorded, with much of the difference due to transactions that involved promotional or other temporary sale prices in either the Nielsen or retailer's data.

Even If the Nielsen Dataset is Representative of Low-Income Shoppers, Can We Conclude that the “Poor Pay Less” for Food?

Even if we assume that Nielsen households are representative of households in the population as a whole, Broda *et al.*'s broad interpretation of their results as showing that the “poor pay less” than higher-income households for food is overstated for at least two reasons.

First, in addition to the income-price differences summarized earlier, their results also show that households in the two lowest-income categories in the Nielsen data set (households with incomes under \$5,000 and those with incomes between \$5,000 and \$7,999) appear to pay more for food than most other low- and moderate-income households with incomes just above them. We can't say based on the results they present whether these two income categories in the Nielsen dataset represent only a modest percentage of the “officially poor” or a substantial one.⁷ But, if we assume representativeness (and that's a big if) it appears that at least the “poorest poor” pay more for food than other low- and moderate-income households.

Second, Broda *et al.*'s analysis doesn't account for additional costs that are likely to be disproportionately borne by lower-income, economizing households—including time spent comparison shopping and time spent traveling to more distant stores or multiple stores—or for the additional benefits related to store amenities that are almost certainly disproportionately realized by higher-income households. Evidence of the additional costs of “paying less” comes from Aguilar and Hurst (2005), who use American Time Use Survey data and a subset of Nielsen data to show how households substitute time for money through shopping and home production. They find that households that shop (much) more intensively pay (somewhat) lower prices for identical food items: a doubling of shopping time lowers the price paid for a specific food item by about 10 percent. Thus, “paying [a bit] less” at the till entails “paying more” in other ways. The amount a household

⁷ One potential way to assess this question is to compare the income cutoffs for the bottom quintile in surveys such as the CPS or CES with the cutoffs in the Nielsen data. In the 2005 Consumer Expenditure Survey, the bottom quintile of consumer units had pre-tax money incomes below \$9,672 in 2005, which suggests that the below-\$8,000 households in the Nielsen data are akin to the bottom quintile. However, in the Current Population Survey, the bottom 20 percent of households had pre-tax money incomes below \$19,178, which suggests that the below \$8,000 category in the Nielsen data accounts for a lesser share of poor households. However, given the considerable limitations of the Nielsen income variable and the likelihood that the dataset isn't representative of low-income households, we can't really draw any firm conclusions here.

pays at the grocery store till is lower, but the “real cost” of the item, a cost that adds in search costs, including time and travel, may not be much different and may even be higher.

As for the additional benefits related to store amenities, Broda *et al.* acknowledge that store quality differences explain at least a portion of the difference in price, but their estimate that these differences account for only about a third of the differences in the prices of identical items likely lowballs the effect of store quality. They attempt to take store quality into account by controlling for retail chain, but it seems quite likely that there are considerable quality differences between stores within retail chains, and that these differences are associated to some extent with income differences. For example, the quality of grocery stores in the same retail chain may be higher in higher-income neighborhoods than in lower-income ones.

In short, even assuming that Nielsen households are representative of households in the population, we should be very cautious about concluding that the income differences Broda *et al.* find in the prices paid per food item correspond to income differences of a similar magnitude in the welfare or living standards associated with those items.

A related concern is that Nielsen participants may be more likely to record purchases from stores that participate in Nielsen’s Scantrack system—because item pricing data for these stores is supplied by Nielsen and doesn’t need to be provided by the consumer—and less likely to record purchases from (generally more expensive) smaller stores. As a result, Broda *et al.* may underestimate the impact of higher prices in these stores on the overall average food prices paid by low-income consumers.

Income Differences in Food Prices and Inequality

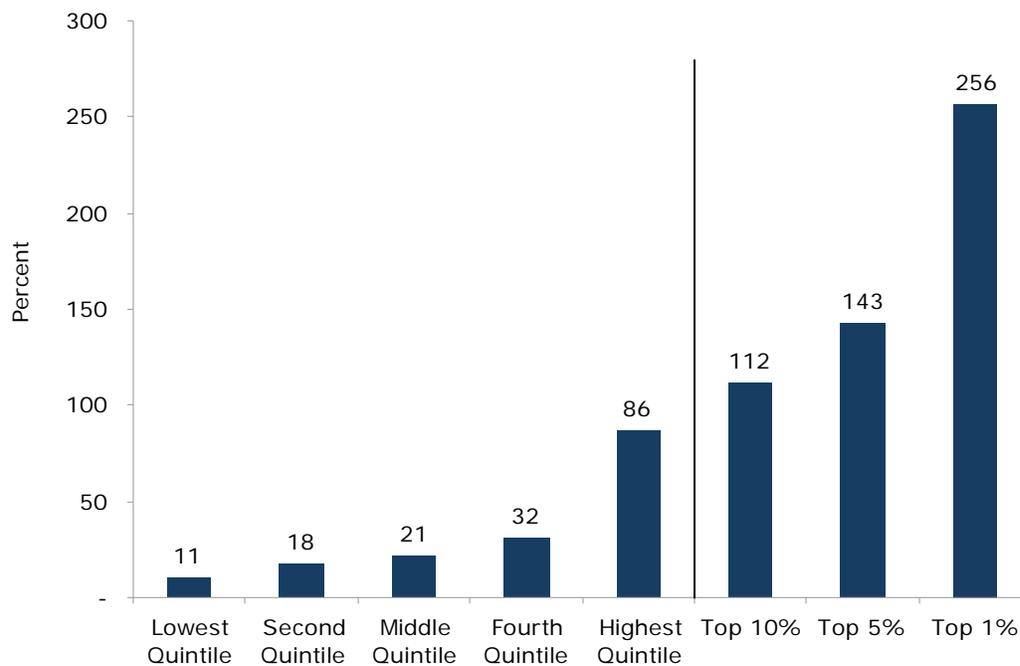
Broda *et al.* conclude that “if the poor can access the same goods as the rich at a lower price, the use of “common” price indexes between income groups misses an important difference in [their] relative real incomes...” Using varying assumptions about the extent to which the lower prices paid by moderate-income households reflect an income gain, they suggest income inequality may be between 2.5 to 5 percent less than shown by national statistics.

However, stating that “the poor can access the same goods as the rich at a lower price” implies that there is some binding constraint on the ability of the rich to shop at the same place, and in the same way, as most other households do—that is, that the rich cannot access the same goods as other households at the same price. This, of course, is absurd. Given their greater economic resources, the rich have considerably more capacity than households with lower incomes to engage in economizing shopping behaviors. That they more likely prefer to spend their leisure time and greater consumption power in other ways than economizing on food does not imply that they are really not as well-off compared to lower-income families as normal income data shows.

Similarly, instead of viewing income differences in food prices as a factor that moderates the real level of economic inequality, it seems more reasonable to view the massive increase in income and wealth inequality over the last several decades as factors that have directly contributed to the income differences in food prices. As **Figure 4** below shows, between 1979 and 2006, average after-tax income of households in the top quintile of the income distribution (households earning roughly

\$70,000 or more in 2006) increased by 86 percent, an increase almost eight times that of the bottom income quintile, four times that of the second and middle quintiles, and about two and a half times that of the fourth quintile. Comparing this chart with Figure 1—the chart reproduced from Broda *et al.*—showing the relationship they find between income and prices is quite instructive. The high-income groups that are paying more for food in the Nielsen dataset (those with incomes between \$70,000-\$99,999 and with incomes of \$100,000 and more) are roughly the same groups that saw their incomes increase at more than four times the rate of typical households.

FIGURE 4
Increase in After-Tax Income by Income Group, 1979-2006



Source: Congressional Budget Office (2009).

As a result, low- and moderate-income households have likely felt greater pressure to economize in food and other areas than they would have if their incomes had grown at a similar rate as they did for higher-income households. In addition, it seems quite likely that the increase in income inequality has resulted in a corresponding increase in what might be called “quality” inequality. In other words, there have been greater store and item quality improvements for higher-income consumers who have experienced the greatest gains in income than for lower-income shoppers who have seen quite modest ones.

Also relevant here are the findings of Frankel and Gould (2001), which looks at general retail price differences (groceries, transportation, health, and miscellaneous goods) between cities and how they relate to income. They find that an increase in the presence of lower-middle income households, relative to poor or upper income households, is associated with lower prices. For example, they find that:

... supermarkets charge the lowest prices in communities where a greater proportion of households have an income level between one and two times the poverty line. If one percent of these lower to middle-income households fall into poverty ... food prices rise by .85 percent. Likewise, if that same one percent of households increases their income to above twice the poverty rate, food prices rise by 0.52 percent.

Frankel and Gould conclude that “higher prices are a result not of greater poverty per se, but rather of an absence of lower-middle income households.” Thus, “the poor pay more ... but only to the extent they are isolated from lower-middle income households.”⁸ The findings of Broda *et al.* are not necessarily inconsistent with those of Frankel and Gould. Broda *et al.* find that lower-middle income households pay less for food than very-low income ones, and that African-American households pay slightly more (.2 percent) than white households. These higher prices for very-low-income households and African Americans could be driven by higher levels of geographic segregation for these groups.

The Question of Whether the Poor Pay More Today: Food, Transportation and Financial Services

Broda *et al.* generally summarize prior research as finding that “the poor indeed pay more than households of higher income for the goods and services they purchase.” This general conclusion is referred to throughout the article as being the “conventional wisdom.” Yet, the research on food prices is far more nuanced than Broda *et al.* imply. More generally, at least two aspects of the overall question of whether the poor pay more have implications for the cost of food understood broadly (including the cost of shopping for it): 1) the cost of transportation, and the increasing share of family budgets going to transportation; and 2) costs related to the use of credit cards and other financial services.

Food

On the specific subject of whether the poor pay more for food, the research has been more varied than Broda *et al.* imply, a fact that has been widely noted by other researchers in the field. For example, Hayes (2001) explains that research is “decidedly mixed” on the question of whether prices are higher in poor, urban neighborhoods, and Frankel and Gould (2001) conclude that prior research found only a small or insignificant relation between poverty and prices.

Similarly, in 1997, analysts at the U.S. Department of Agriculture’s Economic Research Service (Kaufmann *et al.*) summarized the research (at that point, some fourteen studies that met their criteria for relevance and soundness of methods) and conducted their own additional research using food stamp redemption and other data. On the one hand, they found that “low-income households face slightly higher food prices than other households for the same food items, with the likely average difference being less than one percent, although the difference could average up to 3.1 percent higher ... in some low-income neighborhoods” On the other hand, based on analyses of surveys of household food consumption and expenditures, they concluded that low-income

8 For a paper that provides a theoretical model for these results, see Somekh (2010).

households actually spend less on a per unit basis for the foods they buy, largely because they “select more economical foods such as store label and generic items, larger package sizes, and lower quality items in order to realize lower food costs.” In essence, if low-income households bought the same items and shopped in the same way as other households, they would pay more. But because they buy different items and engage in other economizing behaviors, they “spend less for food, on average, compared with all households.”

Subsequent research fills out this picture, but does not change it significantly. For example, Stewart and Blisard (2007), who also use Nielsen data, examine how expenditures on vegetables (both total and per serving) differ by household income and community characteristics. Consistent with Kaufmann *et al.* (1997) they find that the lower a household’s income, the more it tries to hold down unit vegetable costs with economizing practices, such as buying vegetables that cost less per serving or more frequently buying items that are on sale. However, consistent with Frankel and Gould (2001), they also find that households living in communities with high real estate prices, or with a high incidence of poverty tend to pay more.

Much recent research focuses less exclusively on whether “the poor pay more” for food, and more broadly on whether low-income and other households have sufficient access to food that is both healthy and affordable. For example, in a comprehensive review of more than 100 studies on food access and pricing, Treuhart and Karpyn (2010) focus on the extent of inequitable access to healthy foods, and the relationship of access to healthier eating and better health overall. And, a 2009 USDA report finds that 23.5 million people—just over eight percent of the U.S. population—live in low-income areas (areas where more than 40 percent of the population has income at or below 200 percent of the poverty line) that are more than one mile from a supermarket. People living in these areas spend about 25 percent more time (per trip) traveling to a grocery store than the national average.

Finally, whether or not the poor pay more for food purchased for consumption at home is today a relatively small part of the broader and now decades-old question of whether “the poor pay more.” In 1960, food expenditures accounted for about one-quarter of the average family’s expenditures; today, they have dropped to nearly half that—about 13 percent of the average family’s expenditures. The food expenditure share of low-income households today (16.2 percent) is slightly higher than the average for all households, but the trend is the same.

Transportation

Research cited earlier suggests that households can economize on food if they shop more intensively and travel farther to find bargains. Unlike food, transportation has grown as a share of family budgets in recent decades, going from 14.7 percent of the average family’s budget in 1960 to 19 percent in 2002-2003 (BLS, 2006). Today, the average low-income family spends more of its budget on transportation than it does on food at home.

Research on transportation price differences by income is limited, but suggests that low-income people face higher costs to own and operate a car. Myers *et al.* (2009) find that gasoline prices are higher in poor neighborhoods—a ten percentage point increase in the percent of families with incomes below the poverty line relative to families with incomes between one and two times the poverty line, is associated with a 0.7 percent increase in retail gas prices. Morton *et al.* (2001) find that neighborhood income, race and other factors associated with household income (including

educational attainment and renter status) are related to car purchase prices. Based on Morton's research, Fellowes (2006, p. 35) explains:

... two customers who buy the exact same car will pay different prices that vary systematically with certain characteristics. We can see the power of these effects by comparing two hypothetical car buyers. The first is white, has a high school diploma, owns a house, and lives in a neighborhood with a median income of \$80,000. The second customer is black, dropped out of high school, rents, and lives in a neighborhood with a median income of income of \$20,000. According to the analysis of Morton and her colleagues, the second customer will pay about \$500 more than the first customer for the exact same car.

Low-income car owners also frequently pay more to finance a car purchase (see Fellowes (2006) and Van Alst (2009)) and for car insurance (see, e.g., State of Missouri (2004), Fellowes (2006), and Wu (2007)).⁹

Financial Services

The cost of credit and other financial services has been a common focus of research since Caplovitz (1963) documented the higher prices paid for retail installment credit by low-income families in New York City. Research conducted since then generally finds that lower-income families continue to have less access to credit and pay more for it.¹⁰ What has changed over the last several decades is the growth of financial services as a sector of the economy and increased importance of financial products in everyday expenditures.¹¹ Two aspects are particularly relevant to food cost.

First, researchers have consistently found that low-income households generally have less access to mainstream financial services, and are more likely to be “unbanked” than higher-income households.¹² According to the FDIC (2009), about 20 percent of households with incomes below \$30,000 lack a checking or savings account. Many of these “unbanked” households pay high fees (to check cashers, payday lenders, and other non-mainstream financial service providers) simply to access their income. As a result, as Barr (2004) concludes, they “face high costs, relative to their income, for basic financial services.”

9 Home and auto insurers increasingly use credit scores to determine premium rates, a practice that results in higher rates for lower-income families on average, even through there is causal explanation for a linkage between credit scores and insurance risk.

10 For more mainstream forms of credit, income and credit scores (and credit history more generally) determine both access to various credit products and the price (the interest rate and other charges) that households pay for them. For example, for persons seeking a 30-year mortgage for a \$175,000 home, annual mortgage costs increase as credit scores decline. Based on current rates, households with a credit score of 650 will pay about \$1,700 more a year for such a mortgage than those with scores above 750. Similarly, Bostic et al. (2004) find that credit scores in 2001 were positively correlated with income. In regression analyses that control for a range of demographic factors, they find that individuals in the bottom two income quintiles have credit scores significantly lower than the scores of those in the top two income quintiles, and are also much more likely to have scores below 660. A related concern is that “some contract features in the credit-card and subprime mortgage markets may induce consumers to borrow too much and to make suboptimal contract and repayment choices.” Heidhues and Koszegi (2010). Low- and middle-income consumers may be particularly disadvantaged by these features.

11 On the former, see, e.g., Johnson (2009); on the latter, see Evans and Schmalensee (2005).

12 FDIC (2009) finds that 27.1 percent of households with incomes under \$15,000 a year are unbanked, and the likelihood of being unbanked declines rapidly as income increase; the vast majority of unbanked households (71 percent) have incomes below \$30,000. p. 11.

Second, higher-income households likely benefit disproportionately from the now-widespread acceptance of credit cards by stores selling groceries. The costs to food retailers associated with credit card acceptance (about \$2 for every \$100 of purchases) are passed on in the form of higher prices for everyone (grocery stores don't provide a discount for shoppers who pay cash).¹³

To the extent that higher-income households are more likely to use credit cards for grocery purchases than lower-income households—which seems almost certain given general data on income differences in the use of credit cards (see Mann 2009)—generally poorer customers who don't use credit cards to purchase groceries are subsidizing the purchases of generally richer customers who do.¹⁴ In addition, as GAO (2009) finds, the fees that credit card companies like Visa and Mastercard charge retailers are generally higher for their “premium” cards (ones that provide “cash-back,” frequent flyer miles, and other bonuses) than for their “basic” cards. Lower-income shoppers are probably less likely to hold these cards and receive the benefits associated with them, but still subsidize their use by higher-income households.

Are the Current Federal Poverty Thresholds (Way) Too High?

In a short section of their paper, Broda *et al.* claim that the actual poverty rate was about four percent in 2006 rather than the official rate of just over ten percent, and that the poverty rate fell by about 60 percent between 1970 and 2006 rather than remaining stable. This issue is distinct from the question of whether the poor pay more for food, and draws on analyses by Broda and Weinstein (2008) and Broda and Weinstein (2010), as well as various conceptual and technical assumptions that are highly contested among inflation experts. As such, it is only discussed briefly here.

The current poverty measure was developed in the early 1960s, and has been adjusted since 1969 using the CPI. Broda *et al.* arrive at a four-percent poverty rate by replacing the CPI with their own price index, which adjusts for new goods, quality, and substitution biases they argue are present in the CPI. Whatever the technical merits of the large quality and substitution adjustments to the CPI proposed by Broda and Weinstein (they are dubious, but a discussion of them is beyond the scope of this article)¹⁵, applying them retroactively to nearly four decades of income data produces results that are simply not credible. Broda *et al.*'s estimated poverty rate of four percent in 2006 is roughly equal to the 4.2 percent of people in families that year who lived below half of the official poverty

13 On this point, see U.S. Government Accountability Office (2009), which notes that “increased merchant costs for card transactions may lead to higher prices for non-cardholding consumers.”

14 Credit card use is no longer rare among lower-income households. According to Mann (2009) about 30 percent of households in the bottom quintile held credit card balances in the 2004 Survey of Consumer Finances, compared to about 55 percent of those in the middle quintile. But this usage generally comes at a greater cost for lower-income households than for higher-income ones. Wheary and Draut (2007) find that the percentage of credit card holders with high-interest rates (more than 20 percent APR) declines as household income rises. Only 6.7 percent of cardholders with household incomes between \$50,000 and \$100,000 pay very high interest rates, compared to 15 percent of those with incomes below \$10,000 and 12 percent of those with incomes between \$10,000 and \$25,000.

15 For example, Broda *et al.* would reduce the poverty threshold to account for what they argue is a reduction in the price level caused by the introduction of new goods. But a 2002 National Academy of Sciences (2002) panel on the CPI concluded that virtual price reductions associated with the introduction of new goods should not be imputed for use in the CPI. For background on debates over the accuracy of the CPI, see Baker (1998).

thresholds. Thus, Broda *et al.*'s adjusted poverty thresholds would be equal to half the current official thresholds. In 2006, the official poverty line for a family of two adults and two children was \$20,444—according to Broda *et al.*, it should have been set at \$10,222.

When the poverty line was initially developed in the 1960s the thresholds were set equal to the value of USDA's Thrifty Food Plan (then known as the Economy Food Plan) multiplied by three (based on a finding that the average family spent about one-third of its income on food). USDA's Thrifty Food Plan represents a minimal-cost, nutritious diet, one that assumes (unrealistically) that all meals a family eats are prepared at home. According to USDA, the annual cost of the thrifty plan for a family of four in 2006 was \$5,341 (\$445 a month or \$3.70 per person per day) if the children are both under age six and \$6,217 (\$518 a month or \$4.31 per person per day) if the children are both over age six. Subtracting the latter food-budget amount from Broda *et al.*'s adjusted 2006 poverty thresholds (roughly \$852 a month) would mean a two-adult, two-child (both over age six) family with income equal to the Broda poverty line would have been left with \$4,005 in 2006—\$334 a month—to pay for safe and decent housing, transportation, clothing, health care, child care and other work expenses, and all other necessities. Outside of rare circumstances, this would have been a practical impossibility for a couple raising two children.¹⁶

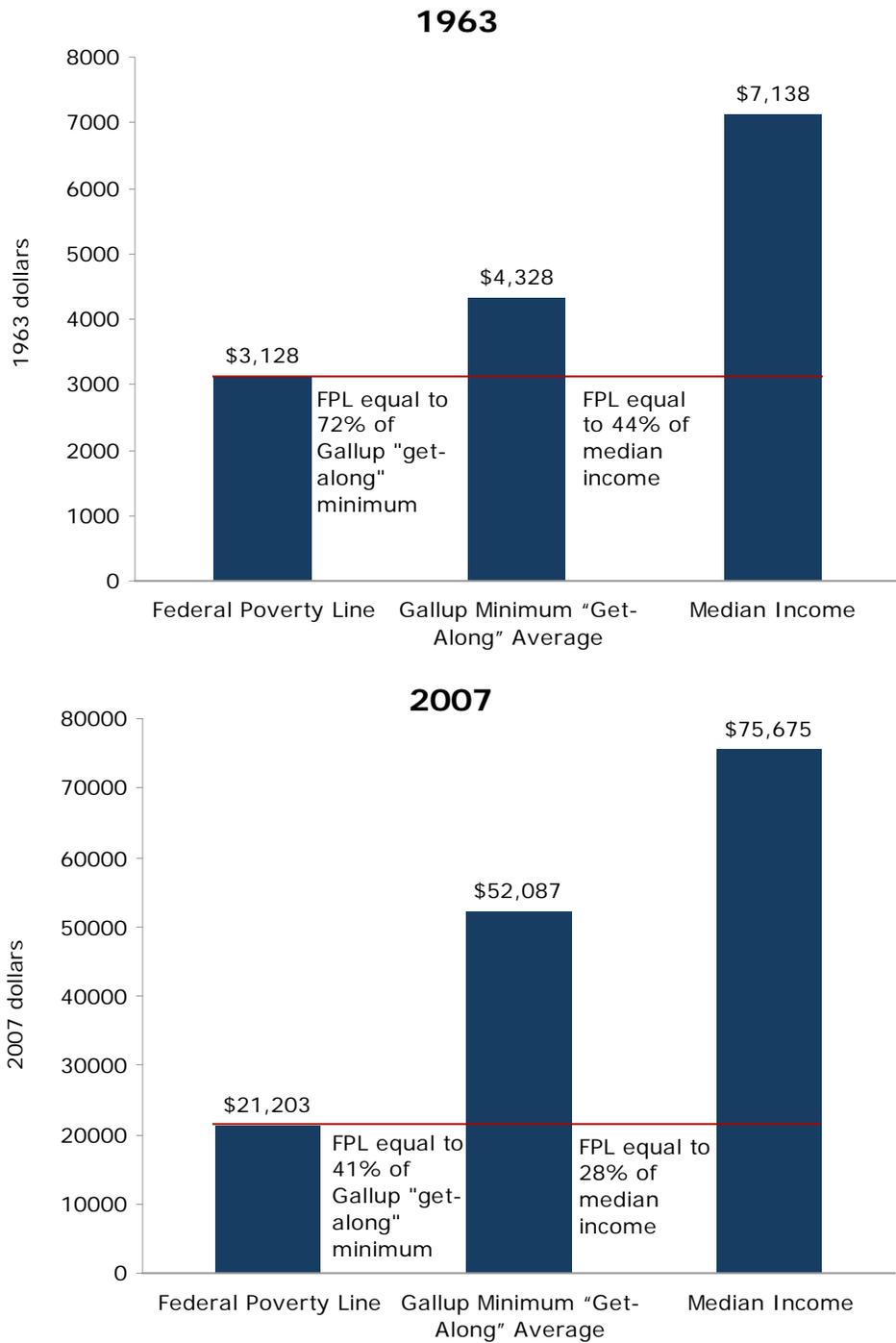
The real problem with the current poverty line is that it has not been adjusted over time to reflect changes in minimally adequate living standards, and, as a consequence is too low. This problem is the result of the decision made by the Nixon Administration in 1969 to only adjust the poverty line for price inflation, instead of updating it in a way that better reflected changes in mainstream living standards. Mollie Orshansky, who originally developed the measure, criticized this decision because it would “freeze the poverty line despite changes in buying habits and changes in acceptable living standards” (Fisher 1997).

Figure 5 below shows how the Nixon Administration's decision has had the effect of defining income deprivation down over the past half century. In 1963, the poverty line for a family of four was \$3,128. This was equal to about 44 percent of median income for a family of four that year, and about 72 percent of the amount the average amount that Americans told Gallup a family of four needed to “get along” at a minimum level. By 2007, the federal poverty line for a family of four (\$21,203), adjusted only by the CPI, had fallen to 28 percent of median income for a family of four that year and about 41 percent of the average minimum “get along” level in the 2007 Gallup survey.

The adjusted poverty thresholds produced by Broda *et al.* would fall even further below mainstream living standards today. Their adjusted poverty threshold for a family of four would amount to 14 percent of median income in 2007 and 20 percent of the average amount that Americans told Gallup was needed in 2007 to get along at a minimum level.

16 The bottom line would be roughly similar in 2010. The Broda *et al.* poverty line would be about \$11,025 for a family of four in 2010 (half of the HHS poverty guideline of \$22,050). The thrifty food plan cost this year for a family of four is \$6,084 (both children under age 6) or \$6,984 (both children over age 6), leaving the latter family with \$337 a month to pay for all non-food necessities.

FIGURE 5
Change in the Federal Poverty Line, Minimum “Get-Along” Average, and Median Income, 1963-2007



While Broda *et al.*'s analysis implies that the price level effectively only moves downward in response to the introduction of new goods, a more balanced view would recognize that the introduction and widespread diffusion of new goods increases the cost of maintaining a standard of living that is minimally adequate in today's terms. As Gordon Fisher (2006) explains:

As technology progresses and the general standard of living rises, new consumption items are introduced. They may at first be purchased and used only by upper-income families; however, they gradually diffuse to middle- and lower-income levels. Things originally viewed as luxuries—for instance, indoor plumbing, telephones, and automobiles—come to be seen as conveniences and then as necessities. In addition, changes in the ways in which society is organized (sometimes in response to new “necessities”) may make it more expensive for the poor to accomplish a given goal—as when widespread car ownership and increasing suburbanization lead to a deterioration in public transportation, and the poor are forced to buy cars or hire taxis in order to get to places where public transit used to take them. Finally, the general upgrading of social standards can make things more expensive for the poor—as when housing code requirements that all houses have indoor plumbing added to the cost of housing.

A related point is that because inflation-adjusted poverty measures are relative to the specific past base years (and social and economic contexts) in which they were established, their value today will vary depending on the base years they were initially set in. Suppose, for example, that the unofficial poverty line used by the Subcommittee on Low-Income Families in 1949, which was equal in constant dollars to about 85 percent of the official poverty line in 1964 (Fisher 1995), had been adopted at that time as the nation’s official poverty measure and adjusted for inflation in subsequent years. In 2010, the threshold for this “base-1949” poverty line would be considerably lower than the thresholds for the actual official (“base-1963”) line. Excepting perhaps Broda *et al.*, most would agree that the base-1963 line better reflects a current poverty-level income than the base-1949 line, but this then begs the question of why the measure for the current poverty level should be based on any previous year several decades earlier (and determinations of minimum income adequacy made by officials who are now long gone) rather than relatively current data and determinations.

Poverty measures that are set based on some minimally acceptable level of income in a base year and then only adjusted in subsequent years by a price index may have some utility if the goal is to track trends in income deprivation over some fairly short time frame (say five-ten years) when there is little change in the economic and social context. But they become increasingly uninformative and unreflective of prevailing real-world economic conditions when used for longer time frames, especially during periods in which there has been considerable economic progress and innovation.

There are at least two solutions to this problem, both of which involve moving away from an inflation-adjusted measure as the primary measure of poverty. The first was proposed by a panel of the National Academy of Sciences in the mid-1990s, and proposed for adoption (in a modified version known as the Supplemental Poverty Measure or SPM) earlier this year by the Obama Administration. The SPM would initially set the poverty line equal to expenditures on food, clothing, shelter and utilities at the 33rd percentile multiplied by 1.2. Instead of an inflation adjustment, this initial threshold would be recalculated each year by applying this same formula to the most recent expenditure data. The second solution, adopted earlier this year by the United Kingdom, would set the poverty line equal to percentage of median (60 percent) income, and then adjust over time to reflect that percentage. The UK approach also incorporates two additional measures of poverty: 1) one that is set at 60 percent of median income in a base year and then adjusted for a ten-year period by inflation; and 2) a material deprivation index composed of various direct measures of material hardship that reflect prevailing community norms about the necessities needed for a minimally

decent standard of living. These two solutions are not inconsistent with one another. The best poverty measurement framework for the U.S. would, like the UK approach, include three or four core measures of economic deprivation.¹⁷ A version of the SPM could be substituted in place of an inflation-adjusted measure in this kind of broader framework.¹⁸

Conclusion

Given the likelihood that low-income households are not adequately represented in the Nielsen dataset, it should not be used to draw conclusions about the relative prices paid by these households (or other economically disadvantaged groups). USDA and any other federal agencies that use Nielsen data should carefully examine its representativeness before using it in any future research.

Even if we assume that the Nielsen data are representative, what it actually shows is more complicated than the rather simplistic interpretation offered by Broda *et al.* that “the poor pay less.” In fact, their data show that a substantial percentage of low-income households in the dataset pay somewhat more for food than moderate-income households, and that the Gilded-Age level of inequality that prevailed during the last decade is reflected in shopping for the most basic of commodities.

17 Canada also uses three distinct measures of income deprivation: 1) a low-income cutoff (LICO) that represents an income threshold below which a family is likely to spend significantly more of its income on food, shelter and clothing than the average family; 2) a low-income measure (LIM) defined as 50 percent of median adjusted family income; and 3) a market basket measure (MBM) that represents the cost of a basket of goods and services that would allow a family to eat a nutritious diet, buy clothing for work and social occasions, house themselves in their community, satisfy basic transportation needs for work, school, shopping and participation in community activities and pay for other necessary expenses. See Statistics Canada (2010) for the most recent estimates using these measures.

18 A limitation of the SPM is that, as currently proposed, it will be set at a level that bears little resemblance to the amount needed to obtain a minimally adequate standard of living. Moreover, it will only reflect changes over time in food, clothing, shelter, and utility consumption, and not the broader (and generally expanding) market basket of goods and services that are needed for a minimally decent standard of living, including transportation, health care, and savings for basic retirement security. For more on the SPM and poverty measurement, see Fremstad (2010).

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