"3rd OF THA MONTH": DO SOCIAL SECURITY RECIPIENTS
SMOOTH CONSUMPTION BETWEEN CHECKS?

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ABSTRACT

This paper examines the response of consumption expenditures to the monthly receipt of Social Security checks. Since the amount and arrival date of these checks are known to the recipients, the basic Life-Cycle/Permanent Income Hypothesis (LCPIH) predicts that consumption should not respond to the receipt of these checks. Using daily diary data from the Consumer Expenditure Survey, this paper finds evidence that both the dollar amount and probability of expenditures increase immediately following the receipt of this check. Most relevant to testing the LCPIH, categories of instantaneous consumption expenditure such as food away from home increase on the check arrival date. The response is found primarily amongst households for whom Social Security is the primary source of income. However, the magnitude of the estimated responses are relatively small and do not suggest that the utility losses are large from this non-smoothing behavior.

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1. Introduction

The Life-Cycle/Permanent Income Hypothesis (LCPIH) is the main doctrine in the economist's understanding of how households form their consumption decisions. Following Hall's (1978) seminal work introducing the use of Euler Equations to test the LCPIH, a large empirical literature using both macro- and micro-level data has emerged. This research is focused primarily on testing the implication of the hypothesis that predictable changes in income should have no effect on consumption. Nearly two decades of research has not reached a consensus as to whether the empirical evidence supports or rejects the LCPIH. In fact, in a recent survey of the literature by Browning and Lusardi (1996), the co-authors cannot agree with one another as to whether "there is strong evidence against the [LCPIH]" (p. 1835).

One problem plaguing this literature are concerns about the quality of the data used to test the hypothesis. Measurement error in consumption increases the standard errors of the estimates (Shapiro 1984) while measurement error in the income measures used in this literature attenuates the estimated coefficients (Altonji and Siow 1987). Together, these sources of measurement error greatly reduce the power of the econometric tests. Another problem is determining exactly what are predictable changes in income. Many studies have been forced to estimate predictable changes in income by using life-cycle variation in income sources. To the extent that the econometric predictions are not perfectly correlated with individual expectations, this approach introduces another form of measurement error into the analysis.

These concerns have led recent micro-econometric studies to focus on clearly identifiable changes in income such as pre-announced increases in union wages (Shea 1995), changes in Social Security taxes (Parker 1999), and income tax refunds (Souleles 1999). All of these studies find evidence against the standard LCPIH. Other studies using identifiable changes in income also find evidence against the LCPIH. Wilcox (1989) finds increases in aggregate consumption at the time cost-of-living increases in Social Security benefits are implemented even though these increases are pre-announced. Shapiro and Slemrod (1995) examine the expected consumption response to a 1992 change in federal tax withholding that increased the amount of consumers' paychecks but kept annual after-tax income

unchanged by reducing the amount of subsequent tax refunds. Although consumers experienced no change in total resources but only in the timing of income receipt, a substantial fraction of households expected to increase their consumption in response to this change.

Given that these recent findings using identifiable income changes tend to reject the LCPIH, it is reasonable to ask if these results indicate that the LCPIH fails to capture the general decision process surrounding the relationship between income receipt and consumption or if the failure is limited to certain forms of income receipt. The studies listed above have focused on the consumption response to either permanent income growth or predictable one-time payments. Even when these income changes are clearly identifiable, they may occur infrequently enough that households may have some difficulty understanding how, when, and even how much their income will be affected. Infrequent changes in income that are easily forecast may in fact represent a (partial) surprise to a number of households.

Alternatively, no previous study has examined how consumption responds to the receipt of normal income, i.e. a constant periodic income stream such as a paycheck or a government transfer check. The arrival date and amount of these income payments are known to households in advance of their receipt so there is no new information at the time of check arrival. Furthermore, since many types of normal income checks are only changed periodically, it is possible to examine the consumption response to the receipt of a *constant* normal income check amount rather than to changes in the check amount. Under the basic LCPIH, the arrival of a normal income check should not change household consumption. Therefore, the test of the LCPIH proposed in this paper is to examine whether the monthly pattern of household consumption responds to the arrival of a normal income check.[1]

In 1999, the United States Social Security Administration dispersed monthly benefits to approximately 45 million recipients that included retired and disabled workers along with their dependents and survivors (Social Security Administration 2000). Since the inception of the program, Social Security checks have been delivered on the third of each month. If

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[1] Paxson (1993), Browning and Collado (2001), and Hsieh (2001) use predictable seasonal variation in normal income to test the LCPIH and cannot reject the hypothesis. These studies identify the response to large but infrequent normal income receipts. The current study examines the response to a frequent, constant stream of normal income.

the third of the month is a weekend or a holiday, then the check is delivered on the first day prior to the third of the month which is neither a weekend day nor a holiday.[2] Since the check delivery dates are known to households, the arrival and amount of the Social Security check do not present any new information to recipients. Thus, household consumption should not change simply because the household has recently received their transfer check. The goal of this paper is to examine the response of consumption expenditures to the monthly arrival of Social Security checks.[3]

In order to examine household responses to the receipt of Social Security checks, this paper uses the Consumer Expenditure Survey's Diary Survey to estimate changes in household consumption around the check arrival date. Unlike the quarterly Interview Survey which has previously been used in this literature (e.g., both Parker and Souleles use the Interview Survey), the Diary Survey gathers information on daily expenditures in two consecutive one-week diaries. Each household in the Diary Survey is randomly assigned a start date for their two-week survey period. Due to this sampling scheme, some households will be participating in the survey when they receive their Social Security checks while others will not. Comparing differences in expenditure patterns between these groups of households identifies the impact of the check arrival on consumption since the distribution of households across these two groups is randomly determined.

Changes in expenditures *per se* are not evidence of violating the basic life-cycle/permanent income model. Periodic payments such as mortgages and utility bills are typically due once a month and these expenditure dates may coincide with the arrival of Social Security checks. Therefore, expenditures on items which have a known periodic pattern are not evidence against the LCPIH. In addition, a correlation between check arrival and purchases

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[2] E.g., if the third of the month falls on a Saturday, then the check will be delivered the day before since Fridays are potential check delivery days.

[3] Although the link has not been directly examined, there is evidence from the medical literature which is suggestive of a causal link between Social Security check arrival and increases in some forms of consumption. Satel et al. (1997) find a significant increase in the fraction of substance abusers voluntarily leaving residential treatment following the receipt of retroactive Social Security disability benefits. Shaner et al. (1995) find that among a group of schizophrenic cocaine abusers, cocaine use, psychiatric symptoms, and hospital admissions peak during the first week of the month, presumably following the receipt of Social Security disability benefits. Phillips, Christenfeld, and Ryan (1999) examine the universe of U.S. death certificates from 1973 to 1988. They find a 1% overall increase in the number of deaths in the first week of the month relative to the last week of the previous month. Furthermore, they find a 6% increase in deaths attributable to homicide, a 5% increase for suicides, and a 14% increase for substance abuse.

of durable goods are not evidence against the LCPIH. Households may make one trip to the grocery store each month but smooth their food consumption at home throughout the month. To avoid these issues, the expenditure categories of interest are those categories which reflect instantaneous consumption. Therefore, the primary test of the LCPIH are expenditures on food and alcohol consumed away from home, fresh foods which last less than a month at home, and instantaneous forms of entertainment and recreation.

The empirical analysis finds an increase in the amount of and probability of spending across multiple categories of expenditure in the first few days following Social Security check receipt relative to the day before the check arrives. In the instantaneous consumption categories of interest, however, there is only weak evidence of non-smoothing behavior. When the sample is limited to households for whom Social Security is a significant portion of their income, the spending increase at the beginning of the month is more pronounced and statistically significant across all categories of instantaneous consumption. The magnitude of the resulting spending increases during the week following check receipt ranges from 7% to 20% above mean expenditures while increases in the probability of making expenditures range from 3% to 6%. Even larger increases are found for the day of and the day immediately following the arrival of the monthly Social Security check. Thus, the results found here provide evidence that the arrival of normal income influences the timing of household consumption.

2. The Data

The data for this paper come from the Consumer Expenditure Survey's (CEX) Diary Survey (United States Department of Labor, various years). The United States Department of Labor's Bureau of Labor Statistics (BLS) conducts the CEX in two separate components, a quarterly Interview Survey and a two-week Diary Survey. The Interview Survey is designed to capture more expensive and less frequently purchased items that are easier to recall at quarterly intervals such as appliances and automobiles. The Diary Survey is designed to gain an accurate accounting of less expensive and more frequently purchased items such as food, both at home and away, gasoline, and personal care items. Tables published by the BLS integrate both of these surveys at a quarterly level to gain an accurate picture of expenditure by U.S. households.

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The Diary Survey is an on-going study with participating consumer units continually entering and exiting the survey throughout the calendar year. A consumer unit (CU) is defined by the BLS as "consisting of all members of a particular housing unit who are related by blood, marriage, adoption, or some other legal arrangement. Consumer unit determination for unrelated persons is based on financial independence" (United States Department of Labor, various years).[4] Each CU participates in the Diary Survey for two consecutive one-week periods. According to staff at the BLS, the start date for each CU is randomly determined with new households entering the survey each day. At the beginning of the two-week collection period, an interviewer collects household characteristics, instructs the CU how to fill out the diary, and leaves a diary for the first week. At the end of the first week, the interviewer reviews the first diary, answers any questions that the CU may have, and leaves a diary for the second week. At the end of the second week, the interviewer returns for the second diary and to collect information on household characteristics including demographic, employment, and earnings data for the CU members.

The consumer unit is instructed to record all expenditures for each day including both food and non-food items, expenditures on rentals such as videos, and catalog purchases. The CU is told to exclude expenditures made when away from home overnight, business or farm expenses, and sales tax except for that on food purchased away from home. Households are instructed to include items purchased using charge accounts on the date of the purchase. The CU is told not to record, however, payments made to billing statements for charge or credit accounts. Although the BLS began conducting the survey on an on-going basis in 1980, this study uses the Diary Survey data from 1986-1996. Prior to 1986, detailed information on expenditure items from the Diary Survey which are not used in the integrated data tables were not included in the public use micro-data files.

The Diary Survey collects employment and income information for each member of the consumer unit as well as income information for the entire CU. For each member, information on wage and salary earnings and transfer income (e.g., Social Security) in the past twelve months is collected amongst other earnings information. The BLS provides

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[4] The terms consumer unit and household are used interchangeably throughout the paper.

summary measures of total wage and salary earnings as well as Social Security earnings for the consumer unit during the past twelve months.

For this study, some consumer units are deleted due to missing data. Both diary weeks for each CU are entered as separate observations in the Diary Survey. If the BLS determines that a diary week is incomplete or if a CU's diary week entry does not have a start date, then that diary week observation is deleted. If none of the expenditures in a CU's diary week has a purchase date, then that diary week is deleted.[5] After these deletions, any CU without two diary-week observations remaining are then deleted. Also deleted from the sample are the fraction of consumer units (roughly 20%) deemed by the BLS to have incomplete income data.[6] Finally, the analysis is restricted to consumer units in which either the consumer unit's reference person or their spouse receives Social Security.[7] The resulting sample of Social Security recipients is comprised of 9,942 consumer units which contribute a total of 123,034 potential expenditure days.

3. Empirical Methodology

The test of the LCPIH in this paper is to examine whether expenditures on a given day depend upon the number of days since (until) the arrival of the Social Security check. Since consumer units record diaries for two weeks, each consumer unit can contribute up to fourteen individual days of data. In order to treat all months symmetrically, the analysis focuses on the fourteen days prior to check receipt and the fourteen days after check receipt (including the day of check receipt). Diary days which fall outside of this

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[5] According to the BLS staff, if some of the expenditures in a CU's diary week do not have a date of purchase recorded in the diary, those expenditures with missing dates will not have date of purchase information in the CEX data and therefore will not be used in the analysis performed here. The remaining expenditures with date of purchase information for the CU's diary week will be used in the analysis. If *none* of the expenditures in a CU's diary week has a date of purchase, then the BLS assigns the first day of the diary week as the date of purchase for *every* expenditure in that diary week. For this paper, all diary weeks in which every expenditure is on the first day of the diary week are removed from the analysis. Leaving these diary weeks in the analysis has no qualitative effect on the results presented here.

[6] This designation is in general based upon the reporting of values for major sources of income. See United States Department of Labor (Various Years) for more details.

[7] The reference person is designated as "the first member mentioned by the respondent when asked to 'Start with the name of the person or one of the persons who owns or rents the home'". (U.S. Department of Labor, Various Years)

28-day window are deleted from the analysis, resulting in some households contributing less than fourteen days of data. In addition, diary days that fall within the window around the check arriving on January 3rd are not used in the analysis. The primary reason is that during the sample period, all cost-of-living adjustments (COLAs) to Social Security checks were implemented to the January 3rd check. Although these COLAs were all announced months in advance, the goal of this paper is to examine how recipients react to known check amounts. If these COLAs are a surprise to some households, then using the January 3rd observations in the analysis could potentially confuse the monthly response to check receipt with the "surprise" of a COLA.[8] All expenditure and income data are deflated to December 1995 dollars using the overall CPI-U for the window month in which the daily observation lies.[9]

Identification of the impact of check arrival on consumption relies on the sampling methodology of the CEX Diary Survey. According to the survey codebook (U.S. Department of Labor, various years), the diary data is collected by evenly spacing diaries throughout the calendar year and each day of the week has the same chance of being the first day of the diary week.[10] In addition, the survey starting date for any given consumer unit is randomly selected. In particular, the consumer unit's starting date is unrelated to the arrival of their Social Security check. Therefore, the monthly expenditure patterns of Social Security recipients are identified by estimating how expenditures on any given diary day depend upon where it falls within the 28-day window surrounding the check arrival.

The summary statistics presented in Table 1 are consistent with the randomization of diary start days relative to the arrival of the Social Security check. The Table presents basic descriptive statistics by dividing the sample into four groups according to where the consumer unit's first survey day falls within the 28-day window described above.[11] The

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[8] Using aggregate data, Wilcox (1989) finds evidence of excess sensitivity to the Social Security COLA adjustments.

[9] E.g., since April 28, 1994 is within the 28-day window surrounding the May 3,1994 check arrival date, all expenditures on this date will be deflated by the May 1994 CPI-U.

[10] The survey oversamples consumer units during the last six weeks of the calendar year.

[11] Consumer units whose first diary day falls outside of the 28-day window are classified by their first

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age, gender, and education statistics are reported for the consumer unit's reference person while the income variables correspond to the entire consumer unit. The composition of the sample is identical across the groups. Although these comparisons can never rule out unobservable differences between the groups, it is highly plausible that any estimated fluctuations in expenditure over the course of the month are not attributable to differences in the composition of Social Security recipients over the month.

Econometric Specification

The baseline econometric test for the consumption response to the receipt of normal income is performed using the following specification

$$C_{it} = \alpha_i + \sum_{j=2}^{4} \beta_j WEEK_j + \sum_{k=2}^{7} \gamma_k DOW_k + \sum_{l=2}^{14} \delta_l DOS_l + \epsilon_{it}, \tag{1}$$

where C_{it} is household i's expenditure on day t, α_i is a household specific effect, $WEEK_j$ are dummy variables for each of the four weeks that can be constructed from the 28-day window around the check arrival date, DOW_k are day of the calendar week dummy variables, DOS_l are indicators for which of the fourteen diary days corresponds to the day in question, and ϵ_{it} is a daily household specific error term. This regression model is estimated for multiple expenditure categories. Note that these regressions do not include controls for any household characteristics. The presence of the household fixed effect, α_i, in (1) precludes the inclusion of these such variables. Previous papers that have examined changes in consumption expenditures have needed to control for life-cycle changes in consumption at either an annual or quarterly frequency. Since the analysis here only examines a two-week period per household, the need for using controls for life-cycle changes in consumption is greatly reduced. The combination of the two-week diary period and the fixed effects specification also eliminates the necessity of including dummy variables for calendar month and year since the parameters will be identified from within household variation in daily expenditures over a two-week interval.

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diary day that falls within the window. Such consumer units will be those whose first diary day is in the middle of a month and therefore their first day within the window will be 8 to 14 days before check arrival. This classification scheme explains the high number of consumer units within the 8 to 14 days before check arrival category relative to the other three groups in Table 1.

The consumption response to check receipt is revealed by the coefficients on the $WEEK_j$ variables defining the treatment and control groups. In the baseline specification, the three included dummy variables pooling daily expenditures are for 8 to 14 days before check arrival, 0 to 6 days since check arrival, and 7 to 13 days since check arrival. The excluded week, 1 to 7 days before check arrival, corresponds to the week immediately before the Social Security check arrives. The coefficients on the $WEEK_j$ variables therefore measure daily consumption relative to the week in which Social Security recipients have gone the longest without receiving their check.

The other control variables included in (1) are intended to control for predictable variation in expenditures within the two-week diary period. Since expenditures fluctuate between weekday and weekend days, the day of week variables (DOW_k) will pick up these fluctuations. The inclusion of these variables is particularly important due to the fact that when the third of the month falls on a Saturday or Sunday, the check will be delivered on the preceding Friday. Thus, roughly 3/7ths of the check arrivals will be on a day with relatively high expenditures. Without the day of week variables, increased consumption due to the "weekend effect" will be inappropriately attributed to the check arrival. The indicators for each of the fourteen days within the two-week survey period (DOS_l) are included to capture predictable declines in expenditure reporting over the survey period. An examination of the data indicates that expenditures are higher during the first diary week as well as on the first day of each diary week relative to the remaining days. These declines are likely attributable to "survey fatigue".

Unlike the studies in the consumption smoothing literature that rely on quarterly or annual data, daily expenditures include a number of observations with no expenditures. This censoring of the dependent variables presents three issues. The first is that the level of expenditure is used as the dependent variable rather than the more commonly used log of expenditure. The second is that the econometric analysis must account for the censoring of the dependent variable. The presence of the fixed effect in (1) further complicates the analysis. Maximum likelihood estimation of censored regression models requires a large number of time periods when fixed effects are present in order to achieve consistency (Heckman and MaCurdy 1980) and is very sensitive to the assumption of normally distributed

error terms (Arabmazar and Schmidt 1982; Brown and Moffitt 1983). Honoré's (1992) symmetrically trimmed least squares fixed effect censored regression estimator is used in the analysis presented here since it achieves consistency as the number of households increases (rather than the number of time periods) and does not impose strong distributional assumptions, such as normality, on the error term.[12]

The third issue is that standard tests of excess sensitivity cannot be performed. These tests are based upon the Euler Equation formulation under which changes in consumption should not be correlated with any information known in advance. The censored regression estimator used here does in fact use differences in consumption between two time periods as the dependent variable as would be used in the standard excess sensitivity test (Honoré 1992). However, the corner solutions in consumption (i.e., the zero expenditure days) preclude the use of a standard Euler Equation framework. Nevertheless, a finding of a relationship between household consumption and the arrival of the Social Security check is a violation of the basic LCPIH.

In order to more clearly examine the monthly fluctuation in expenditures, the results of additional specifications are also reported. The first modification to the baseline model is to replace the $WEEK_j$ variables with variables that correspond to each of the individual days within the 28-day window. Twenty-seven indicators for how many days since (until) the Social Security check arrives are included in these regressions with the excluded day being the day immediately preceding the check arrival. The coefficients on the individual day variables give a more complete picture of the monthly pattern of expenditures than the baseline regressions. The second modification is to change the dependent variable from the actual expenditure amount to an indicator variable for whether or not the household makes any expenditures on the day in question. These models are estimated using fixed effect linear probability regressions. The results of the analysis using this modification will give an indication of how the probability of making any expenditures varies in relation to the check arrival date.

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[12] However, the estimator requires the assumption that the error terms are for a household are both symmetrically distributed and serially independent after controlling for the fixed effect.

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4. Results

To understand the monthly expenditure patterns across various categories of goods, Figures 1a-1d present the raw expenditure data for all consumer units receiving Social Security. For each expenditure category, the figures plot the difference between the average daily spending for each day within the 28-day window and the overall daily average for the category. The horizontal axis indicates how many days since the Social Security check was received with negative numbers indicating days prior to the check arrival date. Figure 1a indicates that total expenditures increase nearly $50 on the date of check arrival above the daily total expenditure average of $62. The Figure also indicates an increase in total expenditures on the two days immediately preceding the check arrival date. These increases prior to the check arrival date are likely due to periodic payments such as rent and utility bills that are due on first of the month.

Figure 1b presents the monthly pattern for strict non-durable expenditures, a category that was first used by Lusardi (1996) in order to limit her analysis to items which likely would be consumed entirely within a calendar quarter to coincide with her use of the quarterly CEX Interview Survey. The definition of strict non-durables in the current paper is food and alcohol both at home and away from home, tobacco-related items, personal care items, public transportation, gasoline, and motor oil.[13] While many of these items presumably have a fixed cost associated with their purchase (e.g., it may be costly to go to the grocery store on a daily basis), it is still somewhat surprising that, on average, households wait until the time their Social Security checks arrive in order to pay this cost. The Figure also illustrates "weekend effects" in the data. As previously mentioned, Social Security checks will come on Fridays approximately 3/7ths of the time which means that 7 and 14 days before as well as 7 days after check arrival will also fall on weekends over 40% of the time. The spikes in spending on these days shown in the figure is likely accounted for by increased spending on weekends.

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[13] Lusardi also included utilities, household operations, and miscellaneous expenditures in her definition of strict non-durables. However, these expenditures may have a periodic element to them so they have been excluded from the analysis here.

The final pieces of Figure 1 illustrate the monthly fluctuations in food expenditures. The pattern in Figure 1c for food at home is similar to that found for strict non-durables.[14] There is a large increase in food at home expenditures the first two days following the arrival of the Social Security check as well as evidence of weekend effects. Monthly fluctuations in food away from home, one of the main expenditure categories of interest, are presented in Figure 1d. The monthly pattern in the data is a bit noisier relative to the other expenditure categories. However, the data show a modest increase in these expenditures during the days following the arrival of the check as well as some evidence of weekend effects.

Figure 2 presents a different look at the monthly fluctuation in expenditures. Rather than examining the total amount of expenditures within a category, the Figure shows how the probability of making any expenditures varies with respect to the arrival of the Social Security check. The patterns for expenditure probabilities in each of the four categories are similar to those shown in Figure 1 for the amount of spending. However, there are some notable exceptions. First, there is no spike present on the two days prior to check arrival for making any (total) expenditures (Figure 2a) although there is a spike on these days for the dollar amount of spending on these days (Figure 1a). Second, there exists a much more pronounced spike for making any food away from home expenditures on the day of check arrival (Figure 2d) than is present for the dollar amount of food away from home expenditures (Figure 1d).

The Impact of Check Arrival on Expenditures

Table 2 reports the results of estimating the impact of Social Security check arrival on household expenditures using Honoré's fixed effect censored regression estimator for equation (1).[15] Due to the estimation technique, the marginal effects for the impact of a change in the regressors on observed household expenditures need to be derived. Rather than report both the estimated coefficients along with the marginal effects, the table reports the estimated marginal effects along with the endpoints of the 95% confidence interval for the

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[14] All food expenditures also include alcohol.

[15] Expanded results which include the results for the day of calendar week and day of diary week indicators are presented in Appendix Table 1.

marginal effects.[16] As described above, equation (1) divides the 28-day window into four weekly groups and constrains the impact to be the same for all days within the week. Since the excluded category is 1 to 7 days before the check arrival date, the regression coefficients for these groups indicates the difference in expenditures for each week relative to the week immediately preceding the check arrival.

The results in Table 2 show evidence of monthly expenditure fluctuations linked to the arrival of the Social Security check. Total expenditures, in column 1, are not significantly higher in the week after check arrival relative to the week before check arrival. However, as Figure 1a indicates, the spike in total expenditures around the first of the month is the reason for the insignificant result. The large significant expenditure declines for the weeks in the middle of the month reflect the monthly pattern in total expenditures. Daily strict non-durable expenditures (column 2) increase by $1.40, or 10% of average daily strict non-durable expenditure shown at the bottom of the column, during the week following the check arrival. Food for home consumption (column 3) also increases sharply during the first week of the month, by roughly 13%. Although expenditures in these latter two categories are classified as non-durable, increases in these expenditures may not directly correspond to increases in consumption since these items may be stored for later use. Thus, increases in these categories cannot be taken as evidence of non-smoothing behavior. In fact, if there are fixed costs of shopping (time spent traveling, etc.), then one would expect lumpy patterns in expenditures on these items for any given household. However, it is not clear that the lumpiness in these expenditures should be tied to the arrival of Social Security income.[17] One possible explanation is that if grocery stores know that the days

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[16] The average population marginal effect corresponding to a regressor x_k in a censored regression is calculated as $\beta_k * P$ where β_k is the population coefficient on x_k and P is the fraction of non-censored observations in the population (Greene 1981). An estimator for the marginal effect is $\hat{\beta}_k * \hat{P}$ where $\hat{\beta}_k$ is the estimated regression coefficient and $\hat{P}$ is the fraction of non-censored observations in the sample. To obtain confidence intervals for the estimated marginal effects, 200 bootstrap replications were performed by randomly sampling with replacement from households in the sample. The endpoints of the 95% confidence interval are taken directly from the bootstrapped distributions rather than by using the standard deviations of these distributions since the bootstrapped distributions may be skewed.

[17] Fixed costs of adjustment for durable goods can lead to infrequent expenditures on these items. The timing of these adjustments depends upon the difference between the actual ratio of the stock of durables to wealth and the desired ratio (e.g., Eberly 1994). Thus, increases in expenditures on durables may be correlated with unexpected increases in income. However, normal income receipt should not be unexpected.

following check receipt are periods of high demand, they may raise their prices in response. Studies find, however, that stores *reduce* prices in periods of peak demand.[18]

In terms of testing the LCPIH, it is necessary to find items of expenditure that also correspond to increases in consumption. Since expenditures on food away from home do not exhibit the durability across days that is found in the previous expenditure items, expenditures on these items represent instantaneous consumption. In addition, expenditures on entertainment items such as fees for participant sports and lessons, admissions to entertainment activities and sporting events, rentals of videos, and coin-operated games also represent categories of instantaneous consumption. These entertainment expenditures are combined with food away from home expenditures to create the expenditure category "instant consumption 1". Expenditures on fresh foods, which include milk, eggs, and fresh fruits and vegetables, are expenditures on items that are expected to last less than a month after purchase and therefore closely resemble instantaneous consumption. Fresh food expenditures are combined with food away from home and entertainment expenditures to create the "instant consumption 2" expenditure category.

The results from estimating (1) for these categories of instantaneous consumption are shown in the final four columns of Table 2. There is an insignificant increase in food away from home expenditures during the first week after check arrival (column 4). In addition, the magnitude of this increase relative to average daily spending is 6%. When entertainment expenditures are added to create the instant consumption 1 category (column 5), the estimated effect is slightly smaller. On the other hand, expenditures on fresh foods (column 6) show a significant increase during the week after check arrival although the magnitude of this effect is only 8%. Finally, the second instant consumption category (column 7) exhibits an insignificant increase immediately following check receipt. Overall, these results provide very weak evidence of systematic non-smoothing of consumption in relation to the arrival of Social Security benefits.

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[18] E.g., see Warner and Barsky (1995) and Chevalier, Kashyap, and Rossi (2000). If consumers know that grocery stores reduce prices at the beginning of the month due to increased demand from Social Security and other transfer payment recipients, then increased grocery expenditures at the check arrival date may in fact be an optimal response on the part of consumers. I would like to thank an anonymous referee for making this point.

One possibility is that expenditure patterns may be tied only to the receipt of the primary source of normal income. Households with many sources of income, either earned or unearned, outside of Social Security may not time their consumption decisions to the arrival of their Social Security check. To examine this alternative, the analysis in Table 3 is restricted to households that receive at least 70% (roughly the sample median) of their income from Social Security.[19] The results in this Table indicate that the receipt of their monthly transfer check plays an larger role in the timing of expenditures for these households. The increase in spending continues to exist during the week following receipt of the Social Security check for strict non-durables and food at home expenditures. The magnitude of these effects are now more prominent, roughly 17% each.

Amongst this group of households, the results for the instantaneous consumption categories show a significant increase immediately following the check arrival. Food away from home expenditures significantly increase by 21% the week following the check arrival. In addition, the expenditures in the first instant consumption category also exhibit a significant increase of 20% during the first week. Fresh foods exhibit a statistically significant increase but only increase by 9%. Overall, instantaneous consumption expenditures (column 7) significantly increase by roughly 16% during the week following the arrival of the Social Security check.

While the above results indicate that the timing of consumption expenditures is correlated with the arrival of the Social Security check, a more detailed examination of the monthly fluctuations in expenditures can be performed by replacing the $WEEK_j$ dummy variables in (1) with indicators for the actual day within the 28-day window surrounding the arrival date of the Social Security check. These models are estimated excluding the day before the arrival of the check so that all inferences are made relative to this day. In order to more easily examine the results of these regressions, the marginal effects for the daily indicator variables are plotted along with their 95% confidence bands.

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[19] Studies in this literature typically split households between high and low wealth households to test for the impact of liquidity constraints on the estimated parameters. Unlike the CEX Interview Survey, the Diary Survey does not collect information on the stock of household wealth and has limited information concerning the income flows generated from wealth. Since this paper is examining the response to a constant check amount, however, the role for liquidity constraints is rather limited. The current sample split is designed to focus the analysis on the consumption response to the primary monthly income source.

The daily indicator coefficients are plotted for all households that receive Social Security in Figures 3a-3g.[20] The plots give a clearer picture of the relationship between the check arrival date and the monthly pattern of expenditures. For total, strict non-durable, and food at home expenditures (Figures 3a-3c), the figures show the detailed monthly pattern of increased expenditures peaking around the arrival of the Social Security check as was previously shown by pooling the days into four weeks in Table 2. These figures indicate that the increases in these expenditure categories is primarily due to increases during the day of check arrival as well as in the days immediately following the check arrival. With the exception of fresh food expenditures (Figure 3f), the monthly patterns for the instantaneous expenditure categories do not reveal any strong evidence of increases at the time surrounding the check arrival date.

The results of again restricting the analysis to households receiving at least 70% of their income from Social Security are plotted in Figures 4a-4g. Total expenditures (Figure 4a) show a clear pattern of an increase surrounding the check arrival relative to the remainder of the month. However, since total expenditures likely increase due to fixed payments at the beginning of the month, there is no spike in expenditures between the day immediately preceding the check arrival and the check arrival date. However, such a spike is clearly visible for both strict non-durable expenditures (Figure 4b) and, to a lesser extent, food at home (Figure 4c). Expenditures in these categories decline over the remainder of the first week and are relatively flat for the rest of the month.

The instantaneous consumption expenditures also show a clear monthly pattern. Food away from home expenditures (Figure 4d) increase sharply upon the date of check arrival and slowly decline over the course of the month. The marginal effects for the first two days following the check arrival are $0.65 and $0.69 which correspond to 33% and 35% increases in average daily spending. Unlike the pattern found for the first three expenditure categories, food away from home expenditures peak on the day following the check arrival and reach their lowest point on the day before the next check arrives. Fresh food expenditures (Figure 4f) are higher during the first week of the month than the rest of

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[20] Relatively wide confidence bands occur on days that correspond to outliers in the data.

the month although the daily indicator variables are not precisely estimated. The results for the two instant consumption categories (Figures 4e and 4g) appear to be driven by food away from home expenditures and yield identical interpretations for their monthly patterns. Thus, instantaneous consumption expenditures are tied to the arrival of Social Security income checks for households that depend upon Social Security as their primary source of income.

The Impact of Check Arrival on the Probability of Making Any Expenditures

Another margin on which to evaluate the impact of the Social Security check's arrival on expenditures is to examine the monthly pattern in the probability of making any expenditures. One advantage of this approach is that, when combined with the above expenditure amount results, one can assess whether the increases in expenditures found at the beginning of the month are due to an increase in the likelihood of households making expenditures immediately following the check arrival or if the households that make expenditures at the beginning of the month are spending more money.

Panel A of Table 4 presents the results for all households receiving Social Security. For total and strict non-durable expenditures, there are significant increases in the probability of making any expenditures during the week following the check arrival. Across the remaining categories, there is only weak evidence that the expenditure probability is increased when the check arrives. For food away from home and the two instantaneous consumption categories, there is a significant increase in expenditures 8 to 14 days prior to the check arrival. When examining the analogous results for the dollar amounts of expenditures in Table 2, there is an insignificant increase in spending over this time interval. These results, in conjunction with those shown in Table 2, indicate that the arrival of the Social Security check has a minimal influence on the timing of instantaneous consumption for the overall population of Social Security recipients.

For households that rely on Social Security as their primary source of income, the probability of households making expenditures increases in the week following the check arrival in all expenditure categories except those involving food away from home (Panel B of Table 4). However, the magnitude of the increases in these probabilities are small

across all of these categories. For example, food at home expenditures are 1.4 percentage points more likely during the week following the check arrival, or roughly 3% of the average daily probability of making food at home purchases. In contrast, the analogous increase in terms of dollar amounts found in Table 3 is 17%. Similar differences between the two tables are also found for strict non-durables and fresh food expenditures. This difference in the relative magnitudes suggests that the increases in the dollar value of expenditures at the beginning of month primarily are due to increases in the amount spent per household rather than in the number of households making purchases.

As with the dollar amount of expenditures, the analysis is repeated by replacing the week indicators with the twenty-seven daily indicators. The results for all households receiving Social Security are presented in Figure 5. For all of the expenditure categories presented in the Figure, there is an increase in the probability of making any expenditures at the check arrival date. However, significant increases on the day of check arrival are found only for total (Figure 5a), strict non-durable (Figure 5b), and total instantaneous (Figure 5g) expenditures.

The results of this analysis for households that depend upon Social Security as their primary source of income are plotted in Figure 6. Across all of the expenditure categories, there is a significant spike in the probability of making any expenditures on the day of check receipt relative to the previous day and in some cases the spike persists for two days. The largest initial spike in relation to the average daily probability of making a purchase is 13% for food away from home (Figure 6d). The initial spike for food away from home in dollar terms is 33% (Figure 4d) which further suggests that much of the spending increase is due to increased dollar amounts rather than an increase in the probability of spending.

Aside from the initial spike in making any expenditures on the days immediately following check arrival, the probability of making expenditures is relatively constant over the course of the month. The probability of making any purchases at all (total expenditures in Figure 6a) declines slowly over the course of the month, especially 4 to 9 days before check arrival, before increasing two days prior to the check arrival. For strict non-durables and food away from home, the estimated effects are almost always non-negative and consistent with a decline in the probability of expenditure between the first and last day of the check

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arrival cycle although these results are statistically insignificant. Overall, the arrival of the Social Security check increases the probability of making any expenditures for the first day or two and has no effect on this probability over the remainder of the month.

5. Summary

This paper examines the response of consumption to the monthly arrival of Social Security checks which are a frequent, constant normal income stream. The basic Life-Cycle/Permanent Income Hypothesis predicts that consumption should not respond to the receipt of a Social Security check. Using diary data from the Consumer Expenditure Survey, this paper finds evidence that both the dollar amount and probability of making any expenditures increase immediately following the receipt of this check. Most relevant to testing the LCPIH, categories of instantaneous consumption expenditure such as food away from home increase on the check arrival date. Examination of daily expenditure data reveals that the increase is sharpest on the day of check arrival and is concentrated amongst households for whom Social Security is the primary source of income.

Although the results found in this paper are inconsistent with the complete smoothing of consumption between Social Security checks, they are not necessarily evidence of large utility losses due to these violations of the basic LCPIH. At the individual level, Cochrane (1989) shows that deviations from the household's optimal consumption plan under the LCPIH may only have second order effects in terms of lost utility. In light of these results, choosing to dine out after receiving one's monthly Social Security check may have small implications for individual welfare. At the aggregate level, the intra-month shifting of expenditures likely has smaller effects on the macroeconomy than, say, the shifting of expenditures across months due to the timing of income tax refunds.

The results presented here point towards areas for further research. The findings suggest that expanding the literature on testing the LCPIH to considering frequently distributed forms of normal income such as paychecks as well as other government transfer programs may prove useful in understanding the heterogeneity across households in the consumption response to normal income receipt. Another avenue for research is to expand the aforementioned work of Warner and Barsky and Chevalier, Kashyap, and Rossi to

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explore the degree of monthly price variability. Store-level data on price changes, especially in areas where large portions of the population are simultaneously receiving transfer payments, may provide further evidence on the behavior of retailers in periods of peak demand.

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Table 1: Summary Statistics[a]
Consumer Units Receiving Social Security[b]

	First Diary Day Is			
	8 to 14 Days Before Check Arrival	1 to 7 Days Before Check Arrival	0 to 6 Days After Check Arrival	7 to 13 Days After Check Arrival
Age	69.0 (0.21)	69.6 (0.24)	69.6 (0.22)	69.7 (0.23)
Male	0.53 (0.01)	0.55 (0.01)	0.56 (0.01)	0.56 (0.01)
H.S. Grad, No College	0.30 (0.01)	0.32 (0.01)	0.32 (0.01)	0.29 (0.01)
Attended College	0.30 (0.01)	0.28 (0.01)	0.28 (0.01)	0.30 (0.01)
# of C.U. Members	1.90 (0.02)	1.92 (0.02)	1.90 (0.02)	1.90 (0.02)
Annual Pre-Tax Income	22,900 (377)	22,500 (433)	23,000 (417)	22,700 (413)
Annual S.S. Income	10,140 (88)	10,350 (108)	10,490 (110)	10,500 (113)
N	3174	2203	2330	2235

[a]The demographic characeristics in the first four rows correspond to the consumer unit's reference person. The income variables correspond to the entire consumer unit. Standard errors are reported in parentheses.
[b]Limited to consumer units in which the reference person or their spouse receives Social Security.

Table 2: Impact of Check Arrival on the Amount of Daily Expenditures[a]
All Consumer Units Receiving Social Security

Ind. Variable	Total Spending (1)	Strict Non-dur. (2)	Food for Home (3)	Food Away (4)	Instant Cons. 1 (5)	Fresh Food (6)	Instant Cons. 2 (7)
8 to 14 days before check receipt	-33.7*** [-56.1,-17.6]	-0.03 [-0.49,0.49]	0.08 [-0.27,0.40]	0.02 [-0.23,0.27]	0.02 [-0.29,0.31]	0.046 [-0.03,0.11]	0.07 [-0.27,0.36]
0 to 6 days after check receipt	11.2 [-6.0,40.3]	1.40*** [0.92,2.08]	0.95*** [0.62,1.37]	0.18 [-0.13,0.52]	0.13 [-0.21,0.48]	0.11*** [0.04,0.17]	0.25 [-0.08,0.58]
7 to 13 days after check receipt	-28.9*** [-62.9,-4.1]	0.28 [-0.27,1.00]	0.41* [-0.04,0.90]	0.06 [-0.23,0.33]	0.02 [-0.28,0.33]	0.03 [-0.04,0.09]	0.05 [-0.24,0.38]
Mean Daily Expenditures	$62	$14.00	$7.60	$3.00	$3.30	$1.30	$4.60
% Non-Limit Observations	0.69	0.59	0.40	0.27	0.28	0.28	0.47
N	123,034	123,034	123,034	123,034	123,034	123,034	123,034

[a]This table reports the marginal effects calculated after estimating Honoré's symmetrically trimmed least squares estimator for censored regressions with fixed effects. The marginal effects are calculated after estimating the dollar amount of expenditure in the category as the dependent variable. The 95% confidence intervals for the estimates are calculated using the dollar amount of expenditure in the category as the dependent variable. The 95% confidence intervals for the estimates are calculated from 200 bootstrap replications and reported in brackets. Calculation of the marginal effects and their associated confidence intervals are detailed in the text. All regressions include dummy variables for day of the week and for day of the survey (1-14). *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

Table 3: Impact of Check Arrival on the Amount of Daily Expenditures[a] Consumer Units with 70% or More of Income from Social Security

Ind. Variable	Total Spending (1)	Strict Non-dur. (2)	Food for Home (3)	Food Away (4)	Instant Cons. 1 (5)	Fresh Food (6)	Instant Cons. 2 (7)
8 to 14 days before check receipt	−26.7** [−54.8,−0.1]	0.02 [−0.59,0.54]	−0.08 [−0.47,0.35]	0.03 [−0.16,0.28]	−0.09 [−0.32,0.12]	0.04 [−0.04,0.12]	−0.05 [−0.30,0.17]
0 to 6 days after check receipt	7.9 [−7.6,31.7]	1.87*** [1.27,2.63]	1.10*** [0.69,1.52]	0.41*** [0.07,1.19]	0.44*** [0.08,1.19]	0.11*** [0.03,0.20]	0.55*** [0.19,1.20]
7 to 13 days after check receipt	−31.7*** [−57.1,−11.1]	0.46 [−0.34,1.17]	0.14 [−0.39,0.58]	0.28** [0.02,0.85]	0.27* [-0.02,0.80]	0.04 [−0.04,0.13]	0.30** [0.02,0.72]
Mean Daily Expenditures	$47	$11.00	$6.40	$2.00	$2.20	$1.20	$3.40
% Non-Limit Observations	0.63	0.52	0.36	0.21	0.21	0.26	0.41
N	56,649	56,649	56,649	56,649	56,649	56,649	56,649

[a]See notes to Table 2.

Table 4: Impact of Check Arrival on the Probability of Making Any Expenditures[a]

A. All Consumer Units Receiving Social Security

Ind. Variable	Total Spending (1)	Strict Non-dur. (2)	Food for Home (3)	Food Away (4)	Instant Cons. 1 (5)	Fresh Food (6)	Instant Cons. 2 (7)
8 to 14 days before check receipt	0.002 (0.004)	0.007 (0.004)	0.002 (0.004)	0.007** (0.0035)	0.007* (0.004)	0.003 (0.004)	0.007* (0.004)
0 to 6 days after check receipt	0.016*** (0.004)	0.008** (0.004)	0.004 (0.004)	0.003 (0.004)	0.003 (0.004)	0.0065* (0.0037)	0.007* (0.004)
7 to 13 days after check receipt	0.003 (0.005)	0.002 (0.005)	0.001 (0.005)	0.002 (0.004)	0.001 (0.004)	0.002 (0.004)	0.001 (0.005)
% Non-Limit Observations	0.69	0.59	0.40	0.27	0.28	0.28	0.47

B. Consumer Units with 70% or More of Income from Social Security

Ind. Variable	Total Spending (1)	Strict Non-dur. (2)	Food for Home (3)	Food Away (4)	Instant Cons. 1 (5)	Fresh Food (6)	Instant Cons. 2 (7)
8 to 14 days before check receipt	−0.0002 (0.006)	0.007 (0.006)	0.001 (0.006)	0.003 (0.005)	0.003 (0.005)	0.002 (0.005)	0.002 (0.006)
0 to 6 days after check receipt	0.023*** (0.006)	0.014** (0.006)	0.013** (0.006)	0.003 (0.005)	0.004 (0.005)	0.016** (0.005)	0.012** (0.006)
7 to 13 days after check receipt	0.009 (0.007)	0.008 (0.007)	0.007 (0.007)	0.003 (0.006)	0.004 (0.006)	0.011* (0.006)	0.006 (0.007)
% Non-Limit Observations	0.63	0.52	0.36	0.21	0.21	0.26	0.41

[a]Regression results from estimating fixed effects linear probability models using an indicator for making any expenditures in the category as the dependent variable. Standard errors are reported in parentheses. All regressions include dummy variables for day of the week and for day of the survey (1-14). The standard errors are adjusted for arbitrary forms of serial correlation within each consumer unit. Panel A uses 123,034 observations and Panel B uses 56,649 observations. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

Ind. Variable	Total Spending (1)	Strict Non-dur. (2)	Food for Home (3)	Food Away (4)	Instant Cons. 1 (5)	Fresh Food (6)	Instant Cons. 2 (7)
8 to 14 days before check receipt	−33.7*** [−56.1,−17.6]	−0.03 [−0.49,0.49]	0.08 [−0.27,0.40]	0.02 [−0.23,0.27]	0.02 [−0.29,0.31]	0.046 [−0.03,0.11]	0.07 [−0.27,0.36]
0 to 6 days after check receipt	11.2 [−6.0,40.3]	1.40*** [0.92,2.08]	0.95*** [0.62,1.37]	0.18 [−0.13,0.52]	0.13 [−0.21,0.48]	0.11*** [0.04,0.17]	0.25 [−0.08,0.58]
7 to 13 days after check receipt	−28.9*** [−62.9,−4.1]	0.28 [−0.27,1.00]	0.41* [−0.04,0.90]	0.06 [−0.23,0.33]	0.02 [−0.28,0.33]	0.03 [−0.04,0.09]	0.05 [−0.24,0.38]
Tuesday	−8.3 [−26.0,13.5]	0.55* [−0.05,1.16]	0.33 [−0.10,0.74]	0.32*** [0.14,0.49]	0.11 [−0.22,0.41]	−0.02 [−0.10,0.05]	0.08 [−0.30,0.38]
Wednesday	−9.0 [−28.6,6.9]	1.47*** [0.87,2.15]	0.75*** [0.35,1.20]	0.65*** [0.33,1.05]	0.56** [0.13,1.02]	0.06* [−0.01,0.14]	0.62** [0.15,1.07]
Thursday	0.81 [−21.6,42.2]	2.24*** [1.71,2.85]	1.41*** [0.95,1.85]	0.44*** [0.24,0.62]	0.31 [−0.05,0.54]	0.13*** [0.04,0.20]	0.45*** [0.08,0.70]
Friday	12.7 [−5.5,35.3]	5.80*** [5.11,6.58]	3.34*** [2.84,3.93]	1.42*** [1.15,1.80]	1.31*** [0.94,1.65]	0.42*** [0.32,0.53]	1.74*** [1.33,2.09]
Saturday	−43.6*** [−69.9,−29.1]	3.99*** [3.39,4.61]	2.29*** [1.82,2.77]	1.54*** [1.31,1.84]	1.40*** [1.04,1.73]	0.25*** [0.17,0.34]	1.65*** [1.26,1.97]
Sunday	−105.1*** [−147.3,−79.8]	−3.75*** [−4.41,−2.97]	−3.85*** [−4.36,−3.36]	1.34*** [1.01,1.77]	1.11*** [0.69,1.55]	−0.57*** [−0.67,−0.47]	0.60** [0.16,1.04]

Appendix Table 1: Impact of Check Arrival on the Amount of Daily Expenditures[a]
All Consumer Units Receiving Social Security
Expanded Results

Continued

[a]This table reports the full results for the analysis presented in Table 2. The 95% confidence intervals for the estimates are calculated from 200 bootstrap replications and reported in brackets. *, ** , and *** represent significance at the 10%, 5%, and 1% levels, respectively.
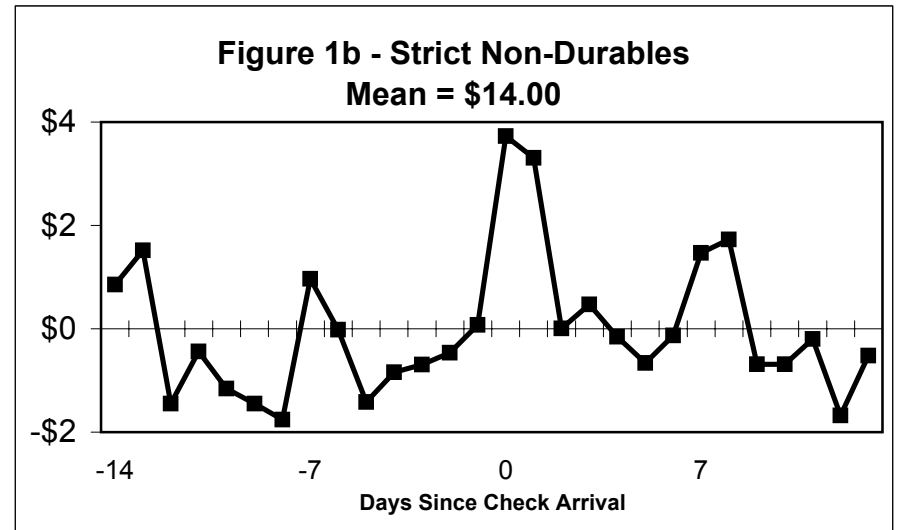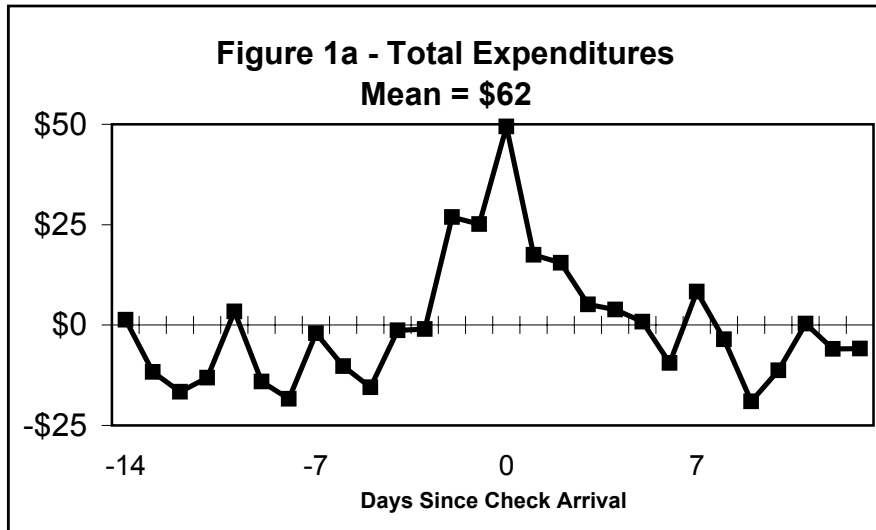
| Ind. Variable	Total Spending (1)	Strict Non-dur. (2)	Food for Home (3)	Food Away (4)	Instant Cons. 1 (5)	Fresh Food (6)	Instant Cons. 2 (7)
Appendix Table 1 (continued): Impact of Check Arrival on the Amount of Daily Expenditures							
Second Day of Diary Week	−73.3***	−6.71***	−4.55***	−0.28	−0.25	−0.65***	−0.97***
	[−114.4,−47.0]	[−7.84,−5.80]	[−5.57,−3.82]	[−0.59,0.10]	[−0.59,0.12]	[−0.80,−0.55]	[−1.38,−0.61]
Third Day of Diary Week	−82.4***	−8.26***	−5.50***	−0.53***	−0.52***	−0.74***	−1.34***
	[−128.1,−48.6]	[−9.42,−7.14]	[−6.45,−4.54]	[−0.76,−0.30]	[−0.83,−0.27]	[−0.87,−0.63]	[−1.66,−1.04]
Fourth Day of Diary Week	−94.9***	−8.87***	−5.74***	−0.46***	−0.51**	−0.80***	−1.40***
	[−131.0,−73.9]	[−9.98,−7.96]	[−6.80,−4.92]	[−0.76,−0.08]	[−0.85,−0.12]	[−0.93,−0.68]	[−1.73,−1.06]
Fifth Day of Diary Week	−66.8	−9.01***	−5.86***	−0.64***	−0.76***	−0.79***	−1.64***
	[−121.9,26.3]	[−10.05,−8.20]	[−6.82,−5.13]	[−0.93,−0.37]	[−1.08,−0.46]	[−0.90,−0.69]	[−1.97,−1.36]
Sixth Day of Diary Week	−103.6***	−10.09***	−6.80***	−0.62*	−0.64*	−0.97***	−1.70***
	[−149.0,−75.2]	[−11.34,−9.06]	[−7.74,−5.81]	[−1.11,0.02]	[−1.19,0.02]	[−1.11,−0.85]	[−2.29,−1.14]
Seventh Day of Diary Week	−119.6***	−10.54***	−6.58***	−0.99***	−0.88***	−0.92***	−1.90***
	[−172.9,−95.3]	[−11.72,−9.55]	[−7.60,−5.70]	[−1.25,−0.73]	[−1.34,−0.33]	[−1.04,−0.82]	[−2.38,−1.34]
Second Diary Week	−77.8***	−6.27***	−3.76***	−0.49***	−0.56***	−0.45***	−1.06***
	[−119.7,−46.3]	[−7.26,−5.39]	[−4.62,−3.02]	[−0.74,−0.24]	[−0.83,−0.31]	[−0.59,−0.33]	[−1.39,−0.80]
Second Day of Diary Week *Second Diary Week	42.1**	4.32***	2.78***	0.29	0.17	0.29***	0.51***
	[1.7,82.2]	[3.22,5.58]	[1.83,3.81]	[−0.14,0.69]	[−0.28,0.58]	[0.14,0.46]	[0.11,1.02]
Third Day of Diary Week *Second Diary Week	55.7**	5.28***	3.14***	0.37**	0.31*	0.35***	0.71***
	[3.4,102.3]	[4.15,6.69]	[2.18,4.18]	[0.06,0.72]	[−0.03,0.73]	[0.18,0.53]	[0.31,1.13]
Fourth Day of Diary Week *Second Diary Week	78.9***	6.59***	3.62***	0.95**	1.04**	0.44***	1.52***
	[46.2,120.7]	[5.19,8.07]	[2.62,4.82]	[0.11,2.00]	[0.18,2.22]	[0.25,0.66]	[0.72,2.61]
Fifth Day of Diary Week *Second Diary Week	38.9	5.53***	3.34***	0.33**	0.44***	0.36***	0.85***
	[−79.2,101.6]	[4.39,6.67]	[2.48,4.24]	[0.002,0.66]	[0.10,0.79]	[0.19,0.53]	[0.44,1.23]
Sixth Day of Diary Week *Second Diary Week	71.9***	5.75***	3.67***	0.29	0.32	0.43***	0.81***
	[37.3,118.5]	[4.47,1.00]	[2.68,4.71]	[−0.33,0.81]	[−0.30,0.87]	[0.28,0.62]	[0.14,1.44]
Seventh Day of Diary Week *Second Diary Week	101.5***	7.60***	4.40***	0.67***	0.55	0.53***	1.15***
	[68.9,160.6]	[6.46,8.87]	[3.48,5.48]	[0.36,1.10]	[−0.07,1.19]	[0.40,0.68]	[0.43,1.82]
Mean Daily Expenditures	$62	$14.00	$7.60	$3.00	$3.30	$1.30	$4.60
% Non-Limit Observations	0.69	0.59	0.40	0.27	0.28	0.28	0.47
N	123,034	123,034	123,034	123,034	123,034	123,034	123,034

Figure 1 - Daily Spending Amount Relative to Average Daily Spending
All Consumer Units Receiving Social Security

Figure 2 - Daily Percentage With Any Spending Relative to Average Percentage
All Consumer Units Receiving Social Security

Figure 3a - Total Expenditures
Mean = $62

Figure 3b - Strict Non-Durables
Mean = $14.00

Figure 3c - Food at Home
Mean = $7.60

Figure 3d - Food Away from Home
Mean = $3.00

Days Since Check Arrival
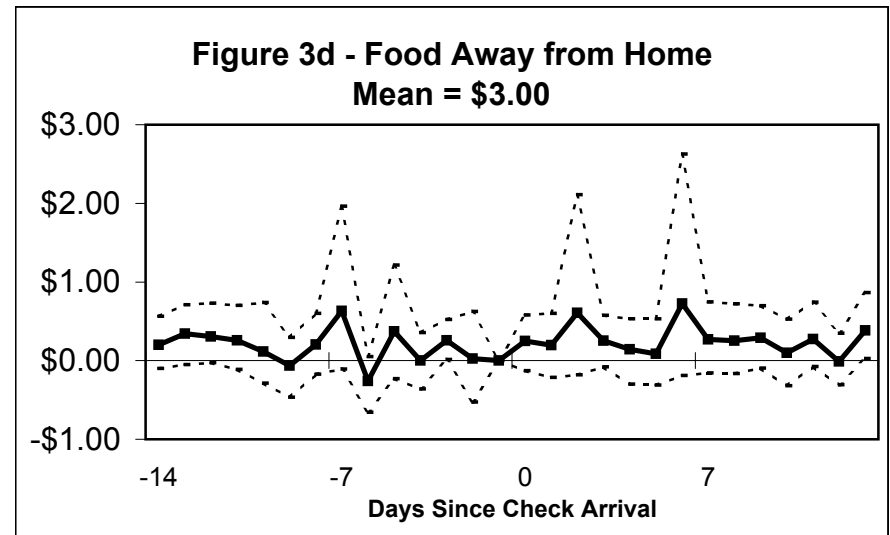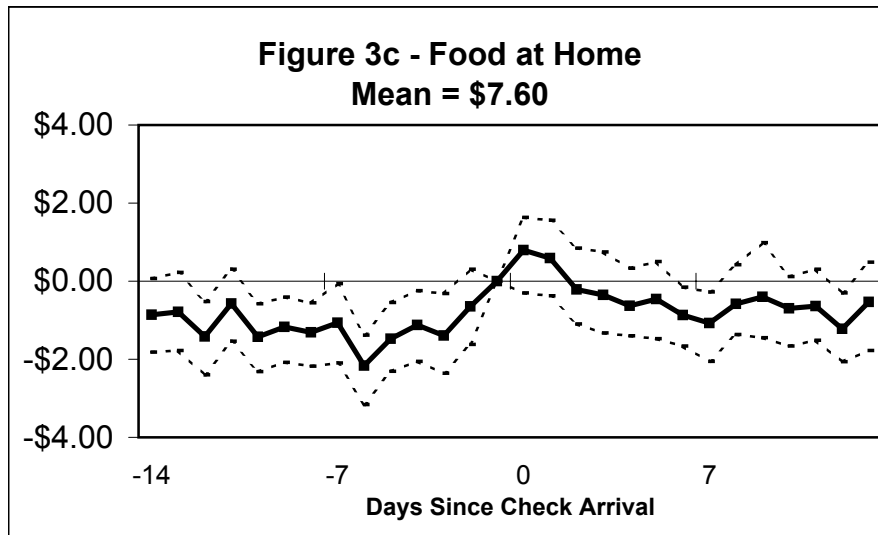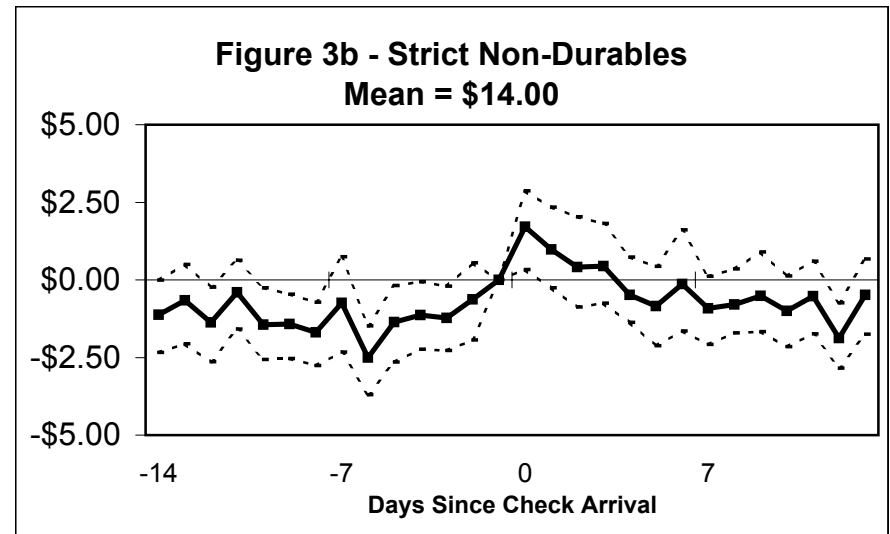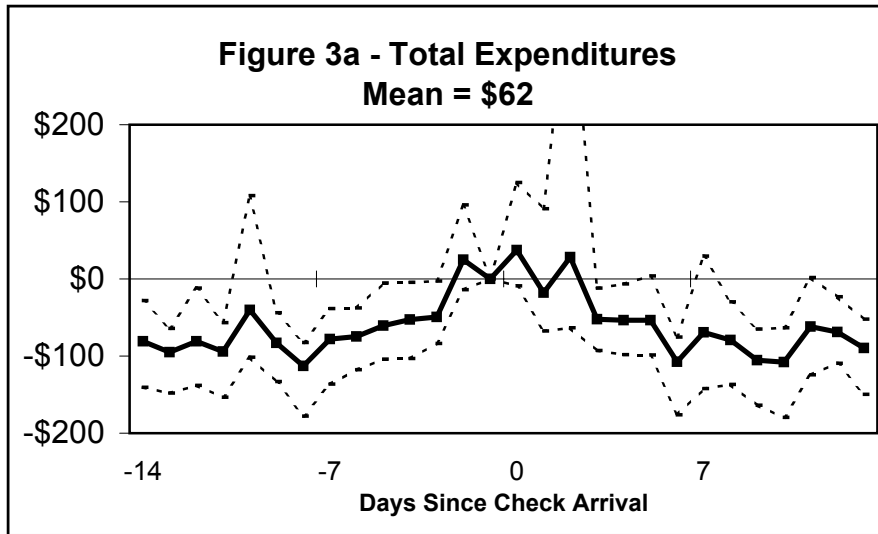
Figure 3 - Estimated Marginal Effects for Daily Expenditure Amounts
All Consumer Units Receiving Social Security
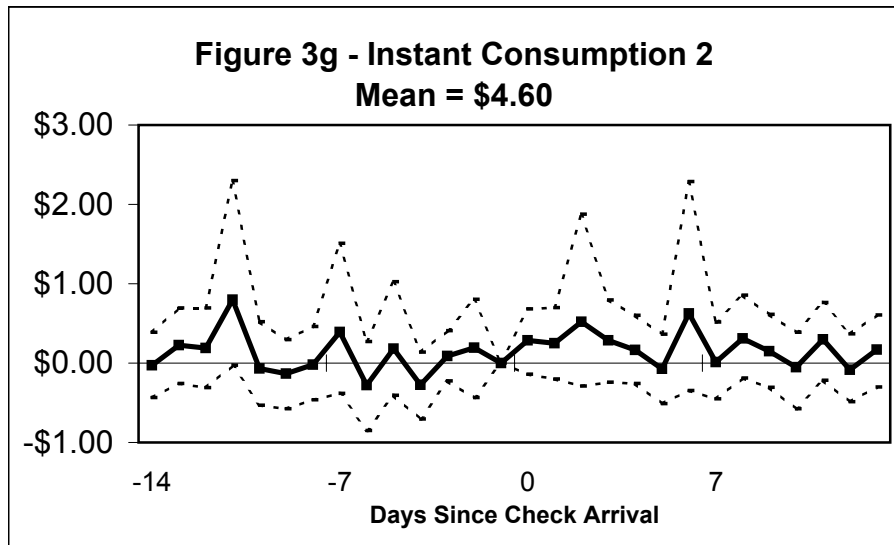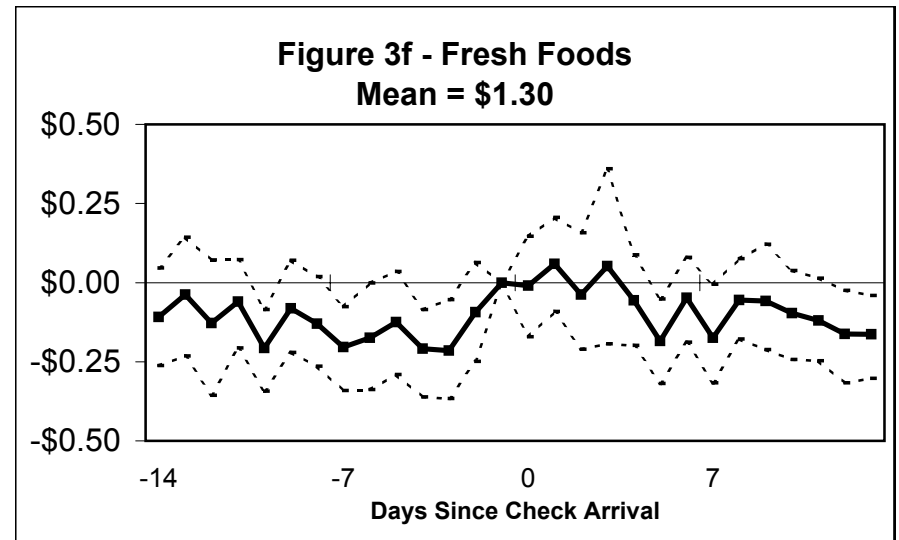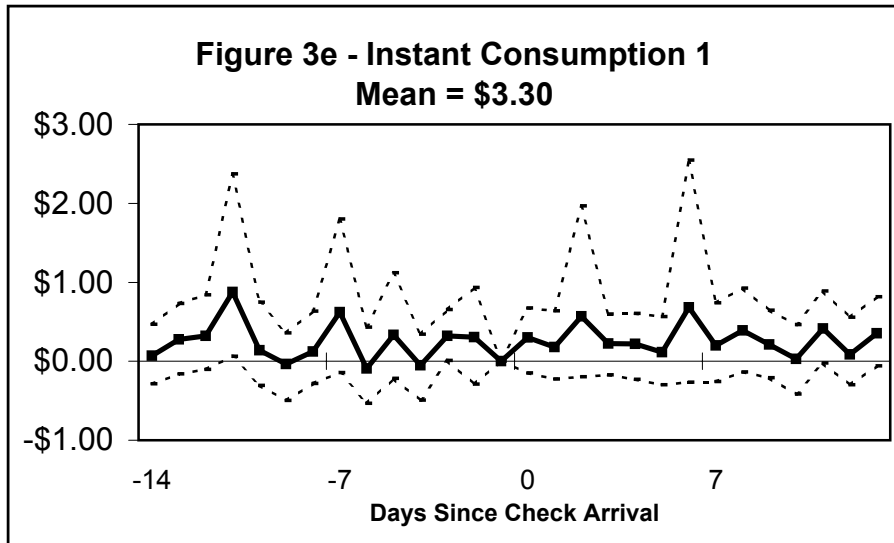
Figure 3 (con't) - Estimated Marginal Effects for Daily Expenditure Amounts
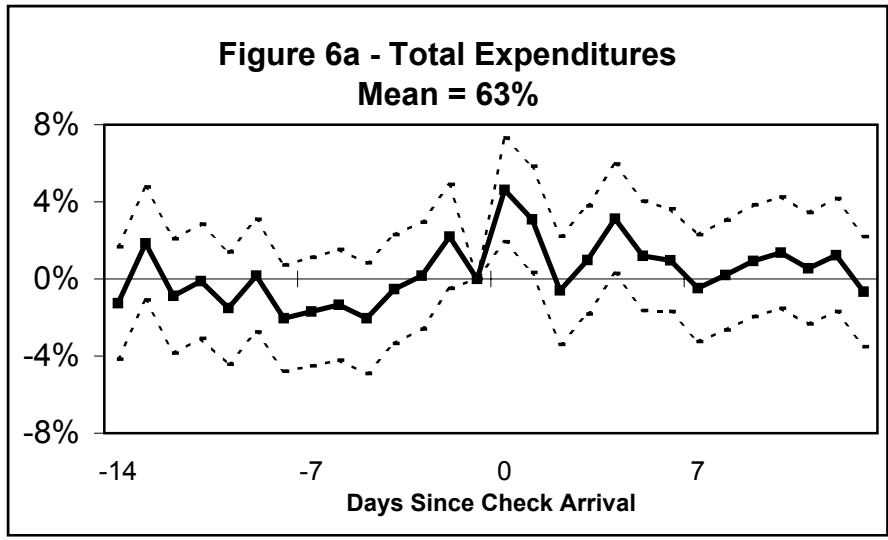All Consumer Units Receiving Social Security
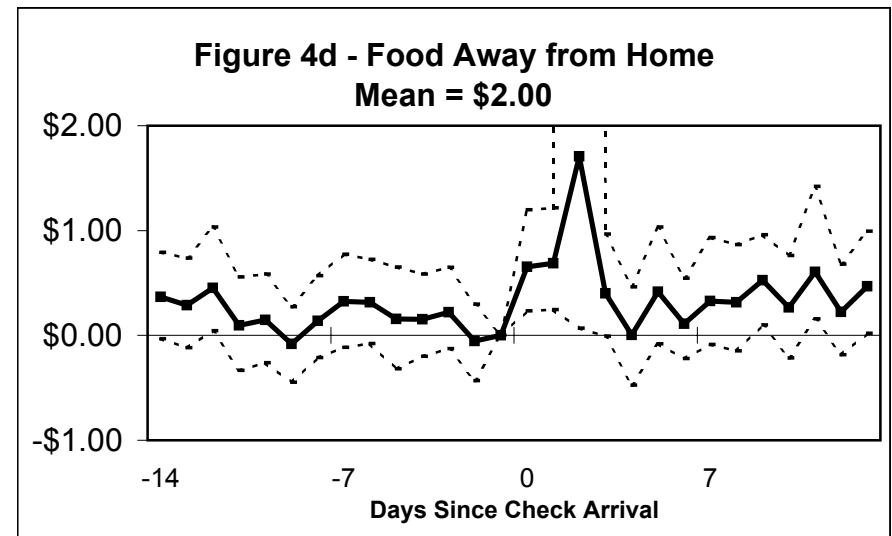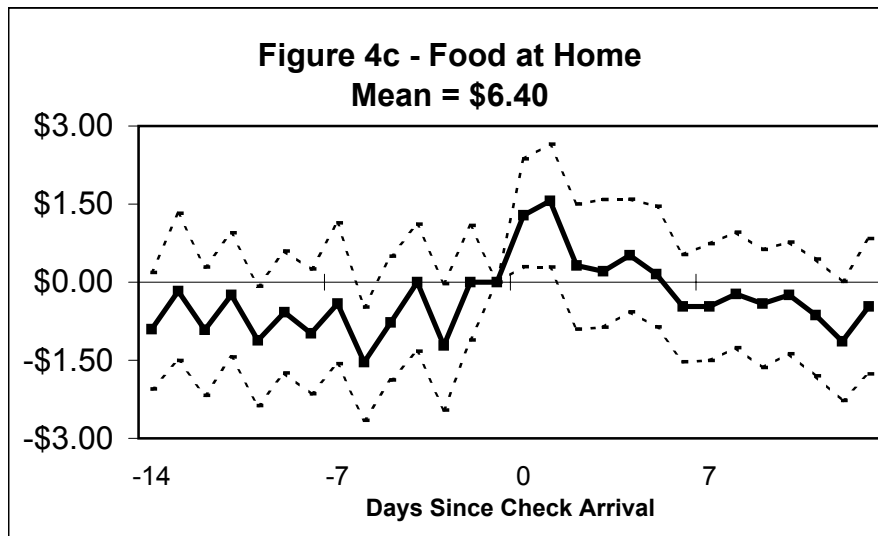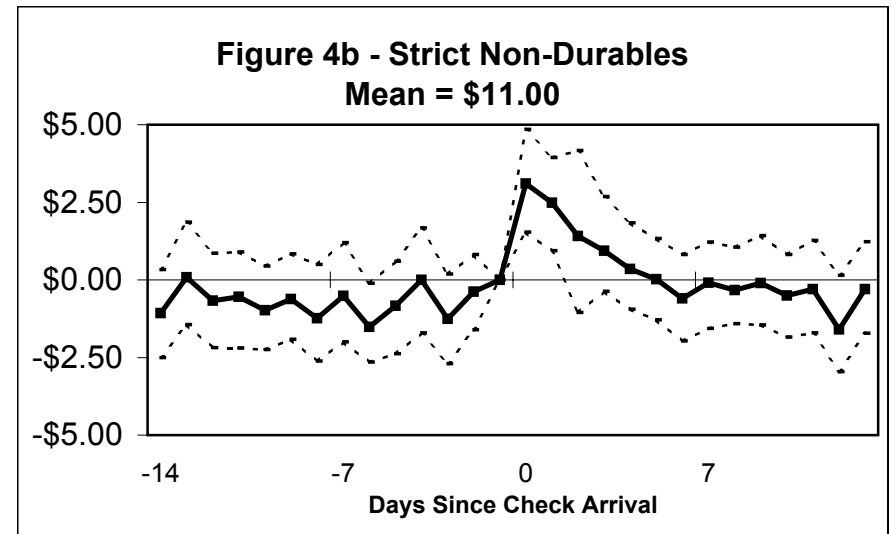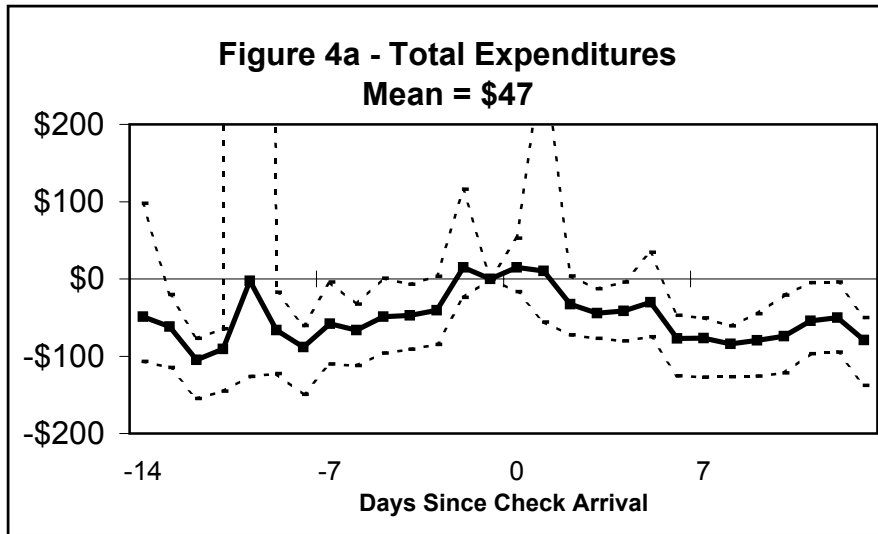
Figure 4 - Estimated Marginal Effects for Daily Expenditure Amounts
Consumer Units With At Least 70% of Income from Social Security
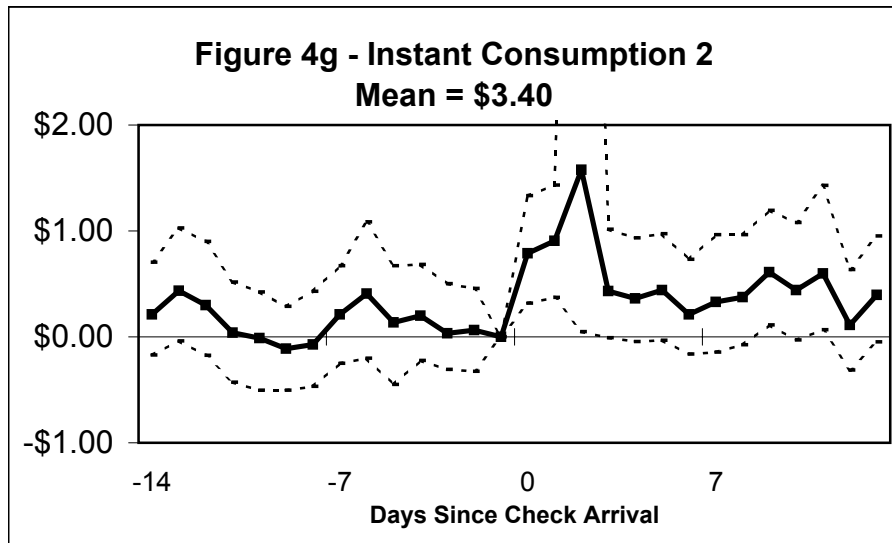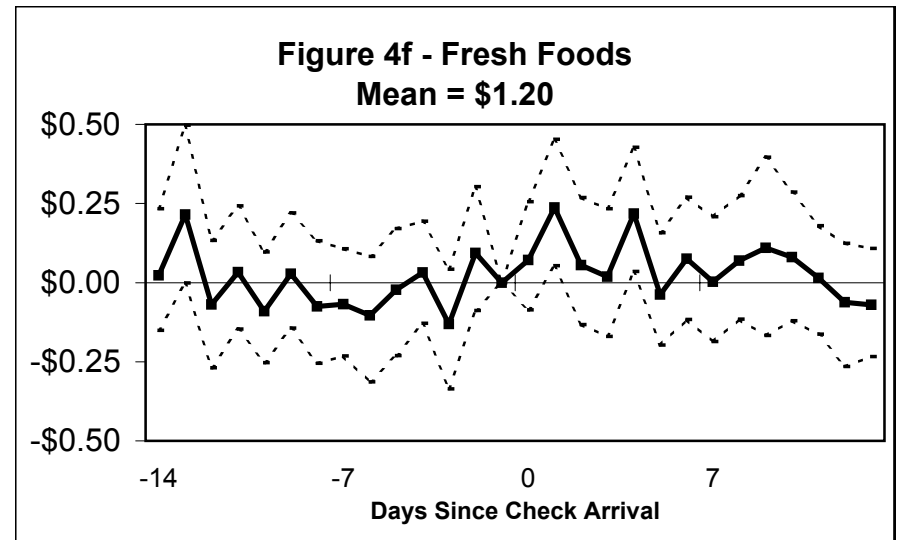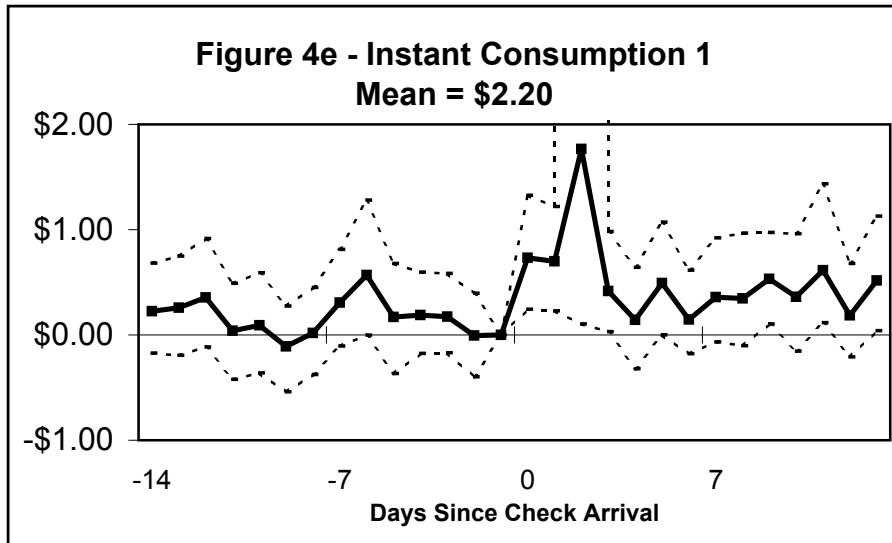
Figure 4 (con't) - Estimated Marginal Effects for Daily Expenditure Amounts
Consumer Units With At Least 70% of Income from Social Security
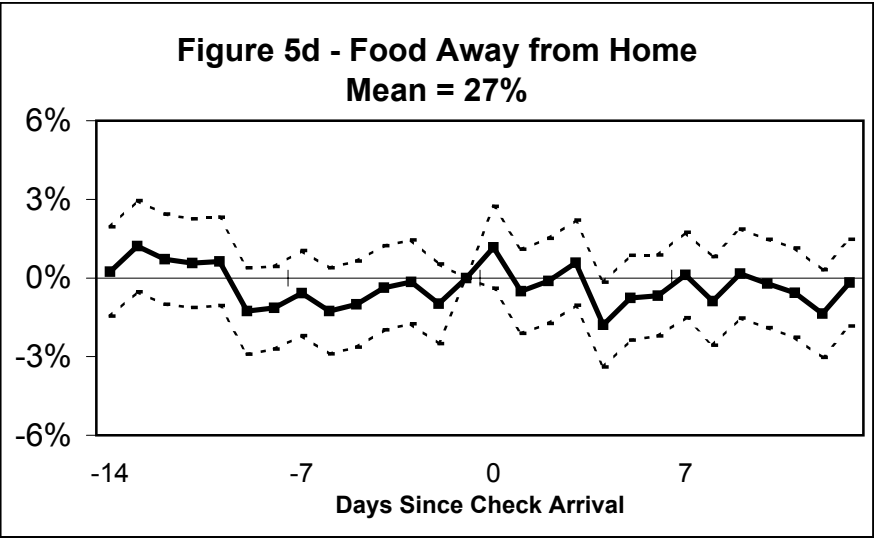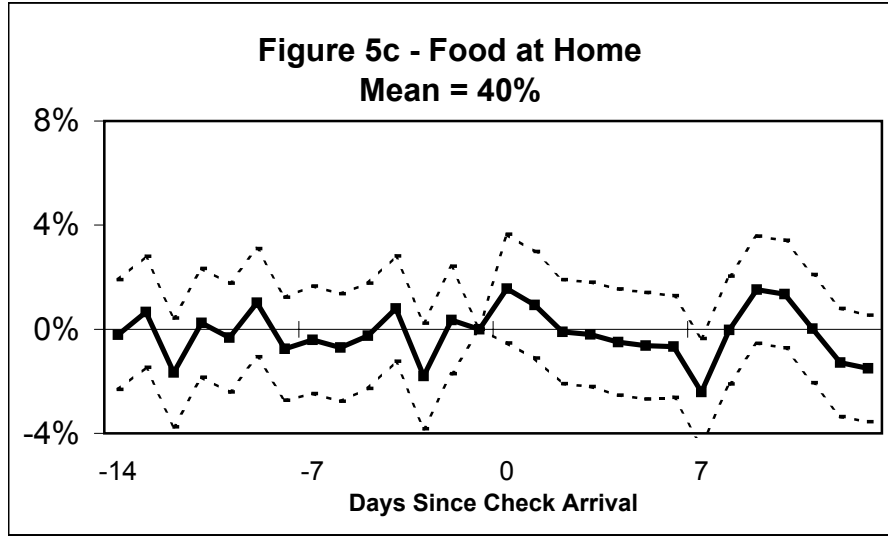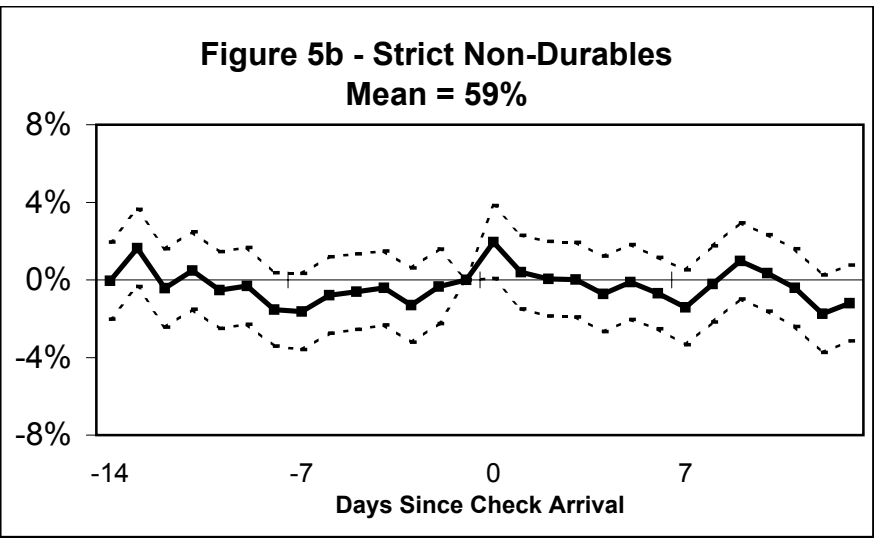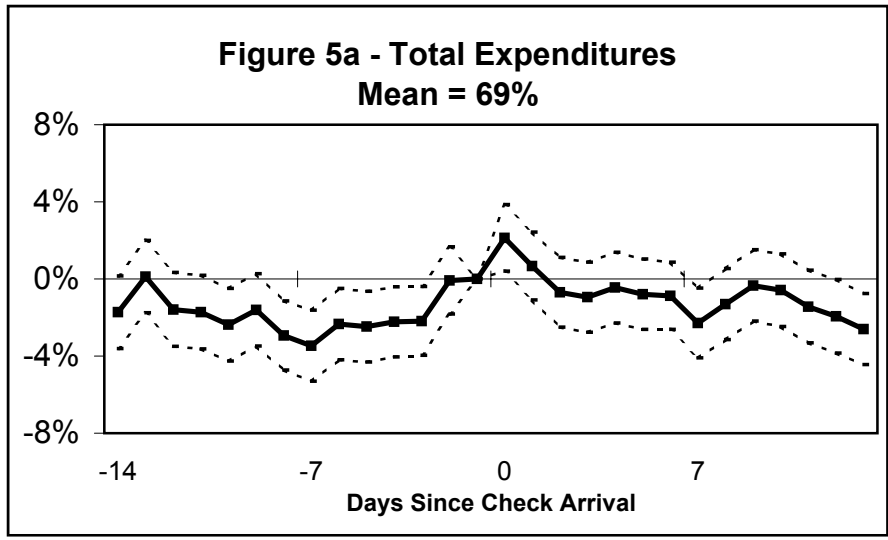
Figure 5 - Estimated Impact on the Probability of Making Any Expenditures
All Consumer Units Receiving Social Security
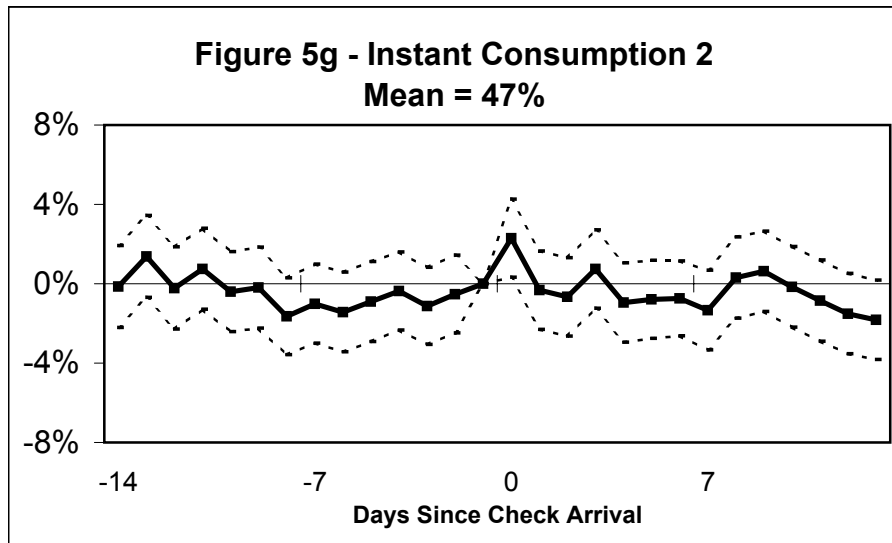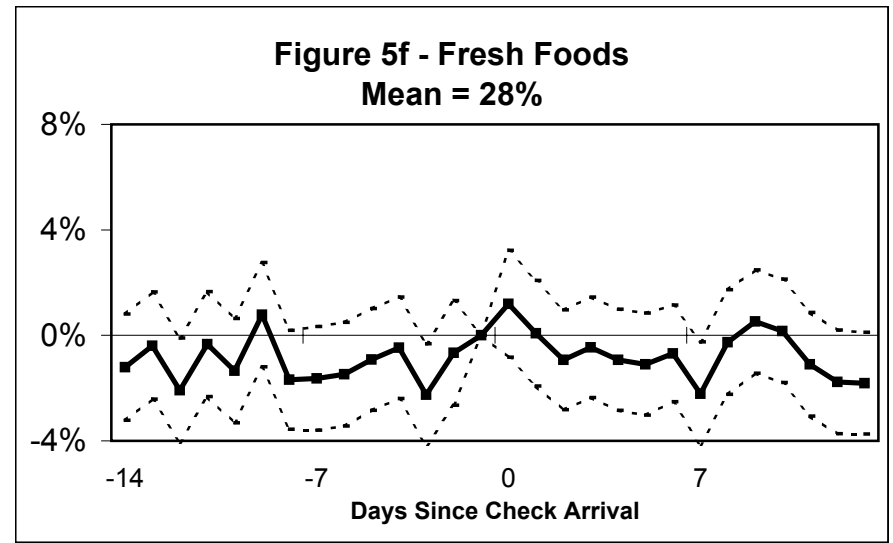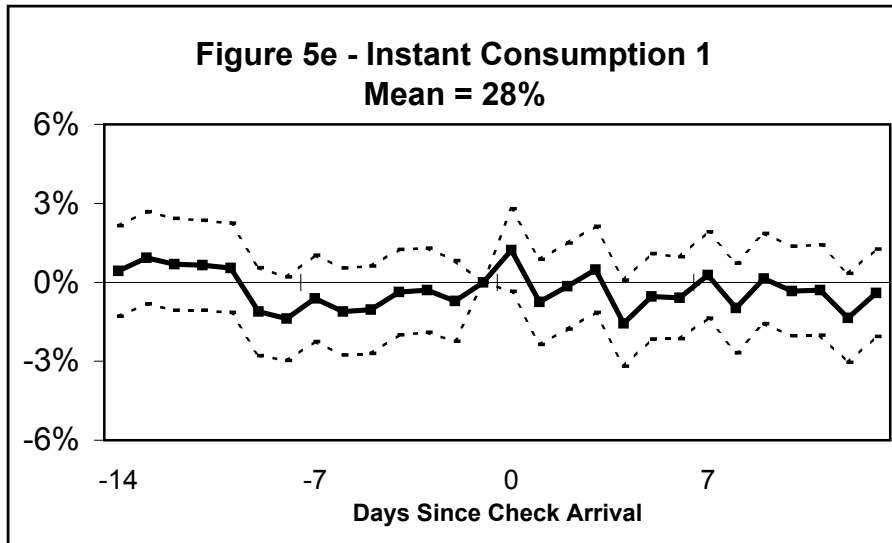
Figure 5 (con't) - Estimated Impact on the Probability of Making Any Expenditures
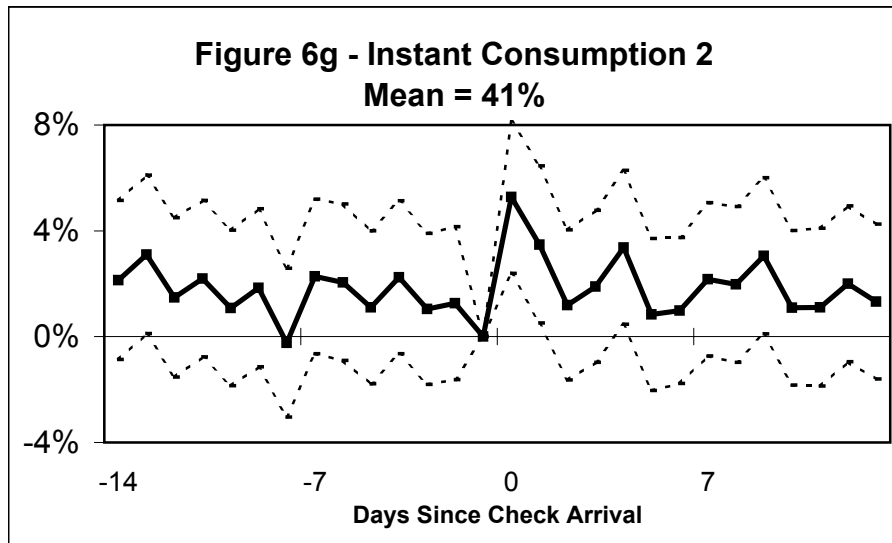All Consumer Units Receiving Social Security
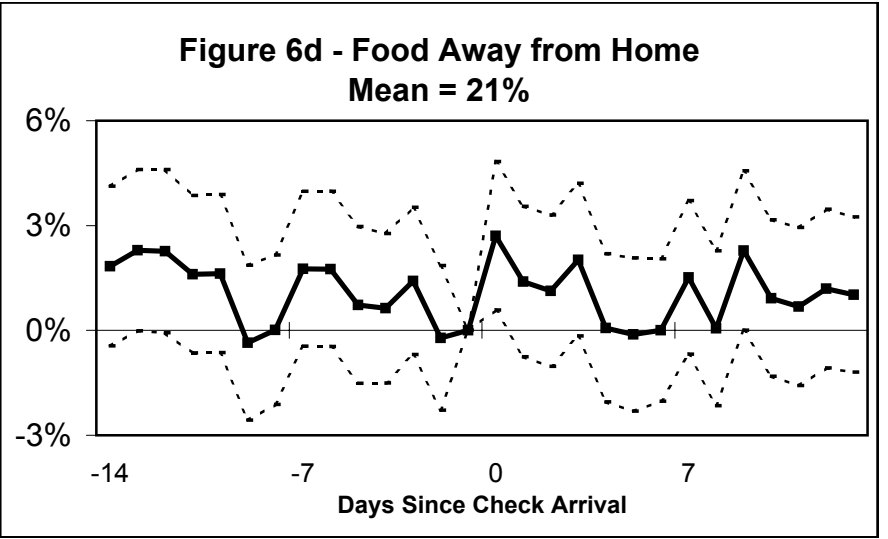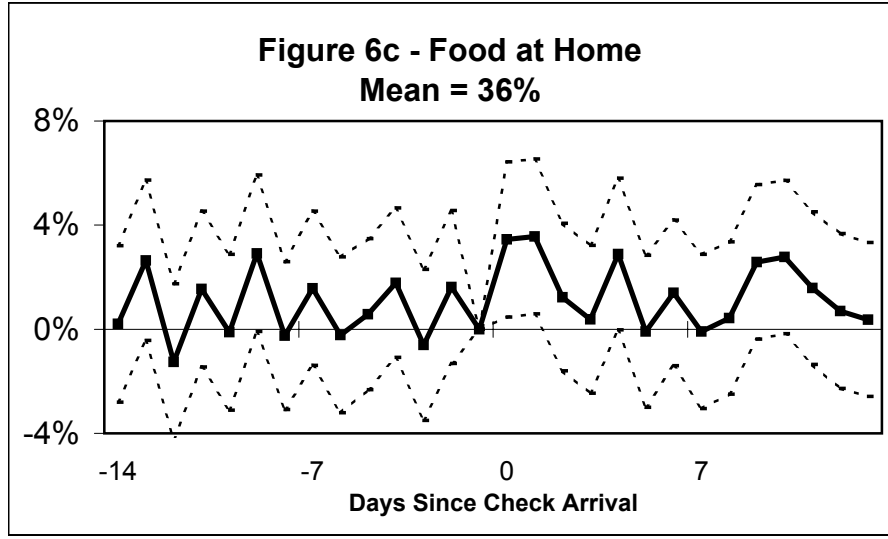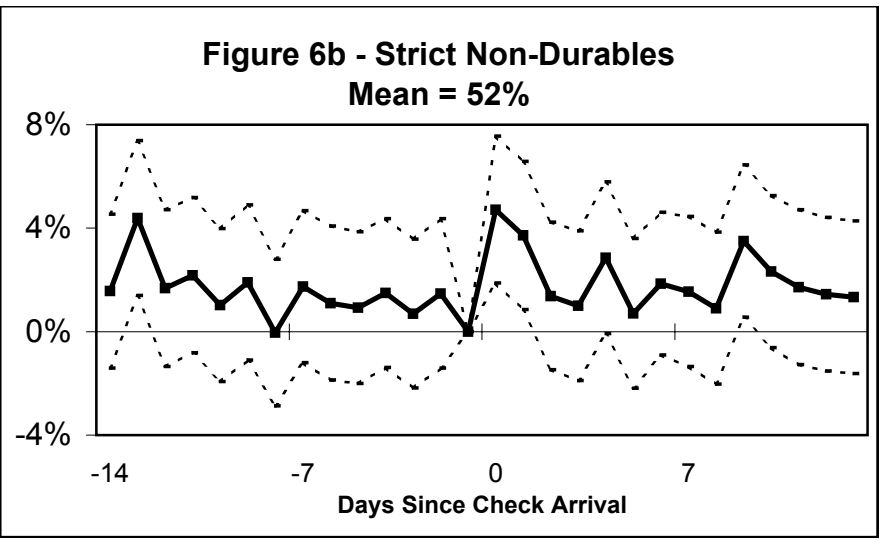
Figure 6 - Estimated Impact on the Probability of Making Any Expenditures
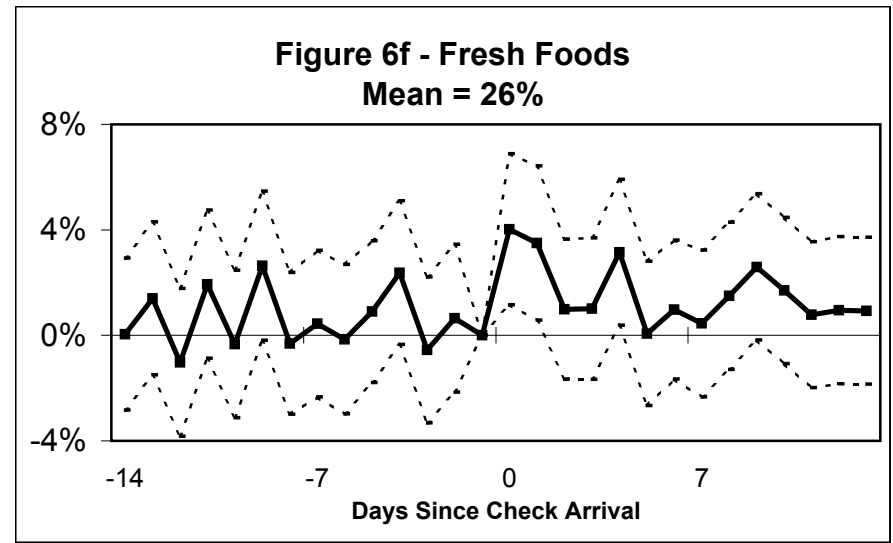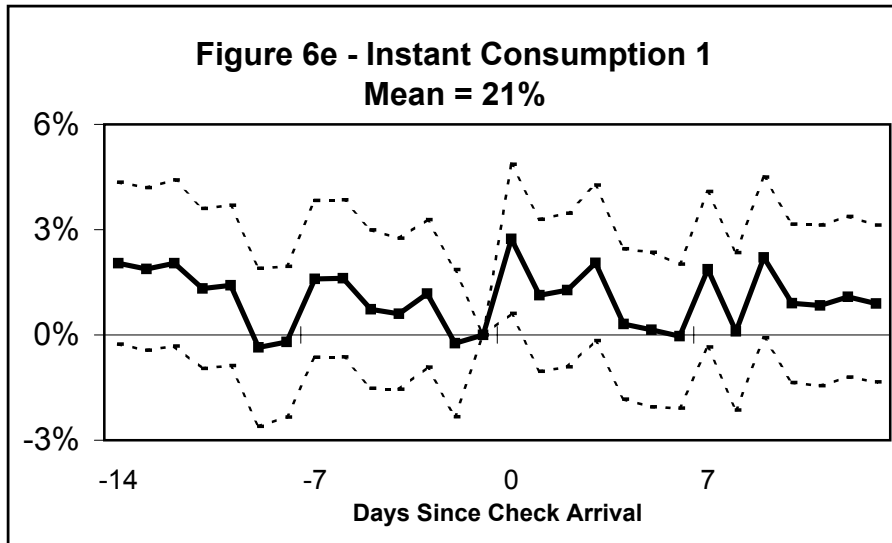Consumer Units With At Least 70% of Income from Social Security

Figure 6 (con't) - Estimated Impact on the Probability of Making Any Expenditures
Consumer Units With At Least 70% of Income from Social Security