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Keywords

Liquidity Constraints, Pawnbroking, Permanent Income Hypothesis, Stimulus, Fringe Banking

Disciplines

Business

Liquidity Shocks and the Demand for Pawn Loans

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<u>Abstract</u>

Utilizing the proprietary data of a company operating 10 pawnshops throughout Kentucky and Ohio, and exploiting the randomized variation of the Economic Stimulus Payments of 2008, this paper studies the effect of positive liquidity shocks on pawn loan utilization. We uncover a statistically significant 67% decrease in pawn loan utilization in the week following receipt of ESP checks. However, in the year following receipt of the ESP via check or direct deposit, a statistically significant increase of 20% and 138% respectively in pawn loan utilization occurs. A distributed lag regression model corroborates this effect— an initial decrease, but then dominating increase in pawn loan utilization following receipt of an ESP. This propensity of short term, transitory changes in income to drastically affect the borrowing patterns of households proves difficult to reconcile with Permanent Income/Life Cycle Hypothesis.

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1. Introduction

The project concerns itself with random sources of variation in the pawn industry that may present relevant findings for the field of behavioral economics. In particular, the project explores the impact of liquidity shocks on pawn loan demand. The project asks the following question: what impact do positive liquidity shocks (i.e. the Economic Stimulus act of 2008) have on the pawn loan utilization of pawn customers?

2. Background on Positive Liquidity Shocks

The project studies the effect of the Economic Stimulus Act of 2008 on the demand for pawn loans. In order to do this, the project exploits the randomized disbursement schedule of the policy. Specifically, according to the last two digits of individuals' social security numbers, the timing of the sending of Economic Stimulus Payments was determined. For instance, in the case of the 2008 Economic Stimulus Payments, the ESPs of the first SSN group (00-09) were sent via check on May 16, the second SSN group (10-18) on May 23, and the last (88-99) on July 11. Thanks to the data of the company studied including the SSNs of its customers, the project is able to explore and measure the effect of the timing of payments on the amount of pawn loan debt outstanding for each SSN group. Given that the last two digits of SSNs are randomly assigned, the only source of variation between these SSN groups would seem to be when these groups received their ESPs. Given the date of ESP receipt is known for each SSN two-digit pair (Figure 1), the project is able to compare the behavior of those individuals who received their ESP in a given week to those who did not. This allows the project to isolate and characterize the effect of a positive liquidity shock on pawn loan utilization.

Many of these pawn customers ostensibly received these tax rebates and stimulus payments. That is, households received either of these payments if they possessed qualifying income (including Social Security income) in the previous year. These payments were as little as $300-600 for single people and $600-$1200 for couples. Moreover, the stimulus payments awarded households $300 for each of their children. Given the per-child credit, payments for households ranged from $300 to over $3000 (Parker, Souleles, Johnson, and McClelland 2011). These payments are on the same order of the average loan size. Therefore, the project speculates, agnostic to direction and magnitude, that these liquidity injections must have some effect on pawn loan demand. Evidence of such an effect would be quite difficult to reconcile with the Permanent Income/Life Cycle Hypothesis and models of consumption smoothing.

2.1 Literature Review

The project studies the effect of the Economic Stimulus Act of 2008 on the demand for pawn loans. Most subsequent analysis has focused on the policies' aggregate consumption and savings ramifications (Shapiro and Slemrod 2009; Parker et al. 2011).The literature relevant to the project is comprised of that literature pertaining specifically to the 2008 Economic Stimulus Payments' effect on household consumption and that pertaining more generally to the industry of pawn lending. Never before has the effect of the 2008 ESPs on pawn lending been studied. This literature review seeks to explore the relevant union between the existing thought in these disconnected fields.

Economic Stimulus Act of 2008

Kaplan and Violante (2013) find that approximately 25 percent of fiscal stimulus payments, specifically the 2001 tax rebates, are spent on nondurable household consumption in the quarter that they are received. These households display large propensities to consume out of

additional and temporary changes to income, and small propensities to consume out of news about future income.

Broda and Parker (2008) found preliminary evidence that the 2008 Economic Stimulus Payments prompted households to perform an appreciable amount of extra spending. This extra spending was evidenced in a 3.5% greater expenditure toward food, mass-merchandise, and drug products. Broda and Parker were led to estimate that the demand for overall nondurable consumption in the second quarter of 2008 was boosted by 2.4% as a direct result of the ESPs. Moreover, they found it to be the case that low income and low asset households were much more responsive to the receipt of ESPs. Specifically, low income and low asset households increased their spending at nearly double the rate of the average household. Still yet, most people reported that the use of their ESPs was dedicated to purchase durable goods and personal services rather than groceries or apparel. All of these findings underscored the potency of ESPs as a way of stabilizing consumer spending.

Broda and Parker (2014) found that the week after receipt of the ESP a household's spending increased by an average of 10% which cumulates to a total of 1.5-3.8 percent of spending over three months. This spending was concentrated among households with low past income and low wealth. Moreover, they found no significant increase when households learned that they would be receiving an ESP. This is hard to reconcile with the PIH.

Shapiro and Slemrod (2012) challenged, or at the very least weakened, Broda and Parker's characterization of the ESPs. Using the University of Michigan Survey Research Center's Monthly Survey, they found that only one-fifth of survey respondents said the ESPs would lead them to increase spending. Rather, respondents held that the ESP would be mostly used to pay off debt. This implies that the marginal propensity to consume given receipt of the

ESPs was about one-third and, as a lag effect, there would not be a terrific increase in consumption. This said, there was a noticeable effect on the timing of GDP such that growth in the second quarter was stronger and growth in the third quarter was weaker than would have been expected absent the rebates. Though these ESPs may improve consumer wellbeing, it does not necessarily motivate them to spend. The authors speculate that during this time period, given a serious shock to wealth, most households were focused on rebuilding their personal balance sheets. Summarily speaking, Shapiro and Slemrod remind policymakers to understand that ESPs may not actually be spent and therefore may not be very stimulating.

Parker, Souleles, Johnson, and McClelland (2011) studied the effect of the 2008 ESPs using questions added to the Consumer Expenditure Survey and the randomized timing of ESP receipt given the last two-digits of recipients Social Security Numbers. They found that, on average, households spent 12-30% of their stimulus payments on nondurable expenditures within the three-month period during which those payments were received. Moreover, there was a substantial and significant increase in purchases of durable goods. Specifically, there existed a particularly large increase in the purchase of vehicles. Adding in purchases of durable goods, the average total spending response to ESP receipt totaled about 50-90% of payments. They find also that propensity to consume varies little with whether ESPs were received via check or direct deposit. About 40% were given their checks via direct deposit.

Sahm, Shapiro, and Slemrod (2012) found that the one-time payment in the form of an ESP has twice the effect in propensity to consume than does a decrease in the amount of withholding. About six months after receipt of the ESP 25% of households reported they mostly spent the money that was sent to them in the form of an ESP.

Powell (2014) shifted the focus from the effect on short-term consumer spending of tax rebates and ESPs to the effects on household labor supply. Exploiting the randomized timing of the 2008 stimulus payments and examining changes in household labor earnings as reported in the Survey of Income and Program Participation, paying particular attention to the disuniformity of effects across the income spectrum, the author found that ESP receipt has significant effects on labor supply. Specifically, households are more likely to decrease their supply of labor hours in those weeks following receipt of the ESP. These effects were even more pronounced for single women, married couples, and hourly workers. The evidence is strongest for those households that used the rebate to reduce their debt, suggesting that those individuals in those households are liquidity constrained and an important source of the overall effect.

Gross and Tobacman's "Dangerous Liquidity and the Demand for Health Care" sets the ground for this paper's exploration of the effect of the 2001 tax rebate and the 2008 stimulus payment. Rather than explore the effect these transfers have on pawn loan demand, Gross and Tobacman focused instead on their impact on hospitalization and health care utilization. Their project found that payments raised the probability of an adult emergency department visit over the following 23 weeks by an average of 1.1%. These findings prove rather difficult to reconcile with the PIH.

Pawnbroking

Pawnbroking is the world's oldest source of credit. Today, 7% of all U.S. households have used pawn credit (Carter, Skiba 2012). However, though pawn lending predates the Bible, and though it proves so pervasive in today's society, economists know very little about this form of banking and its customers. Historically, fringe banking as a whole has not been the beneficiary of much research done in this area. To illustrate, consider the case of John P.

Caskey's seminal 1996 book on the subject, <u>Fringe Banking</u>. When it was written, Caskey

described it as the first piece of economic research done on the topic of pawn shops in 30 years.

Since it was written, it, at least according to Google Scholar, has been cited 332 times. This said,

the lion's share of such citations belong to sociological and ethnographic studies seeking to

describe the financial lives of the urban poor. Those economists who have sought to seriously

consider the subject of pawnbroking and other fringe banking institutions could at most fill half

of a small classroom.

To define a term which many may only know through such televisions shows as

Hardcore Pawn and *Pawn Stars*, pawn loans are short term collateralized loans, rarely more than

a few hundred dollars, typically used by low-income consumers. If the borrower fails to repay

the principal or interest within a given period of time, the borrower forfeits the item to the store.

The store then resells the item. Pawn proves appealing to so many of the socioeconomically

disadvantaged because nearly anyone can borrow on a pawn loan. All that is required is the

collateral and a photo ID. The issue of consumption smoothing remains fairly untouched in the

limited literature of pawnshop lending. This is especially shocking in light of similar research on

similar non-traditional credit institutions collectively referred to as fringe banking. Such fringe

banking services include subprime mortgages, subprime auto loans, car title loans, payday loans,

and check cashing.

"Pawnshops, Behavioral Economics, and Self-Regulation" by Susan Carter and Paige

Skiba poses the fundamental question underlying most research into fringe banking: what model

of behavior best describes the borrowing patterns of fringe banking customers? Carter and Skiba,

in analyzing a data set proffered by a regional chain of pawn shops in Texas, found insufficient

data to conclude that any single model of behavior best describes the activities of fringe

borrowers. The explanations they concerned themselves with included hyperbolic discounting, bounded rationality, exponential discounting, and, uniquely to their article, sentimental value. None of these models fit particularly well.

All of this said, Carter and Skiba broke ground in being the first to add pawnshops to the discussion of hyperbolic discounting and intertemporal choice in markets. The greater body of economics seems to suggest that pawn loans present the lowest cost access to credit for creditless consumers (Zikmund-Fisher 1999) (Wilson 2010) (Washington 2006). However, the broader body of sociology and ethnography speaks more critically (Karger 2015) (Faber 2009). The research of Avery and Samolyk in their 2011 paper "Payday Loans versus Pawnshops" came to the conclusion that decreasing the limits on fees pawnbrokers can charge could pose a benefit to borrowers. Moreover, decreasing these fees would not necessarily render certain pawnshops unprofitable. Given the fact that there exists economies of scale at the store level, pawnbrokers can adjust the scale of operations and maintain certain profit margins.

2.2 <u>Significance</u>

The project studies the effect of the Economic Stimulus act of 2008 on the demand for pawn loans. The objective, therefore, is to assess the effect of liquidity on demand for credit. Evidence of such an effect would be quite difficult to reconcile with the Permanent Income Hypothesis and models of consumption smoothing.

This project seeks to advance the field of economics' knowledge of a desperately understudied form of finance that services tens of millions of American citizens. Specifically, the project looks to put to the test theories of the Permanent Income Hypothesis through analysis of

real-world data. Given this data is collected in the field and not in a laboratory, the findings of the project will hopefully prove more externally valid than those of previous studies.

3. The Effect of Stimulus Payments on Pawn Loan Utilization

3.1 Data

The source of the data is a chain of 10 pawn and jewelry stores located in the Midwest of the United States. The company has operated in this region for 28 years. The data collection, which is statutorily enforced by the states in which the company operates, has been consistent across the company's 28 years and is standardized across the 10 locations. However, the data, due to storage capacity difficulties encountered when storing data proved more expensive and cumbersome, only extends back a decade even for those locations which were extant much earlier.

The data is comprised of three categories of variables—payment, loan, and customer. Inventory variables pertain to descriptions of the item which were pawned. Payment variables pertain to the number and amount of principal and interest payments. Loan variables pertain to the specifications of the loan made, specifically its due date, its principal amount, and the interest payments due. The customer variable pertains to customer characteristics—name, SSN, address, date of birth, etc.

As explained before, the data structure is such that the data set is composed of three different files: payment, loan, and customer files. For the empirical question of interest to be studied, these three separate files had to be merged. However, when merging these files for the 10 stores, an error emerged such that not every loan had a valid customer file with which it could

be paired. The source of this error was found to be that stores three and six had improperly made room for extra storage by deleting the customer files of loan files which themselves were not deleted. For this reason, specifically that of data integrity, all observations arising from stores three and six were deleted. With this change made, the data merged flawlessly. For the 114 weeks the 10 SSN groups were studied, this deletion amounted to roughly 9% of all observations. The resulting data set demonstrated appreciable balance as indicated in Figures 2 and 3.

3.2 Analysis of the Effect of Stimulus Payments on Pawn Loan Utilization

The primary object of interest in this project is the random variation generated by the disbursement of federal payments in the form of the 2008 ESPs. The project speculates that these payments in some way influenced the demand for pawn loans of their recipients. Perhaps it is the case that the provision of liquidity in the form of these payments reduced pawn loan demand for those customers who received them. Alternatively, it may be the case that such liquidity prompted profligate spending and necessitated further demand for pawn loans at a later date. To terse out the nature of this effect—its magnitude as well as its direction—a difference-in-differences approach becomes necessary. Specifically, the effect of having received the ESPs for each group of SSNs, as indicated by the date which the check or direct deposit was sent, on the group's pawn loan demand must be explored. The period of time in question is the 52 weeks before and after the beginning and end of the administration of ESPs to households. This amounts to 114 weeks in total.

In order to do this, our model controls for two fixed effects, that of the week and that of each group. The former is especially important to control for insofar as total principal

outstanding at each location fluctuates regularly throughout the year, peaking in the summer and dwindling in the winter.

Summarily speaking, the log of total principal outstanding for each group and week are regressed on two indicator variables notating whether the check or direct deposit had been sent for that group. Two control variables, the fixed effects for each week and the fixed effects of each SSN group, are included. Given this is a regression of total principal outstanding, the coefficients of each variable would be percentage estimates of the effect on pawn loan demand. This method is described in the following specification.

$$NewLoans_{gt} = \sum_{i=1}^{n_{gt}} L_{igt}$$

$L_{igt} = dollar\ amount\ of\ loan\ i\ disbursed\ to\ someone\ in\ group\ g\ in\ week\ t$

$n_{gt} = Number\ of\ loans\ disbursed\ to\ people\ in\ group\ g\ in\ week\ t$

$NewLoans_{gt} = Dollar\ value\ of\ new\ loans\ disbursed\ to\ group\ g\ in\ week\ t$

$$Log(NewLoans_{gt}) = \beta_1 \cdot I(check)_{gt} + \beta_2 \cdot I(dd)_{gt} + \alpha_t + \gamma_g + \varepsilon_{gt}$$

$I(check)_{gt} = ESP\ received\ by\ check\ by\ group\ g\ in\ the\ past\ week\ t$

$I(dd)_{gt} = ESP\ received\ by\ dd\ by\ g\ in\ the\ past\ week\ t$

The interpretability of the coefficients of the above specification may be described as the average percentage change in dollars of the new loans generated by a particular group g in week t, given receipt of direct deposit or check in the past week. This specification describes the direction and magnitude of the amount of money borrowed by a pawn customer in the week following ESP receipt.

With this interpretation in mind, the results hold that the week after an ESP is received, the amount of new loan dollars decreases. Specifically, receipt of an ESP check is associated with a 67% decrease in the amount of money borrowed. However, receipt of direct deposit demonstrated no significant effect on the amount of borrowing in the week after receipt of the ESP.

Furthermore, the terms of the above regression can be change such that the following is true:

$$I(check)_{gt} = \; ESP \; received \; by \; check \; by \; group \; g \; by \; week \; t$$
$$I(dd)_{gt} = ESP \; received \; by \; dd \; by \; g \; by \; week \; t$$

This modification makes it such that coefficients of check and dd no longer describe the effect for the week following receipt of the ESP but rather for all of the remaining weeks following receipt of the ESP.

This change to the specification yields surprising results. Rather than exhibit a similar decrease in pawn loan utilization as reflected in the subsequent week, the regression shows a 19% increase in dollars borrowed given receipt of a check and 138% increase given receipt of direct deposit (Figure 5). This is to say that the receipt of the ESP causes a decrease in pawn loan utilization for at least the first week, but, in the aggregate, actually increases pawn loan utilization. The timing of this initial decrease then increase in pawn loan utilization is explored with the distributed time lag regression in 3.4.

3.3 Analysis of the Effect of Stimulus Payments on Lagged Pawn Loan Utilization

To better understand the timing of the effect of the submission of payment, total principal outstanding is regressed on a series of variables that denote with respect to each week the change in total principal outstanding. Utilizing this methodology, the lag of any effect of payment submission kicking-in could be observed. When this effect becomes significant, its direction and magnitude is evidenced with the following specification. The coefficients of the lagged weeks reflect point estimates of the effect of having received an ESP that many lagged weeks before or after.

$$Log(NewLoans_{gt}) = \sum_{i=-k}^{k} \beta_k Check_{g,t-k+} \; \alpha_t + \gamma_g + \varepsilon_{gt}$$

$$Check_{g,t-k} = I(g \; got \; check \; t - k \; weeks \; ago)$$

When the above distributed lag regression is performed, while omitting those weeks one and two weeks before receipt of the ESP, and studying all of those weeks between three weeks before and ten weeks after the receipt of the ESP, a pattern consistent with the one in section 3.3 is observed. Specifically, the receipt of an ESP is associated with an initial decrease in pawn loan utilization. It even appears that this decrease in pawn loan utilization actually precedes receipt of the ESP. That is to say that the mere expectation of ESP receipt leads would be pawn customers to avoid, or at the very least, delay their borrowing. However, this initial decrease in borrowing is not significant within the distributed time lag regression itself (Figure 6).

That effect which proves to be statistically significant is the increase in pawn loan utilization which occurs in weeks three and four. Having received the ESP three or four weeks before amounts to an increase in pawn loan utilization of roughly 32%. Though the positive

magnitude of the effect of ESP receipt on pawn loan utilization persists through the rest of the time period, its statistical significance does not.

To summarize, the distributed lag regression demonstrates an effect consistent with that of 3.3. That is to say that the receipt of the ESP brings with it a small initial decrease in pawn loan utilization which is then dominated by a much more severe and significant increase in pawn loan utilization.

It may also be the case that changes in pawn loan demand due to federal payment submission vary according to certain observable characteristics of the borrowers. Most literature pertaining to the effect of ESPs on households pays particular mind to the heterogeneity of household characteristics in explaining their responses to ESP receipt. Such characteristics could potentially be whether or not the customer is new, the customers' history of redemption, gender, age, etc. Utilizing the full scope of the data set, the influence of these characteristics on pawn loan demand given the increased liquidity provided by the federal payments, could be explored. A difference in differences approach, similar to the one above, using any one of these characteristics as an indicator variable, could be suitably employed. Doing so will provide the project with a more detailed and comprehensive grasp of the effect of ESPs on pawn customers.

4. Discussion

This behavior of pawn customers to initially decrease then drastically increase pawn loan utilization after receipt of the 2008 ESPs is very difficult to reconcile with the Permanent Income/Life Cycle Hypothesis. The effect illustrated here demonstrates, in a manner consistent with other literature pertaining to the 2008 ESPs, the capacity of transitory changes in short-term income to change consumption and borrowing patterns.

However, to explain why it is the case that pawn customers counterintuitively initially decrease then increase pawn loan utilization requires speculation.

The existing literature demonstrates that a majority of ESPs were spent on the purchase of durable goods (Kaplan and Violante 2013). Moreover, ESPs increased household consumption in the short run. Some even suggest that the receipt of the ESPs motivated some households composed of women, families, and hourly workers, to reduce their labor supply. These notions in mind, the following narrative for the effect of ESP receipt on pawn loan utilization demonstrated in this paper may be suggested (Powell 2014; Broda and Parker 2014).

Pawn customers are liquidity-constrained. The receipt of the ESP engenders liquidity and reduces the need of the customer to borrow to make ends meet. Effectively, the customer's short-run pawn loan utilization is diminished. The customer who receives this ESP spends much of it on durable goods, and increases his or her rate of consumption. This customer may even be motivated to work less and decrease their income. With a pattern of increased consumption and diminished income established, the customer soon finds his or herself in financial trouble and once more faces the need to utilize the emergency credit offered by the pawn lender. The customer's ability to do this is bolstered by his or her newfound possession of new durable goods that command a higher principal amount when borrowed against. Effectively, the customer's pawn loan utilization is increased in the year following ESP receipt.

The veracity of this narrative may be tested through exploration of customer heterogeneity. An association with above-average response to ESP receipt of women or hourly workers in the data set, or a change in the composition of pawned items would bolster the validity of this speculative explanation.

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Figure 1:

Dates of Payments			
SSN #	Check sent	Deposit sen	g
00-09	16-May	2-May	1
10-18	23-May	2-May	2
19-20	30-May	2-May	3
21-25	30-May	9-May	4
26-38	6-Jun	9-May	5
39-51	13-Jun	9-May	6
52-63	20-Jun	9-May	7
64-75	27-Jun	9-May	8
76-87	4-Jul	16-May	9
88-99	11-Jul	16-May	10

Figure 2:

Summary Statistics										
	g1	g2	g3	g4	g5	g6	g7	g8	g9	g10
Loan Amount ($)	79.30	82.79	77.00	76.41	87.31	89.39	88.63	88.80	92.28	85.24
	(136.85)	(125.99)	(100.22)	(93.44)	(171.91)	(163.59)	(158.05)	(207.99)	(258.75)	(155.97)
Interest Payment ($)	15.85	16.55	15.40	15.28	17.46	17.88	17.72	17.76	18.04	17.04
	(27.37)	(25.20)	(20.04)	(18.69)	(34.40)	(32.73)	(31.61)	(41.61)	(48.16)	(31.20)
Active Pawns	0.19	0.16	0.29	0.14	0.24	0.16	0.25	0.26	0.21	0.21
	(0.70)	(0.60)	(0.74)	(0.50)	(0.92)	(0.63)	(0.70)	(0.91)	(0.80)	(0.80)
Total Number of Pawns	33.69	40.69	35.70	33.97	43.25	35.88	79.92	42.28	45.37	39.33
	(41.48)	(58.04)	(45.98)	(49.30)	(81.59)	(53.06)	(170.45)	(68.58)	(73.40)	(55.41)
Total Pawn Amount ($)	2113.10	2634.52	2079.30	2039.90	2457.26	2505.19	3394.40	2380.26	2649.34	2493.77
	(2930.7)	(3775.1)	(2853.3)	(3116.6)	(3618.3)	(3875.8)	(5300.1)	(3332.9)	(3961.8)	(3526.1)
Redeemed Pawns	25.33	30.78	26.86	24.93	34.30	27.23	67.88	33.71	34.85	30.71
	(34.24)	(47.11)	(35.88)	(35.81)	(69.78)	(44.35)	(156.14)	(60.01)	(61.16)	(46.36)
Forfeited Pawns	8.11	9.70	8.54	8.84	8.62	8.39	12.65	8.30	10.21	8.37
	(161.11)	(135.66)	(68.14)	(74.11)	(195.96)	(971.42)	(143.13)	(95.02)	(142.00)	(161.09)
Average Pawn Amount ($)	79.66	80.30	78.53	78.29	87.29	92.65	88.03	86.71	88.89	84.05
	(124.62)	(94.14)	(81.59)	(89.30)	(129.98)	(199.75)	(140.23)	(206.01)	(205.06)	(129.07)
Average Pawn Term	53.19	55.65	53.42	54.23	51.27	52.65	47.75	51.13	47.90	51.56
	(67.94)	(67.76)	(72.00)	(75.77)	(71.31)	(72.40)	(68.14)	(66.40)	(58.43)	(67.01)
Redemption Ratio	62.98	62.53	61.31	60.76	60.72	61.03	64.20	62.53	61.56	63.29
	(30.94)	(30.09)	(32.41)	(31.00)	(32.74)	(31.66)	(30.60)	(31.00)	(30.98)	(31.29)
N	5602	5020	970	2779	6749	6834	6954	6371	6880	6447
SSN Digits	10	9	2	5	13	13	12	12	12	12
N/SSN Digits	560.2	557.78	485	555.8	519.15	525.69	579.5	530.92	573.33	537.25

Figure 3:

Output of g regressed on Log New Loans ($).

	Coefficient	Std. Err.	p-value
g1	N/A	N/A	N/A
g2	0.0087556	0.033654	0.795
g3	-0.047853	0.033727	0.156
g4	-0.023157	0.033654	0.492
g5	0.040072	0.033654	0.234
g6	0.0479421	0.033654	0.155
g7	0.0270895	0.033654	0.421
g8	0.0322293	0.033654	0.338
g9	0.0113653	0.033654	0.736
g10	0.0314158	0.033654	0.351

Figure 3.1:

Regressions Specifications for balance

$$E\left[NEWLOANS_{g,t}\middle|check_{g,t}=1\right] = E\left[NEWLOANS_{g,t}\middle|check_{g,t}=0\right]$$

$$= E\left[NEWLOANS_{g,t}\middle|check_{g,t}=1\right] - E\left[NEWLOANS_{g,t}\middle|check_{g,t}=0\right]$$

$$= E\left[NEWLOANS_{g,t}+k\middle|check_{g,t}=1\right] - E\left[NEWLOANS_{g,t}\middle|check_{g,t}=0\right]$$

$$= k + E\left[NEWLOANS_{g,t}\middle|check_{g,t}=1\right] - E\left[NEWLOANS_{g,t}\middle|check_{g,t}=0\right]$$

$$= k$$

Figure 4:

Regression panel of the week after effects of receipt of the ESP.

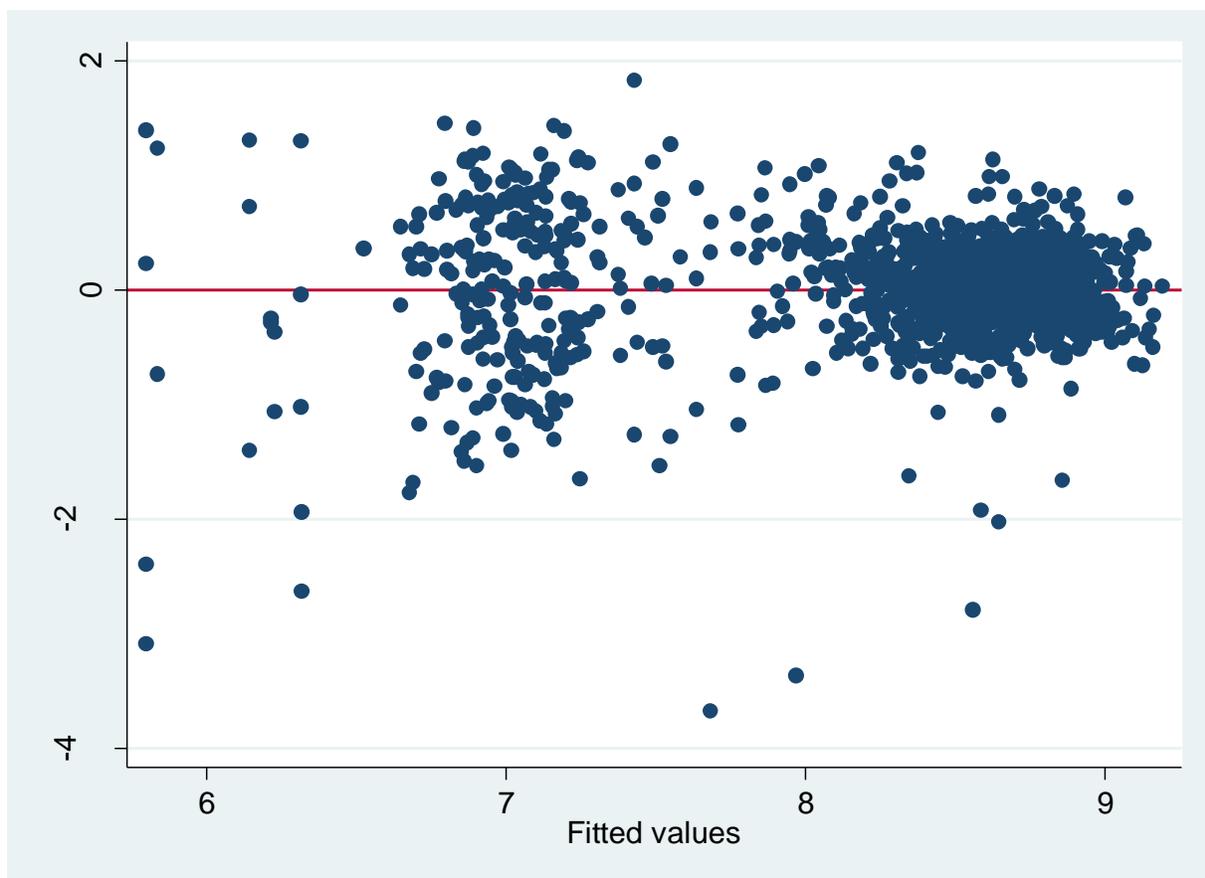|	Coefficient	Std. Err.	P-Value
I(check)	-0.671332	0.122585	.000
I(direct deposit)	0.0148652	0.133927	.702

Figure 5:

Regression panel of all remaining weeks following receipt of the ESP

	Coefficient	Std. Err.	P-Value
I(check)	0.1938898	0.069316	.005
I(direct deposit)	1.385456	0.159253	.000

Figure 6:

Distributed Lag Regression

Dependent Variable: Logarithm of New Loan Dollars
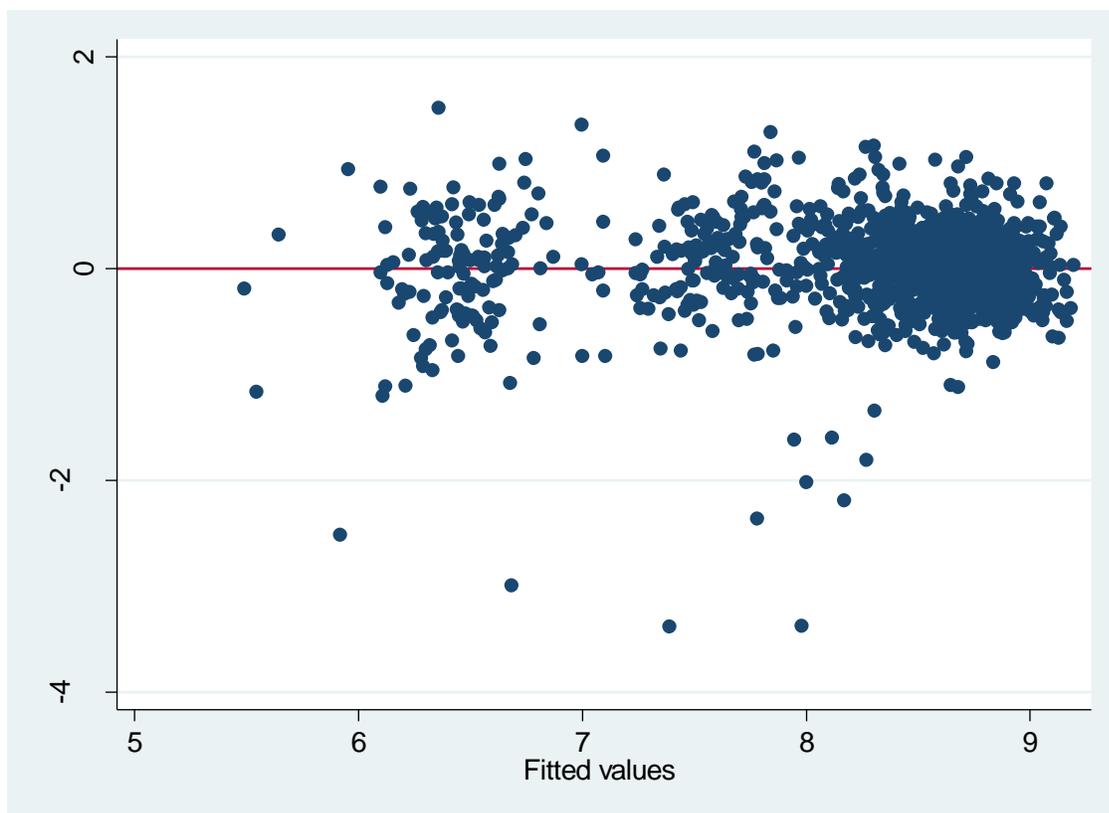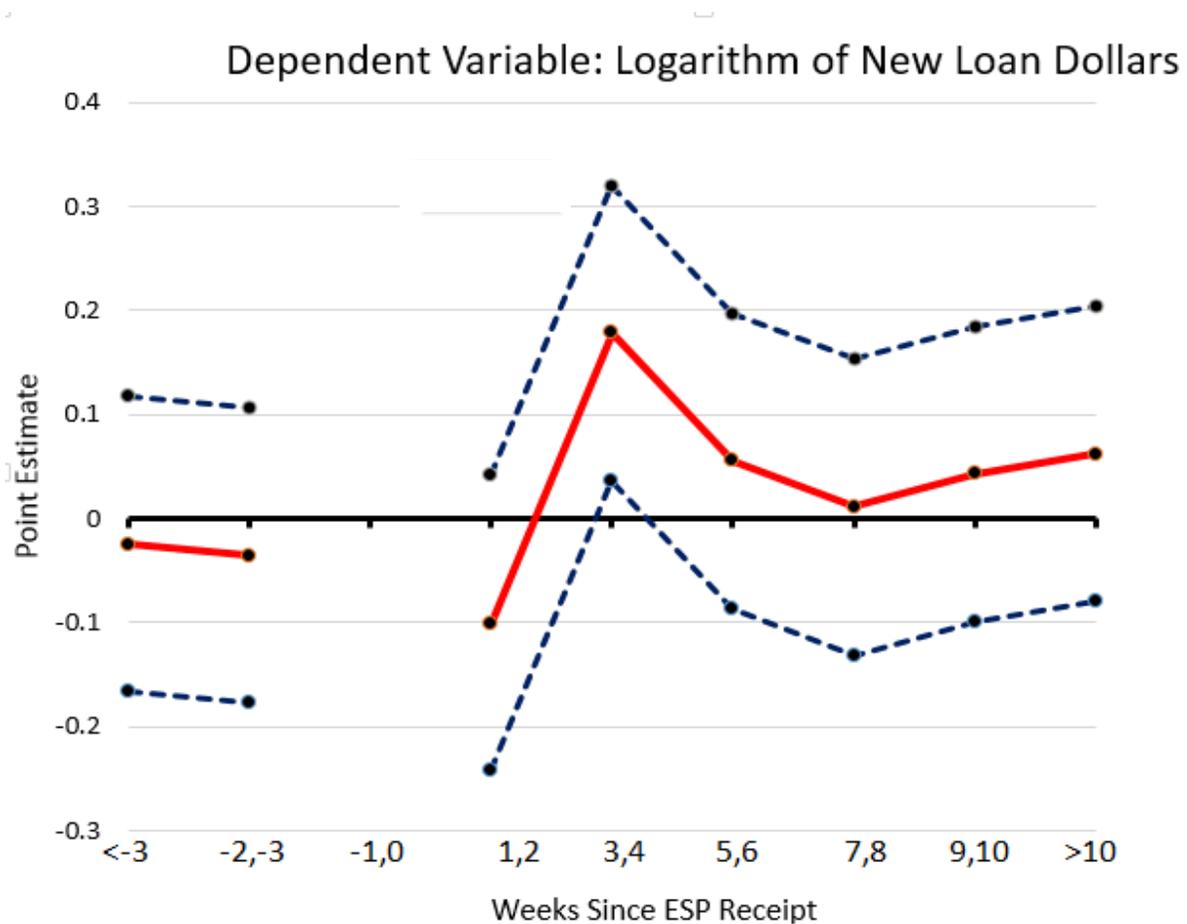
Note: Each figure plots the point estimates from a regression of pawn loan utilization in dollars described in 3.4. Dotted lines plot 95% confidence intervals. These intervals are robust to any autocorrelation that may arise due to observations coming from the same SSN group.

As described in 3.4, this distributed lag regression controls for any week and group fixed effects including an indicator for receipt of direct deposit. The omitted time period includes the weeks zero and one weeks before the receipt of the ESP.