Self-Control and Early Withdrawal from Retirement Accounts*

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Abstract

Using a survey-elicited measure of psychological self–control and a policy change in Australia during COVID–19, we find that self–control issues significantly predict early withdrawals from retirement accounts. Individuals in the top quintile of self–control issues are 60% more likely to withdraw than those in the bottom quintile. Self–control is a stronger predictor of early withdrawal than other behavioral factors such as financial literacy, planning horizons, or personality traits. The effects are economically meaningful: eliminating self–control issues could have reduced early withdrawals by 23% — almost as large as the effect of adverse income shocks on withdrawals during COVID–19.

1 Introduction

Do people with self-control problems disproportionately withdraw from retirement accounts when given the opportunity to do so? This question speaks directly to one of the fundamental rationales for pension systems with restricted early access: the presumption that some individuals are myopic and lack the self-control to adequately save for retirement on their own (Diamond, 1977; Feldstein, 1985; Laibson et al., 1998). Despite this theoretical foundation, there is little empirical evidence on whether behavioral factors actually drive retirement account 'leakage' when restrictions are relaxed.

We answer this question by exploiting a unique combination of survey data on psychological traits and a major policy experiment in Australia that suddenly made retirement accounts liquid during the COVID-19 pandemic. We find that self-control issues significantly predict early withdrawals, even after controlling for adverse financial shocks, various forms of wealth, and demographic characteristics. Quantitatively, self-control issues are at least as important as income shocks in explaining aggregate withdrawal patterns, supporting an important rationale for restricted-access retirement systems.

Many countries have established individual retirement accounts as part of their retirement savings systems. These tax-preferred saving accounts are generally designed to be partially or fully illiquid for working-age individuals, although there is substantial heterogeneity in the degree of illiquidity across countries (Beshears et al., 2015). These accounts often play a crucial role in ensuring retirement adequacy; indeed, past research shows that many individuals reach retirement age with virtually no financial assets outside of formal retirement arrangements (Poterba, 2014).

While these accounts are mostly illiquid for working age individuals, an increasing number of countries have experimented with relaxing the illiquidity of these accounts during periods of economic distress.[1] These policy experiments are an example of stimulus-by-regulation that we term 'household liquidity policy' in Schneider and Moran (2024), and they have attracted substantial controversy. Proponents argue that such policies can help households weather adverse shocks, while also stimulating the economy without burdening government budgets. But critics counter that they risk undermining retirement policy by enabling precisely the behavior that the accounts were designed to prevent—impulsive spending by people with self-control issues.

In this paper we assess how well-founded the fears of these critics are by exploring the extent to which early withdrawals are related to self-control issues. Our empirical analysis centers on Australia's early release program, which allowed most working-age people to

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[1]While there were a few early examples (see e.g. Kreiner et al., 2019), such policies have exploded in popularity during recent years, with over 30 countries altering retirement rules to provide greater flexibility during the pandemic (OECD, 2021).

withdraw up to $20,000 AUD from their retirement accounts. To evaluate the predictors of early withdrawal, we exploit data from the Household Income and Labour Dynamics in Australia (HILDA) survey, which uniquely combines a pre-pandemic measure of self-control with data on withdrawal decisions, and comprehensive measures of situational factors including income shocks, wealth, and demographics. Our measure of self-control comes from the 13-question Brief Self-Control Scale (BSCS), a well-established measure in the psychology literature that was included in the 2019 survey, predating the pandemic.[2] This timing provides a clean measure of self-control that is not contaminated by the withdrawal decision itself, nor pandemic-related stressors.

Among working age Australians, we find that one in seven (roughly 14%) took advantage of the opportunity to withdraw from their retirement account during COVID-19. We find that those who withdrew were on average younger and had lower income, fewer liquid resources, and more children, consistent with past studies (Hamilton et al., 2023; Bateman et al., 2023). Building on the existing literature, we provide the first direct evaluation of the role of self-control issues. In the raw data, we see that individuals in the top quintile of self-control issues are about 60 percent more likely to withdraw from their retirement account than those in the bottom quintile.

Recognizing that self-control issues are likely related to other factors that could drive demand for liquidity, we investigate the marginal importance of self-control by estimating a series of regressions in which we include a growing set of situational and behavioral characteristics. We find that self-control issues are significantly and meaningfully correlated with early withdrawal when controlling for demographics, income, wealth, adverse shocks, and other behavioral traits. High self-control issues are associated with an 8.6 percentage point higher probability of early withdrawal, similar to the marginal effect of having more than three children (associated with an increase of 8.5 percentage points).

We compare the predictive power of self-control issues with other behavioral characteristics. We find that short planning horizons and low financial literacy are also associated with early withdrawal, but their explanatory power is weak once we control for other factors. For instance, low financial literacy is associated with a 2.8 percentage point increase in the probability of early withdrawal, substantially less than self-control issues.

We next evaluate the importance of self-control issues compared to situational factors, such as adverse financial shocks, which have previously been shown to be important determinants of withdrawal (Andersen et al., 2024; Coyne et al., 2022). We find that unemployed individuals are 5.8 percentage points more likely to withdraw, on average, while those experiencing a pandemic-related negative income shock are 19.0 percentage points more likely to do so. These marginal effects are substantially larger than those

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[2]Developed by Tangney et al. (2004), this measure has become popular in the psychological literature, and has been increasingly used in economic studies (e.g. Cobb-Clark et al., 2022).

associated with self-control issues. Overall, while adverse shocks are less common than self-control issues, their impact on behavior at the individual level is more pronounced, underscoring the important role of circumstances in driving short-term liquidity needs.

How do these individual-level factors contribute to the aggregate share of early withdrawals? We find that self-control issues account for a similar share of aggregate withdrawals as adverse income shocks. More specifically, we perform a back-of-the-envelope calculation to quantify the total share of withdrawals that can be directly attributed to our main variables of interest, holding all other covariates fixed. While adverse income shocks are a stronger predictor of withdrawal at the individual level, they are also much less common than self-control issues at the societal level. As a result, eliminating either adverse income shocks or self-control issues would reduce the aggregate share of early withdrawal by about a quarter in both cases.

While our analysis relies on correlational evidence rather than causal identification, it provides the first direct empirical evidence linking psychological self-control measures to early withdrawal from retirement accounts. Our findings suggest that behavioral factors—particularly self-control issues—are at least as important as adverse financial shocks in explaining aggregate early withdrawal patterns. These results support a key theoretical rationale for restricted-access retirement systems and contribute to ongoing research about the optimal design of retirement accounts (Beshears et al., 2025, Choukhmane and Palmer, 2024, and Andersen et al., 2024), especially regarding flexibility during economic crises (Hamilton et al., 2023; Schneider and Moran, 2024). We hope that future research can build on these insights to further explore causal mechanisms and potential policy interventions that balance short-term liquidity needs with long-term retirement security.

Related literature. Understanding demand for liquidity and the determinants of early withdrawal is important for a variety of reasons. First, given the growing prevalence of defined contribution retirement accounts, there's widespread concern about leakage from these accounts and the potential consequences for retirement adequacy. Goodman et al. (2021) find that for every dollar put into the US retirement system, 22 cents come out as early withdrawals. Choukhmane et al. (2023) show that early withdrawals are common, especially among low-income and minority savers, with almost one-quarter of Black savers making an early withdrawal each year. And Goda et al. (2022) show that penalized withdrawals are more common among the unemployed. Second, there's growing interest in using retirement accounts to stimulate the economy. Indeed, at least 30 countries allowed early withdrawals or delayed contributions during COVID-19 as a way to support distressed households (Madeira, 2024; OECD, 2021). Third, recent research shows that such policies have a substantial impact on household spending, and raise concerns about the role of behavioral bias (e.g. Bateman et al., 2023; Bosch et al., 2020; Hamilton et al., 2023; Kreiner et al., 2019; Preston, 2022).

Our empirical analysis contributes to a growing literature on demand for liquidity in retirement systems by bridging two distinct explanatory perspectives: the *situational view* and the *behavioral view*. The *situational view* attributes early withdrawals to adverse life events and rational responses to economic shocks. Consistent with this view, a growing empirical literature documents that early withdrawals are more likely following job loss, divorce, or income shocks (Amromin and Smith, 2003; Andersen et al., 2024; Goda et al., 2022; Goodman et al., 2021). This perspective aligns with canonical models of buffer-stock saving, where liquidity demand arises endogenously from income risk and consumption smoothing motives (e.g., Kaplan and Violante, 2014, 2022).

In contrast, the *behavioral view* suggests that some withdrawals may reflect self-control problems, financial illiteracy, or other deviations from full rationality. This strand builds on foundational models of present-bias in consumption-saving behavior (Strotz, 1955, Phelps and Pollak, 1968, Laibson, 1997, Gul and Pesendorfer, 2004), which have recently been extended to explain hand-to-mouth behavior and large marginal propensities to consume out of transitory shocks (Attanasio et al., 2024; Maxted et al., 2024). A growing empirical literature supports this view by linking behavioral biases to suboptimal financial outcomes. Lower wealth, for instance, is associated with various measures of behavioural bias.[3] And a small but growing body of work also documents consumption decisions that can't be explained within rational benchmark models, but can be rationalised theoretically with models of biased decision making.[4]

Despite these advances, there is little evidence on whether behavioral biases predict demand for liquidity, nor the relative importance of behavioral vs situational factors in driving such behavior. In this paper, we bring together these two literatures, first by providing novel evidence on the role of behavioral bias in explaining demand for liquidity, and second by evaluating the relative importance of these two contrasting views.

Our work builds directly on three recent studies. First, Hamilton et al. (2023) analyze Australia's Early Release of Super program using high-frequency spending data and an event study design. They estimate a high marginal propensity to consume (MPC) out of withdrawals and interpret this response as evidence of behavioral biases, given that it is larger than predicted by traditional models. Our analysis complements theirs by directly measuring individual self-control using a validated psychological scale and linking it to withdrawal behavior. Second, Parker (2017) takes a related approach to study a different topic: heterogeneity in MPCs out of stimulus payments. He finds little evidence that

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[3]For example, a reduced propensity to plan (Ameriks et al., 2003), lower numeracy and cognitive ability (Banks et al., 2010), greater present–bias (Goda et al., 2019), greater time–discounting (Epper et al., 2020; Goda et al., 2019; Stango and Zinman, 2023), and various others (Stango and Zinman, 2023).

[4]For example, Hamilton et al. (2023) interpret patterns of spending after early withdrawal as evidence of present-bias. For evidence in other contexts, see Ganong and Noel (2019); Gelman (2022); Gerard and Naritomi (2021); Laibson et al. (2024) or Kovacs et al. (2021).

a single-question measure of self-control (namely, regret about past purchases) explains MPC heterogeneity and concludes that situational factors play a more central role. Our results suggest that both behavioral and situational factors contribute to liquidity demand. The contrast may reflect differences in measurement: our self-control measure captures broader and more granular variation in behavioral bias, and thus may be better suited to detecting these effects. And third, Goda et al. (2019) show that a survey-based measure of present bias is associated with lower retirement wealth, consistent with the idea that present-bias influences long-run wealth accumulation. We build on this insight by examining whether such biases also help explain short-run withdrawal behavior, which may naturally contribute to reduced wealth accumulation over time.

In the following, Section 2 describes the institutional setting of Australia's Superannuation system and the COVID-19 Early Release program. Section 3 discusses the data, including how we construct the measure of self-control. Section 4 demonstrates that self-control is indeed an important predictor of early withdrawal, similar in aggregate importance to situational factors like income loss. Section 5 concludes.

2 Setting

During the COVID–19 pandemic, many countries implemented policies allowing individuals to access their retirement savings to provide financial relief during the economic crisis. In the United States, the CARES Act permitted individuals to withdraw up to $100,000 from their retirement accounts without the usual penalties. Similarly, Canada allowed withdrawals from the Registered Retirement Savings Plan (RRSP), Australia allowed individuals to withdraw up to $20,000 AUD from superannuation funds, and Chile permitted withdrawals from their mandatory individual retirement accounts up to 10% of accumulated savings. Overall, at least 30 countries implemented policies that allowed for early withdrawal or delayed contributions to retirement accounts during the pandemic (Madeira, 2024; OECD, 2021). Each of these events presents an opportunity to examine how people react to the new–found liquidity, and to identify how much the retirement system had been constraining people with self–control.

In this paper, we focus on the Australian experience because of the unique opportunity presented by high quality data measuring both self-control issues *and* early withdrawals. No such data exists, to the best of our knowledge, for any of the other countries that have used these policies recently. Furthermore, Australia's early withdrawal policy was one of the larger programs of this kind, and has already attracted considerable attention in the recent literature. As well as exploring how important self-control issues are for driving retirement saving behavior, we can also compare their importance for engagement in this particular policy, relative to other better studied factors like job-loss.

Australia's Superannuation system Australia's system of mandatory retirement savings, known as superannuation, began in 1992 with the introduction of the Superannuation Guarantee (SG) scheme. Initially, the SG required employers to contribute 3% of employees' earnings into a superannuation fund. This rate increased incrementally over the years: to 6% by 1999, 9% by 2002, and 9.25% by 2013, with plans to eventually reach 12% by 2025. Superannuation accounts receive substantial tax benefits and are almost entirely illiquid before 'preservation age' (60 for most current workers), with only a few exceptions (e.g., financial hardship, compassionate grounds, and terminal illness). Australia's approach is similar to numerous other countries with mandatory defined-contribution (DC) systems (Beshears et al., 2015; OECD, 2023).

Australia's Early Release of Super program. In 2020, Australia introduced a policy allowing individuals to access up to $10,000 AUD from their individual retirement accounts by July 1, 2020, and an additional $10,000 AUD by December 31, 2020. The policy was widely publicized and saw significant uptake, with millions of Australians withdrawing funds. Most individuals who withdrew decided to withdraw the maximum of $20,000 AUD (Hamilton et al., 2023). Despite its popularity, the policy was controversial. Critics argued that it could undermine retirement security, while supporters saw it as a necessary measure for immediate financial relief.

Applications for early withdrawal from superannuation accounts were made online and required minimal supporting documentation (Bateman et al., 2023). While eligibility was supposed to be limited to individuals who had been financially affected by the pandemic, the conditions were relatively broad and covered more than 70% of the working age population (Hamilton et al., 2023).[5] Further, eligibility was entirely self–reported with no independent governmental verification.

3 Data

We use data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, a long-running longitudinal study that collects annual data on employment, income, and wealth from a large sample of Australian households. Initiated in 2001, HILDA follows a panel structure similar to the U.S. Panel Study of Income Dynamics (PSID), but with a substantially larger sample size: roughly 17,000 individuals across more than 8,000 households in the most recent wave. The survey collects detailed data on demographics, family structure, employment, income, and wealth. Further, HILDA is relatively unique among nationally representative longitudinal surveys in its occasional collection of de-

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[5]Residents needed to meet one of three criteria: (1) unemployment, (2) eligibility for a range of other government benefits, or (3) had been made redundant, working hours reduced by more than 20% or, if a sole trader, business suspended or revenue reduced by more than 20%.

tailed psychological traits, used by a variety of past studies (see e.g. Todd and Zhang, 2020). We use data from waves 18 to 21, collected between 2018 and 2021. The Brief Self–control Survey was conducted in HILDA's wave 19, between July 2019 and February 2020.

Sample selection.   We restrict attention to individuals between the ages of 21 and 58 in 2020. The upper limit is motivated by the fact that 58 is the 'preservation age' at which superannuation accounts became partially liquid regardless of retirement status.[6] We further restrict the sample to individuals who were interviewed in all four survey waves between 2018 and 2021, given our desire to measure wealth (recorded every 4 years, last measured before the pandemic in 2018), personality traits (measured in 2019), and early withdrawals (measured in 2020 and 2021). Among this group, we further restrict our sample to individuals who responded to the 2019 self-completion questionnaire (SCQ), which measures personality traits and a host of other factors, and who did not miss 3 or more questions on the Brief Self–Control Survey.[7] Together, these restrictions leave us with a sample of 7,214 individuals, with observations spanning the 2018-21 waves of the survey.

Throughout our analysis, we focus on individual level data, as superannuation accounts are individually owned and controlled, and the decision to withdraw during COVID–19 was an individual decision. Almost all of our variables of interest are measured at the individual level, including self–control, and the other psychological variables with the exception of wealth, which is measured at the household level.

Early Withdrawal.   HILDA respondents were asked "Did you withdraw superannuation under the COVID-19 scheme for early release of super" and, if yes, what amount was withdrawn. In our data, 13.8 percent of working-age individuals withdrew early, matching estimates from other papers (Bateman et al., 2023; Hamilton et al., 2023) and official statistics. Previous research has shown that the vast majority of individuals who withdrew decided to withdraw the maximum amount permitted each round (Bateman et al., 2023; Hamilton et al., 2023). As a result, we focus on the discrete decision to withdraw, rather than the continuous decision of how much to withdraw.

Self–control.   In 2019, HILDA survey participants were asked to complete the Brief Self–Control Scale (BSCS), which is widely used in the psychological literature, and consists of 13 targeted questions on impulse control and goal adherence. Established

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[6]At the time of the policy change in 2020, anyone aged 58 and above was allowed to implement a 'Transition To Retirement' strategy, moving any existing superannuation balance into a 'pension' account, exempting it from all taxes and imposing minimum and maximum withdrawal limits.

[7]The SCQ is a 20 page survey consisting of questions that are difficult to administer in time-effectively in a personal interview. Conditional on meeting our other sample requirements, 94.4% of individuals complete the SCQ, and 97.4% of SCQ respondents answer all 13 questions of the BSCS.

by Tangney et al. (2004), the scale is designed to measure self–control—"the capacity to regulate attention, emotion, and behavior in the presence of temptation"—by asking respondents to score on a scale of 1 to 5 how much a series of 13 statements applies to them. The statements include "I am good at resisting temptation," "I often act without thinking," and "I am able to work effectively toward long-term goals." Previous work has found that this scale shows good internal consistency and retest reliability (Bertrams and Dickhäuser, 2009; Tangney et al., 2004), and that higher self–control is linked to better financial outcomes and disciplined behavior (Cobb-Clark et al., 2022).

We use Principal Components Analysis (PCA) to reduce variation in the 13 BSCS items to one dimension, a standard approach in the psychology literature (e.g. Manapat et al., 2021). The first principal component explains roughly one-third of the variation across the standardized 13 item scale, and the sign of each loading is as we would expect given the direction of phrasing.[8] We rescale the first principal component so that it ranges between zero and one, where zero represents no self–control issues on all 13 items, while one corresponds to full self–control issues. Figure 1 shows the distribution of self–control issues. Overall, we see that they are relatively widespread but vary substantially across individuals, with an average of 0.39, standard deviation of 0.16, and a long right tail to the distribution.

Figure 1: Distribution of Self–Control Issues
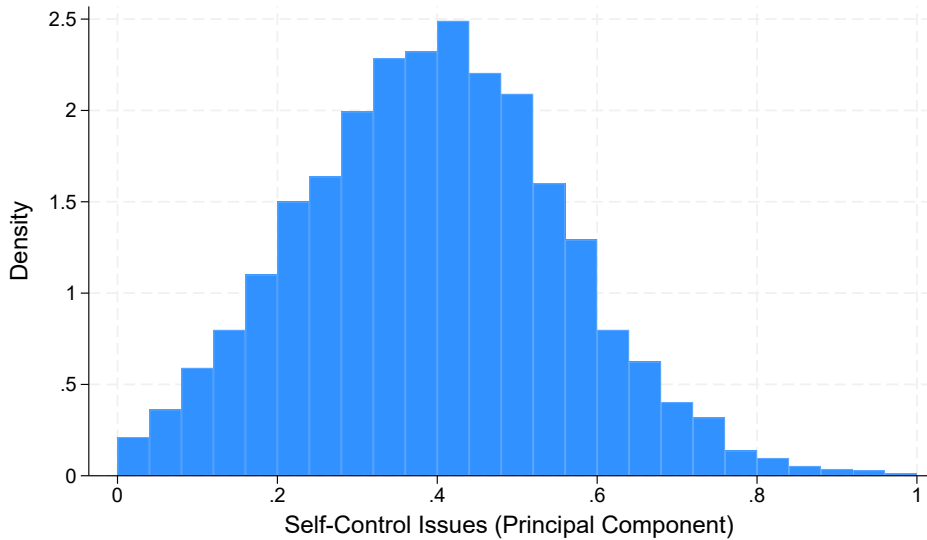
Other Psychological Traits. While our focus is on self-control, there are other behavioral biases that may justify illiquidity in retirement systems. To explore their relative importance, we augment our set of control variables with other psychological measures including financial literacy, the 'Big Five' personality traits, and planning horizon.

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[8]The full list of items, the distribution of responses, and the factor loadings are available in the Supplemental Appendix.

Financial Literacy is measured using the well-established 'Big Three' measure of Lusardi and Mitchell (2014), which is a binary measure equal to one if the respondent correctly answered all three questions on interest rates, inflation, and diversification.

The Big Five personality traits – Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism – are measured through a series of standardized questions. Past research has used HILDA data to document the importance of the Big Five traits for schooling and labor market outcomes (Flinn et al., 2018; Todd and Zhang, 2020).

Planning horizon is measured based on individuals' response to the question "In planning your savings and spending which of the following time periods is most important to you?" The respondent can choose: next week; next few months; next year; next 2-4 years; next 5-10 years; or 10+ years ahead. While planning horizon is not a perfect measure of time preference, they have been shown to be correlated (Adams and Nettle, 2009), and it is often used as a proxy when a direct measure is not available (e.g. Barsky et al., 1997; Brown and Van der Pol, 2015; Samwick, 1998).

Wealth. The HILDA Survey collects detailed data on household wealth through approximately 20 to 30 questions, covering a wide range of asset and liability categories. This includes information on real estate, financial assets, vehicles, business investments, and liabilities such as mortgages and personal loans. Given the reporting burden, the wealth module is only administered every four years. We use the most recent wave of wealth data prior to COVID–19, collected in 2018.

We divide wealth between three categories. The first is liquid wealth: the sum of cash holdings, equity investments, and bank accounts, net of credit card debt and overdue bills. Second is illiquid wealth: the sum of housing, other property, businesses, vehicles, and collectibles, net of mortgages and other debt. And third is superannuation wealth, which includes all superannuation accounts. Wealth is measured at the household level, and because of this we cluster standard errors by household.

Adverse shocks. We collect two important measures of adverse labor market shocks: unemployment and pandemic-induced negative income shocks. We record an individual as experiencing unemployment if they report unemployment in either 2020 or 2021. Roughly 14 percent of our sample experienced unemployment during this period, much higher than usual. Second, we measure pandemic-related income shocks based on individuals' response to the question "Did the income you normally receive from paid employment increase or decrease because of the coronavirus? Or did it not change much?" which was asked to all individuals employed as of March 2020. In our sample, 17.6 percent of individuals reported a decrease in income due to the pandemic.

Demographics. We also collect a rich set of demographics for each individual. These include age, gender, education, marital status, number of children, and income (defined as financial year wages and salaries). All demographic variables are measured in 2020, the time when individuals were allowed early access to retirement wealth.

4 Analysis

We analyze the relationship between self–control and early withdrawal. We begin by documenting how withdrawal probabilities vary across various situational and behavioral characteristics. We then assess how the marginal effect of self–control changes when conditioning on these other factors in Section 4.3. Finally, we evaluate the aggregate importance of self-control versus other important situational factors in Section 4.4.
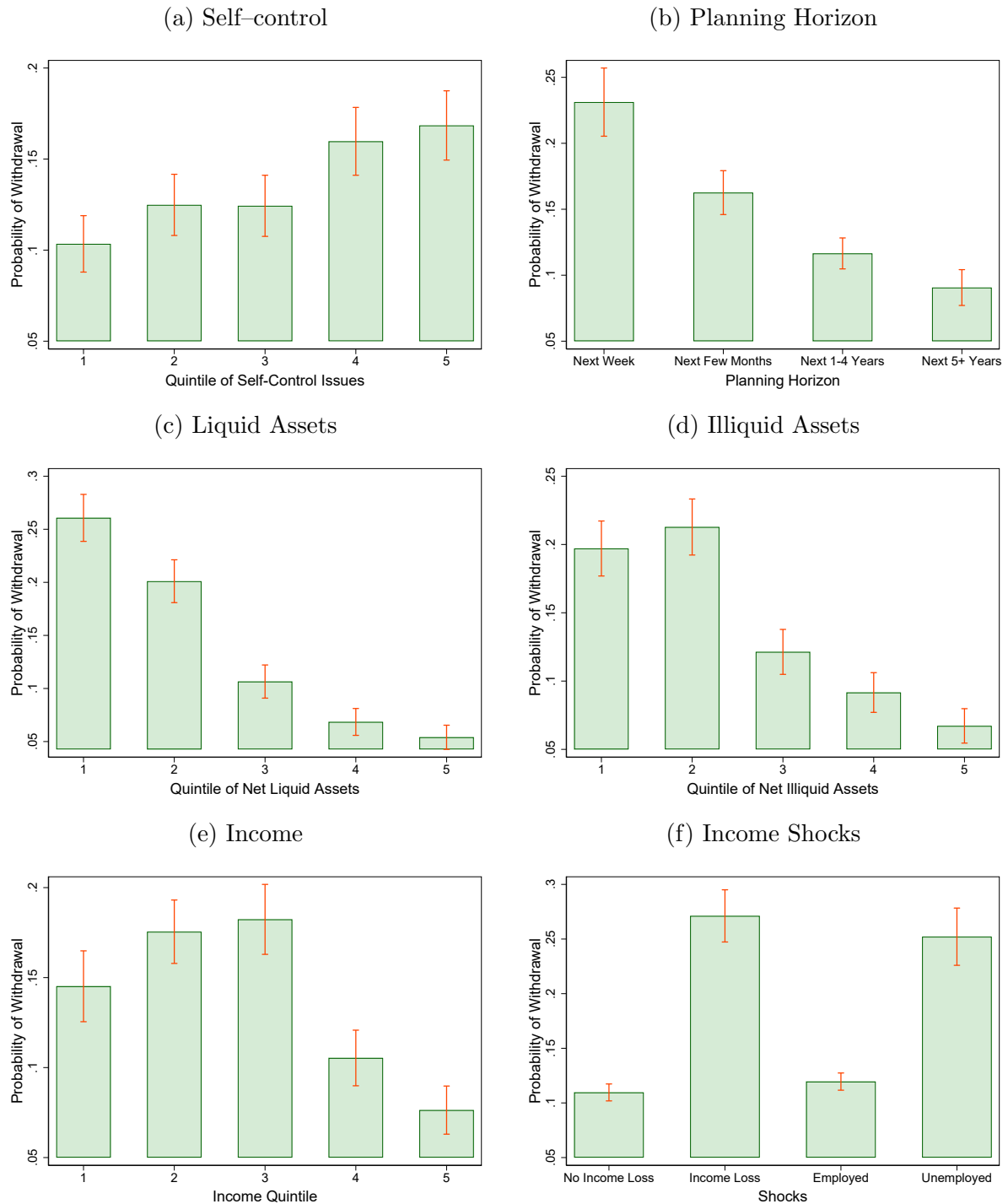
4.1 Descriptive Statistics

Roughly one in seven (13.8%) working age individuals withdrew from their retirement account during the pandemic, consistent with other studies using alternative data (e.g. Bateman et al., 2023; Hamilton et al., 2023). This aggregate masks substantial heterogeneity in behavior across various behavioral and situational dimensions, as shown in Figure 2. Withdrawal is notably more common among individuals with greater self–control issues, consistent with self-control playing a key role in shaping behavior. But it is not the only driver: withdrawal is also more likely among those with shorter planning horizons, lower income, and fewer assets (particularly liquid assets).

Figure 2a shows that the withdrawal probability increases markedly with self-control issues, rising from roughly 10% in the bottom quintile of self-control issues to around 17% in the top quintile, a statistically significant gap. This is not the only behavioral trait correlated with withdrawal. Figure 2b shows that shorter planning horizons are also correlated with early withdrawal, and others are reported in the Supplemental Appendix. As a result, we will include all of these behavioral traits in our empirical specification.

Situational factors are also strongly correlated with withdrawal. Figures 2c and 2d show that withdrawal declines with both liquid and illiquid wealth, with a stronger gradient for liquid assets, consistent with evidence on the primacy of liquid wealth in household spending (Kaplan and Violante, 2014). Figure 2e show that withdrawal is most common in the bottom three income quintiles, adjusted for age, and declines for higher income individuals. Figure 2f shows that withdrawal is sharply higher among those reporting adverse shocks, such as unemployment or pandemic related income loss. Though these shocks are relatively rare, they are strongly predictive of withdrawal. Our findings line up with Goda et al. (2022), Choukhmane et al. (2023), and Andersen et al. (2024), who

Figure 2: Probability of Early Withdrawal based on Situational and Behavioral Factors

(a) Self–control

(b) Planning Horizon

(c) Liquid Assets

(d) Illiquid Assets

(e) Income

(f) Income Shocks

Note: Each figure shows the probability of early withdrawal based on a different observable characteristic. Income quintiles are computed within age group, since otherwise the income results are mostly driven by age effects.

show in other contexts that withdrawal is more common following income declines.

That situational factors make people more likely to withdraw is neither surprising nor concerning. In the design of retirement systems, one of the chief concerns is striking the right balance between flexibility and commitment. That people should use the flexibility they are afforded when they need it is a good outcome *if these people are making good*

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decisions. Our results on self–control suggest that at least some people are not.

4.2   Empirical Specification

While the above section shows the unconditional probability of withdrawal for each of our main variables, there are likely to be meaningful correlations between these variables. For instance, self-control may be correlated with financial literacy or wealth. Rather than assume ex-ante which of the potential determinants matter most, we include all candidate variables in a series of regressions to assess which have significant explanatory power. More specifically, we estimate the following logistic regression:

$$\ln\left(\frac{p_i^{ew}}{1 - p_i^{ew}}\right) = \beta_0 + \beta_1 \cdot \text{self–control}_i + \beta_2 \cdot \text{X}_i + \epsilon_i \tag{1}$$

where p_i^{ew} is the probability of early withdrawal for individual i, self–control is the first principal component of the BSCS, and X_i is a vector containing a range of behavioral and situational controls. These include measures of (i) demographics such as education, family size, age, sex, relationship status, log income, and a dummy for missing income, (ii) shocks like unemployment and loss of income during COVID–19, (iii) the psychological measures of financial literacy, planning horizon, and the big five personality traits, and (iv) wealth in liquid, illiquid, and Superannuation asset quartiles, as well as mortgage debt and mortgage payments. All regression estimates use longitudinal weights, balanced between waves 18 to 21, and standard errors are clustered at the household level.

4.3   Individual-Level Results

Table 1 reports the average marginal effects (AME) in a series of specifications, which build toward the full set of controls outlined in Equation (1). We find that while the relationship between self–control becomes weaker with the inclusion of other factors, it remains both statistically and economically significant. We also show that situational factors are significantly correlated with early withdrawal, and that self–control is the most important of the behavioral factors we consider.

Self–control and other psychological traits.   Our main object of interest is the marginal effect of self–control issues, shown in the top row of Table 1. We find that self–control issues have an economically meaningful and significant relationship with early withdrawal. In specification (1), which controls just for demographics, we find that individuals with the highest level of self–control issues are 16 percentage points more likely to withdraw relative to those with no self–control issues, all else equal.[9]

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[9]Recall that our measure of self–control issues ranges between zero and one, so the AME tells us the implied impact, all else equal, of moving from no self–control issues to the maximum.

As we move through the specifications, adding controls for adverse shocks (2), behavioral factors (3), and wealth (4), we find that the AME of self–control diminishes but still remains economically meaningful. In specification (4), which includes all of our controls, we estimate an AME of 8.6 percentage points, which is similar to the effect of having 3 or more children. Based on this estimate, a one standard deviation increase in self–control issues (0.16) translates to a 1.4 percentage point increase in the probability of early withdrawal, while moving from the bottom to top quintile of self–control issues (i.e. from 0.17 to 0.63) translates to a 3.9 percentage point increase in the probability of early withdrawal, all else equal. This effect may be viewed as a lower bound if we believe that self–control issues also lead to lower wealth accumulation.[10]

A lack of self–control is not the only behavioral bias used to justify illiquidity in retirement accounts. We find that other psychological factors also play a role in predicting early withdrawal, although their estimated effects are weaker and less robust than that of self–control. Column 3 of Table 1 shows the marginal effects once we control for the full battery of psychological factors including financial literacy, planning horizon, and the big five personality traits. We find that financial literacy is correlated with a 4.2 percentage point reduction in the probability of withdrawal, although this relationship is nearly halved once we control for wealth in Column 4.[11] Further, we find that individuals with longer planning horizons have a lower probability of withdrawal. This effect disappears when we control for wealth, however, suggesting that the effect of shorter planning horizons on withdrawal is mediated mainly through wealth. Overall, of all the psychological measures we consider, self-control is the most important determinant.[12] This suggests that self-control issues may be the most important factor that retirement illiquidity guards against.

Adverse shocks.   In line with the existing literature, we also find that adverse shocks play an important role in predicting early withdrawal. Unemployment and pandemic-related negative income shocks increase the probability of early withdrawal by 5.8 and 19.0 percentage points respectively. Our results indicate that negative income shocks are a stronger predictor of early withdrawal than self–control at the individual level. That said, it's important to note that the incidence of self–control issues is higher than either of these adverse shocks, a topic that we return to when evaluating the aggregate implications in Section 4.4.

Wealth.   Finally, we also find that wealth is an important predictor of withdrawal. Individuals with low liquid assets are much more likely to tap into their retirement account,

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[10]If wealth is a mediator for self–control issues, then it is a bad control, absorbing variation that should rightly be attributed to self–control.

[11]Similarly, when predicting individual retirement wealth in the US, Goda et al. (2019) find that present bias and financial literacy are both important, with present-bias being the stronger predictor.

[12]Results for the Big Five personality traits are reported in the Supplemental Appendix.

Table 1: Marginal Effects

	(1)	(2)	(3)	(4)
Self-Control Issues	0.16***	0.13***	0.11***	0.086**
	(0.036)	(0.034)	(0.036)	(0.034)
Log Income	−0.035***	−0.022***	−0.016***	−0.0097
	(0.007)	(0.006)	(0.006)	(0.006)
Children: 1	0.070***	0.078***	0.069***	0.060**
	(0.024)	(0.025)	(0.024)	(0.023)
Children: 2	0.067***	0.067***	0.064***	0.055***
	(0.020)	(0.020)	(0.020)	(0.019)
Children: 3+	0.11***	0.11***	0.10***	0.085***
	(0.022)	(0.021)	(0.020)	(0.019)
Income Loss from Covid		0.19***	0.18***	0.19***
		(0.023)	(0.021)	(0.021)
Unemployed		0.068***	0.066***	0.058***
		(0.016)	(0.015)	(0.016)
Financial Literacy			−0.042***	−0.028**
			(0.013)	(0.012)
Planning Horizon: Few Months			−0.031*	−0.012
			(0.018)	(0.017)
Planning Horizon: 1-4 Years			−0.058***	−0.023
			(0.018)	(0.016)
Planning Horizon: 5+ Years			−0.065***	−0.023
			(0.020)	(0.019)
Liquid Assets: 2nd Quartile				−0.079***
				(0.017)
Liquid Assets: 3rd Quartile				−0.12***
				(0.017)
Liquid Assets: Top Quartile				−0.11***
				(0.022)
Illiquid Assets: 2nd Quartile				0.017
				(0.018)
Illiquid Assets: 3rd Quartile				−0.032*
				(0.020)
Illiquid Assets: Top Quartile				−0.049**
				(0.020)
Observations	7214	7214	7214	7214
Demographics	Yes	Yes	Yes	Yes
Adverse Shocks		Yes	Yes	Yes
Psych Controls			Yes	Yes
Wealth Controls				Yes

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

and liquid wealth plays a more important role than illiquid wealth in the spirit of Kaplan and Violante (2014). Of course, wealth is likely endogenous to personality traits such as self–control. Even when we control for wealth, however, we still see a significant and

meaningful relationship between self–control and early withdrawal. This finding lends support to theories of present-bias contributing to high MPCs, above and beyond the effects of situationally low liquidity (Attanasio et al., 2024). In contrast, planning horizons cease to be important after controlling for wealth.

Related literature. Our results complement recent analysis by Hamilton et al. (2023), who find that Australians who withdrew from their retirement accounts during COVID–19 spent around 40% of the money within the first two months, despite the modal withdrawal being the maximum \$20,000 AUD. The authors state that this high MPC out of such a large amount is inconsistent with traditional models, where the MPC declines rapidly with shock size, and argue that early withdrawal is better rationalized by models with present-bias. We complement the above paper by evaluating the psychological determinants of early withdrawal using individual-level data on self–control issues, something the above authors can only infer. Our results provide clear evidence that self–control matters for early withdrawal. Further, our results show that heterogeneity in self–control is an important determinant of behavior, lending support to recent models of retirement savings that explicitly model this form of heterogeneity (see e.g. Choukhmane and Palmer, 2024).

Our results also complement Goda et al. (2019), who predict retirement wealth in the US using a survey based measure of present-bias. The authors find that a one standard deviation increase in present-bias is associated with approximately \$19,000 (10%) less retirement wealth at age 65. Two channels could cause this lower level of savings: fewer contributions or more withdrawals. While the setting in that paper differs from ours (namely, contributions are optional in the U.S. and withdrawals are generally permitted), our results support the idea that present–bias is likely to contribute to greater leakage from retirement accounts, absent regulations that prevent early withdrawal.

4.4   Aggregate Implications

What do the individual level results in Table 1 imply in aggregate? To what extent is the aggregate propensity to withdraw from retirement accounts driven by psychological vs situational factors? To estimate the relative importance of these different factors, we need to think about how the composition of each varies across the population.

Figure 3 shows the change in the aggregate withdrawal rate under various counterfactuals where we eliminate self-control issues, pandemic related negative income shocks, financial illiteracy, and unemployment. The counterfactuals are computed by setting each of these explanatory variables to zero in Equation (1), turning off their direct effect on withdrawal.[13] We then find and aggregate the fitted values to estimate the share that

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[13]We use the full specification, i.e. the estimates in column 4 of Table 1, for this exercise.

withdraw under each alternative assumption. This approach gives a lower bound of the effect of each factor because the traits are likely to have direct effects, as well as indirect ones mediated through income, wealth, or other controls; because we are only turning off the former, the aggregate importance we estimate does not include any indirect effects.

Figure 3: Implications for Aggregate Early Withdrawals
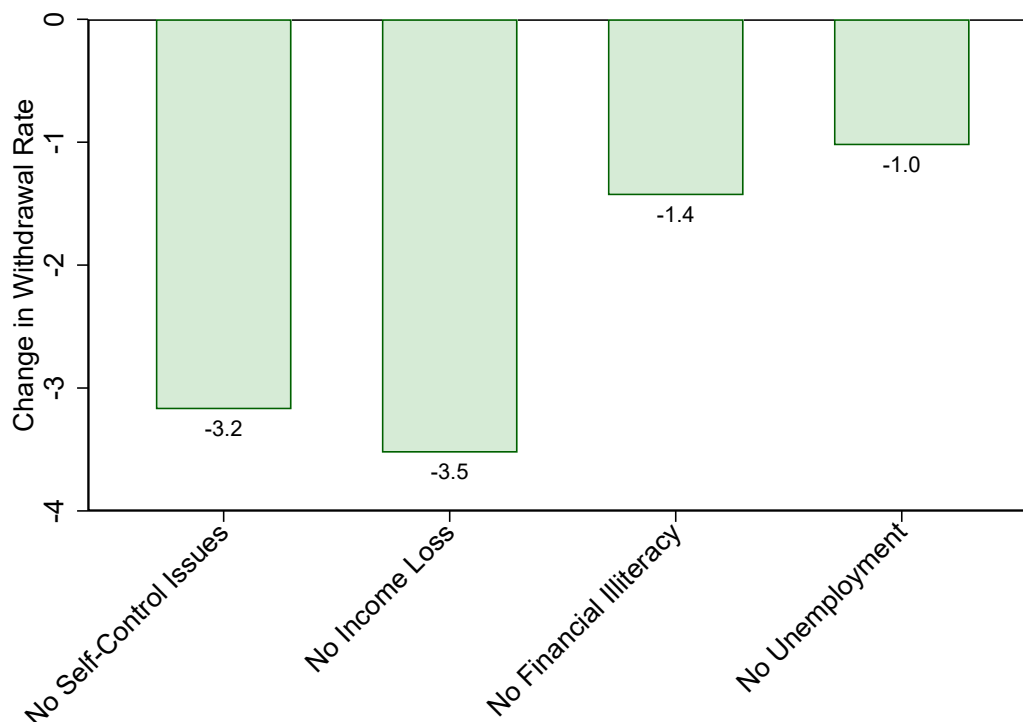
Overall, we find that self–control issues account for a similar share of withdrawals as negative income shocks. While negative income shocks have a larger AME, they are relatively concentrated; by contrast, self–control issues have a smaller AME but are much more widespread, and the net effect is only slightly smaller. More specifically, 17.6 percent of individuals in our sample were affected by pandemic-related negative income shocks. If we were to eliminate such shocks, the predicted early withdrawal rate would decline by 3.5 percentage points. In contrast, our measure of self–control issues is relatively dispersed and widespread, with a mean value of 0.39. If we were to eliminate self–control issues by setting this value to zero for all individuals, while holding all other covariates fixed, we would predict the early withdrawal rate to decline by 3.2 percentage points.

The magnitude of the above effects are sizable, considering that the aggregate share of early withdrawals in our data is 13.8 percent. As a result, eliminating pandemic-related negative income shocks, which lowers the withdrawal rate by 3.5 percentage points, results in a 25 percent reduction in the share of early withdrawals. Similarly, eliminating self-control issues translates into a 23 percent reduction in the share of early withdrawals.

Further, we see that self–control and negative income shocks both account for a larger

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share of early withdrawals than either financial illiteracy or unemployment. If we were to eliminate financial illiteracy, the predicted early withdrawal rate would only lower by 1.4 percentage points. The relative importance of self–control compared to financial literacy is consistent with Goda et al. (2019), who find that present bias is a more important predictor of retirement wealth than financial literacy. Similarly, if we were to eliminate the direct effects of unemployment, we predict the early withdrawal rate to fall by 1.0 percentage points.

5   Conclusion

Our results highlight an important trade-off faced by policymakers: how to provide liquidity during economic distress while also ensuring that individuals with limited self–control can still build sufficient wealth for retirement. The recent trend of allowing households to withdraw from retirement accounts in times of aggregate economic distress amplifies the urgency of addressing this trade-off.[14]

In this paper, we examine the various factors influencing demand for liquidity, distinguishing between situational needs versus behavioral desires. Our results indicate that self–control issues do contribute substantially to early withdrawal. And while situational factors are generally a stronger predictor of early withdrawal at the individual level, situational and behavioral factors are similarly important at the societal level.

Our result supports both the original rationale for illiquidity in retirement systems—people need help putting aside this wealth—and efforts to evaluate the use of these funds for short-term purposes. The Early Access scheme provided liquidity when it was needed, much like traditional debt-financed fiscal stimulus. But it was dogged by a familiar fear: that those with self-control problems would be most likely to tap into their retirement savings. This was a well-founded fear.

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[14]While a full welfare analysis of this trade-off is outside the scope of the current paper, we return to this question in Schneider and Moran (2024), where we develop a heterogeneous agent model to evaluate the distributional welfare implications of household liquidity policy relative to traditional fiscal stimulus.

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