

Political Risk and Discount Rates: Evidence from the Croatian Pension System

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Abstract: Many transactions between citizens and government – such as those related to the provision of future pension income – have an important inter-temporal element. In such settings, individuals may discount future cash flows more heavily if their confidence or trust in the government as the counter-party to the transaction is low. In this paper, we examine an economically meaningful choice faced by retirees in response to a Constitutional Court ruling over whether to accept a small, immediate pension payment or a stream of larger, delayed payments. Approximately 70 percent of retirees chose the more immediate payments, despite the fact that the deferred option provided a nominal internal rate-of-return in excess of 26 percent. We first document that these individual decisions are correlated in sensible ways with a wide range of covariates, including education, income, liquidity constraints, and longevity expectations. We then show that, even after controlling for such factors, individual choices are strongly influenced by their views about government policy parameters (e.g., inflation and exchange rate expectations), their overall confidence in government, as well as their views about the importance of receiving “the full amount owed” from the government. These findings indicate that a citizenry’s confidence in government can have important implications for how citizens value future benefit promises.

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“Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time.”

- Ken Arrow, 1972

1. Introduction

Social scientists have long recognized that the level of trust and confidence citizens have in each other and in their government potentially has important economic implications. At a macro level, Knack and Keefer (1997) suggest that trust is important for the accumulation of human and physical capital. Government credibility also plays a central role in areas ranging from monetary policy (e.g., Barro and Gordon 1983) to individual decisions about tax evasion (e.g., Slemrod 2002).¹

Such issues are particularly salient when the government is the counter-party to a long-term commitment, such as when the government promises future retirement benefits in exchange for tax payments while working. In the U.S. context, for example, the presence of political risk to Social Security benefits was cited often by proponents of reform as a rationale for partially replacing the system with a program of pre-funded personal retirement accounts.²

To the extent that individuals do not exhibit strong confidence that future payments indeed will be made, they may behave as if they are discounting the future more steeply. Such behavior would have numerous economic and policy implications. From an economic efficiency perspective, Summers (1989) shows that the deadweight loss from taxation is significantly reduced – even to zero – if there is a strong “benefit-tax linkage.” In other words, if individuals are confident that a marginal dollar of tax paid today will result directly in another dollar

¹ Slemrod (2002) provides an excellent review of the literature on the role of trust in public finance.

² The 2001 President’s Commission to Strengthen Social Security, for example, highlighted a U.S. Supreme Court decision (*Fleming v. Nestor*) which indicated that individuals did not have a right to their Social Security benefits and that Congress could change those benefits at any time.

increase in the present value of future benefits, that marginal tax payment would have no efficiency cost. In contrast, settings in which the tax-benefit linkage is low are associated with much higher deadweight losses. Thus, if political risk prompts individuals not to fully value future benefits, efficiency losses would increase. Another implication is that the presence of a “political risk premium” means that a public pension system might be able to reduce its long-run liabilities by offering individuals an opportunity to exchange future benefits for (more steeply discounted) near-term benefits. For example, policymakers might be able to replace a defined benefit plan with a defined contribution plan at less than actuarially fair rates if individuals are discounting the value of defined benefits heavily.

In most real-world settings, there are reasons that make it quite difficult to assess the importance of political risk relative to other factors that affect individuals’ discount rates. First, in most public pension programs, where one would look for such effects, individuals have little choice. For example, participation in the U.S. Social Security system is mandatory for those working in covered sectors and, aside from choosing the benefit claiming date, there is no room for choice. Second, the existing literature on inter-temporal decision-making has documented significant heterogeneity in discount rates. Thus, even if one has a setting in which it is possible to observe individuals making decisions based on beliefs about political risk factors, it is important to be able to control for the other sources of discount rate heterogeneity that have already been shown in the prior literature to be important.

In this paper, we use a rather unique policy setting that allows us to overcome many of these difficulties. In 1998, the Constitutional Court of Croatia ruled that the government had unconstitutionally cut benefits to retirees during the early and mid-1990s. The Court further ordered that the government “make whole” the affected retiree population. To comply with this

ruling, after a protracted period of negotiations, in July 2004 the Croatian Parliament passed a law that stipulates that the compensation (differential in pension payout with interest) is to be paid out from an investment fund, established solely for that purpose, and funded and guaranteed by the state. It took another year to further negotiate the precise manner in which this was to be done. Ultimately, in late 2005, eligible retirees were offered a one-time, irrevocable choice between receiving their full (nominal) repayment via a series of deferred payments, or taking, effectively, an immediate payment equal to only 50% of the nominal face value of the full repayment amount. Although the deferred payment option (described in more detail below) offered a nominal internal rate-of-return in excess of 26 percent relative to the more immediate payment option, approximately 70 percent of retirees chose the more immediate payment schedule.

In this paper, we examine empirically the determinants of this choice using micro data from a survey fielded for this purpose in late 2008 and early 2009. The use of these micro-level survey data enables us to examine a wide range of possible determinants of this choice, including proxies for beliefs about various types of political risk. This setting has several important advantages for studying this question. First, because of the way the government designed the program, individuals were faced with a very explicit, one-time, irrevocable choice, thus providing a clear choice setting. Second, the monetary value of the settlements was quite large (roughly equivalent, on average, to a year of household income for the average Croatian retiree), ensuring that the choice was a meaningful one. To our knowledge, the only study that shares these two advantages with ours is Warner and Pleeter (2001). It studies the separation choices made by a large number of U.S. military personnel (about 65,000) in the early 1990s. These individuals effectively faced a choice between receiving a lump sum payment and an annuity,

with an implied discount rate that made these two payout streams equivalent in present-value terms of between 17 and 20 percent.

The third advantage, singular to our study, is that ours is a setting in which issues of trust and confidence in government are particularly salient given the country's recent political and economic history (more on this below). By contrast, it is very likely that the military personnel in Warner and Pleeter (2001) had no doubt that the military would follow through on their promised payments.³

We begin our analysis by examining how individuals' pension choices are correlated with the characteristics that have been shown in the prior literature to be important determinants of discount rates. Individuals, on average, behave as if they have very high discount rates, as evidenced by the fact that 69 percent of individuals chose the earlier-payment option despite the deferred payments' nominal internal rate of return of more than 26 percent. Moreover, we find that willingness to defer payments correlates with a number of demographic characteristics in a sensible way. For example, we find that individuals are more likely to take the deferred payment (and thus exhibit a lower discount rate) if they are younger, have children, are in poor health, have high income, and are not liquidity-constrained.

We then turn to an analysis of factors related to political risk. We begin by examining how choices are influenced by beliefs about inflation and exchange rates. Whereas these are factors that ought to be relevant in any long-term transaction, regardless of the counter-party, they have the potential to be especially important for a transaction with the government because these parameters are under the control of government policy-makers (at least partially). We find

³ They may have had heterogeneous beliefs about other determinants of their personal discount rates, including beliefs about future inflation and economic prospects, when making their choice in the early 1990s (which, in part, may explain the unexpectedly large fraction of those who took the immediate, lump sum payment, despite the large implied personal discount rates associated with that choice). Warner and Pleeter (2001) does not feature, for example, the decision-makers' beliefs regarding inflation or economic prospects in there study. By contrast, we do.

that the individuals more concerned about future inflation and those more concerned about the possible devaluation of the Kuna (the Croatian currency) were more likely to take the immediate payment option.

We also find evidence that individuals who have a lower level of confidence in the government are substantially more likely to choose the more immediate payment option. As further evidence of the salience of confidence in government, we also find that, once retirees see evidence of the government beginning to make good on its promises by making initial payments, many who originally had chosen the immediate-payment option express a desire to instead have picked the delayed-payout option.

Our conversations with Croatian retirees prior to fielding our survey also indicate that a substantial minority of retirees had strong feelings about the importance of the government paying them the “full amount they were owed no matter how long it takes.” Qualitatively, this seems to correspond with a notion of fairness or justice in being “made whole” in nominal terms. Consistent with this, our survey evidence indicates that individuals who wanted to be made whole were substantially more likely to accept the deferred payment option.

Although Croatia’s recent political history clearly differs from that of the U.S. and many other nations, the findings of this study have relevance for debates over public pension systems in the U.S. and elsewhere. At the federal level in the U.S., the long-run structural deficits facing Social Security have led to a high level of skepticism among segments of the population (especially the young) about whether they will receive their Social Security benefits when they retire.⁴ Whereas such concerns almost certainly are exaggerated, there is no question that future benefits are subject to what economists call “political risk.” (e.g., Shoven and Slavov, 2006). At

⁴ For example, a July 2010 Gallup Poll (Gallup, 2010) indicates that “six in 10 workers hold no hope of receiving Social Security.”

the sub-national level in the U.S., the underfunded status of many of the nation's public defined benefit pension plans has led to an erosion in confidence that benefits will be paid. For example, Novy-Marx and Rauh (2009) calculate that state public pensions are under-funded by \$3.23 trillion. The presence of political risk may lead participants in these systems to discount future benefits at a higher rate (even to the point of placing zero value on future benefits if the Gallup poll results are to be taken at face value!). If so, this is a double-edged sword. On the one hand, it means that the cost of these programs may exceed the perceived value to the participants. On the other hand, this opens up an opportunity to reform these programs by offering lump-sum options (or converting to a DC system) in return for a substantial actuarial reduction in the present value of benefits.

This paper proceeds as follows. In Section 2 we discuss the relevant literature on inter-temporal decision-making and discount rates, and in Section 3 we provide background on the Croatian pension repayment plan. Our research methodology and summary statistics are presented in Section 4. Section 5 discusses the relation between traditional determinants of inter-temporal choice and whether individuals selected the immediate-payment or deferred-payment option. The role of political risk in this choice is examined in Section 6. Section 7 offers conclusions.

2. Related Literatures of Discount Rates

The canonical consumption-based model in economics and finance, dating back to Samuelson (1937), captures the determinants of intertemporal decisions primarily through a single parameter – the discount rate. Of course, unlike an interest rate (which represents an individual's ability to trade-off present for future consumption), the discount rate (which represents an individual's

willingness to postpone consumption) is not observable directly. A large number of papers have attempted to measure discount rates using a range of approaches, with wide variation in the results. For example, several efforts to measure discount rates from surveys and experiments have found evidence of very low, and in some cases even negative, discount rates.⁵ By contrast, several econometric studies of actual behavior have estimated discount rates that are extremely large.⁶ Barsky et al. (1997) note that “one possible explanation of the finding of high subjective discount rates in the econometric work is the difficulty of controlling for features of the economic environment facing agents, such as liquidity constraints and the need for precautionary savings.” Our survey will allow us to control for such factors. We nonetheless find that, even after doing so, implied discount rates remain high.

Another strand of the literature on intertemporal decision-making examines how discount rates vary across the population. For example, Gilman (1976), Black (1984) and Lawrance (1991) report that discount rates decline with income, education, and age, and that blacks have higher discount rates than whites do. Warner and Pleeter (2001) find, using evidence from a U.S. military downsizing program, that military officers exhibit lower discount rates than enlisted personnel does, that blacks exhibit a higher discount rate than whites do, and that discount rates decline with education. To our knowledge, however, none of these studies explore the role of attitudes or beliefs about political risk.

Our context provides several advantages over most of the prior literature related to discount rates. First, like Warner and Pleeter (2001) and other studies of consumer choice, but unlike the large experimental survey literature, we are able to examine actual (rather than

⁵ See, for example, Barsky et al. (1997), Loewenstein (1987), Loewenstein and Prelec (1991, 1992), and Loewenstein and Thaler (1989).

⁶ Warner & Pleeter (2001) find discount rates from 0 to more than 30 percent. See also Hausman (1979) and Lawrence (1991).

hypothetical) choices over an amount of money that is large enough to be quite meaningful to the typical retiree. Second, because the policy decision about the size of this repayment and the population that was to receive it was determined by a Constitutional Court decision and a subsequently passed law, we have a fairly clean experimental setting that is not contaminated by concerns about self-selection. This is in contrast to Warner and Pleeter (2001), who analyze a setting in which individuals only made the inter-temporal decision if they opted to voluntarily separate from military service, a group that may differ from those who chose to continue military service.⁷ Third, because we were able to conduct our own survey of a large population of participants, we are able to explore a number of potential explanations, including those related to political risk, that would not be readily observable from administrative data alone.

3. Background on the Croatian Pension Choice

After declaring its independence from Yugoslavia in 1991, Croatia became embroiled in a war until it signed a peace agreement with Bosnia & Herzegovina and Serbia in 1995. During this period, the Croatian government operated under considerable pressure and with a scarcity of resources as it faced the need to finance the war effort, the effects of war destruction, a severely challenged economy, as well as a simultaneous transition toward a market economy and democracy in the post-Communist era. Under these circumstances, one of the steps the government undertook at the time to secure additional resources was altering the manner in which public pension benefits were calculated. Essentially, the change in the benefit took the form of a switch from wage-indexing to price-indexing of benefits, which had the effect of lowering the amount of money retirees had received.

⁷ Warner and Pleeter (2001) did account for this sample selection in their empirical methodology.

Shortly after the peace agreement was signed in 1995, a number of organized groups representing the interests of affected pensioners filed a series of lawsuits questioning the constitutionality of this pension change. In 1998, the Constitutional Court of Croatia agreed that the benefit change was unconstitutional and ruled that the government must reimburse retirees for the benefit shortfall. However, the Court did not address how this remediation program should be implemented. Six years of political negotiations followed, with legislation finally being passed on July 21, 2004.

The 2004 legislation stipulated that retirees should receive the difference between what they were owed under the law and what they had actually received, along with interest. The money was to be paid from an investment fund that was established solely for this purpose, with funding guaranteed by the state. The amount of payment owed to most retirees was substantial: for a large share of retirees, it was roughly a year or more of retirement income. This is reflected in the tabulations presented in Table 1 that show the distribution of the pension repayment amount for the full sample, as well as broken down by income groups (both the pension repayment amount and the income level are self-reported). We find that, as expected, higher-income individuals are owed a higher pension-repayment amount because they likely had bigger pensions to begin with. Further, the pension repayment amount roughly equates to a year of income for the typical respondent. For example, among respondents in the 2,000-4,000 Kuna monthly income bracket (annual income of 24,000 to 48,000 Kuna), both the median and mean pension repayment amounts are around 36,000 (about \$7,000US).

Another year had passed before the manner of the payment and the payment options were fully developed. Finally, in December 2005, approximately 430,000 individuals were given a choice between two payout options. Individuals who chose option A were promised four semi-

annual payments—totaling 50% of the nominal value of the calculated amount owed—commencing in mid-2006 and terminating in December 2007. Those who chose option B were promised six annual payments—totaling 100% of the nominal calculated amount owed—commencing in December 2007 and terminating in December 2012. Table 2 presents the breakdown and timing of the payments that would be made under Option A (the more immediate payments) and Option B (the more deferred payments) for someone with a pension repayment amount of 60,000 Kunas.

As shown in the bottom row of Table 2, the break-even discount rate that equates these two payment streams is approximately 26.5%. Despite the high, nominal return from choosing option B, 71% of participants choose option A, the earlier, smaller stream of payments.⁸

4. Research Methodology and Summary Statistics

Fielding our own survey of retirees was both necessary and desirable for several reasons. First, Croatia does not have a nationally-representative, household data set that could be used for this purpose, and Croatian privacy laws rendered administrative data unavailable. Second, all of the data needed for this project (e.g., pension choice, demographic data, and, particularly, data on attitudes toward government) likely would not have been included in standard data sets even if they had existed.

We contracted with the Croatian survey agency PULS (affiliated with the U.S. Gallup polling organization) to conduct our own survey of retirees concerning their pension choice. This survey was fielded between late October 2008 and early January 2009, and thus occurred at a time the pension choice was still fresh in the minds of most individuals: indeed, those who chose

⁸ As reported by Vecernji List on June 27, 2007, 299,910 retirees received their third payment under Option A in late June 2007. As reported by Vecernji List on December 16, 2008, 123,321 retirees received their second payment under Option B in late December 2008.

option A (the more immediate payment option) would have recently received their final payment, whereas those who chose option B would have been early in the payment process.

The survey, designed to be representative of the affected population and fielded accordingly, asked a series of detailed questions about the respondent's pension choice, demographics (e.g., age, income, gender, family status, etc.), and a wide range of questions to assess knowledge, beliefs, and attitudes about economic and financial matters.

We collected 2,619 survey responses. Of these, 1,818 respondents, or 69% of the sample, had selected option A, whereas 801 respondents, or 31% of the sample, had selected option B. As shown in Figure 1, these figures match the division of choice within the population almost exactly (69% of the sample opting for Option A compared to 71% of the full population).

Our primary dependent variable for our analysis is a binary variable, "OptionPicked," set equal to zero when the individual selected option A (the smaller, more immediate payouts) and equal to one when the individual selected option B (the more deferred payouts). If one were to interpret this choice as being driven entirely by a comparison of one's discount rate to the internal-rate-of-return (an interpretation that, as discussed below, is an over-simplification), those with a dependent variable value of 0 (i.e., those that chose option A) should be viewed as having a discount rate in excess of 26.5%, whereas those with a value of 1 (i.e., those who chose option B) should be viewed as having a discount rate below 26.5%.

We regress this binary variable against a range of covariates. Given our definition of the dependent variable, a positive coefficient associated with a covariate should be interpreted as an increased willingness to defer consumption (i.e., a lower discount rate), whereas a negative coefficient should be interpreted as a decreased willingness to defer consumption (i.e., a higher discount rate).

The covariates we include in our regressions of the pension repayment choice are summarized in Table 3 (we will also include in the full-specification regression 24 indicator variables indicating the individual's county of residence within Croatia, which we do not tabulate in this table). For purposes of this summary table, as well as our later regressions, we group variables into six categories and present in distinct panels: (A) rate of time preference and risk aversion; (B) income, wealth, and liquidity constraints; (C) education, financial literacy, and financial self-assessment; (D) family structure and other demographics; (E) health and longevity; and (F) beliefs concerning political risk. The tabulations presented in the table suggest that our survey respondents exhibit substantial heterogeneity in terms of their attitudes towards risk, their financial condition, their education and financial literacy, as well as their confidence in, and trust of, government.

5. Traditional Determinants of Inter-Temporal Choice

5.1 Determinants of Rate of Time Preference and Relation to Pension Repayment Choice

A number of studies have attempted to elicit rates of time preference (e.g., discount rates) by asking individuals to make choices between current and deferred payoffs. For example, Kirby et al. (1999) and Chabris et al. (2008) use a series of questions that ask subjects to choose between “smaller, immediate reward (SIR) and a larger, delayed reward (LDR).” For example, the first question asks “Would you prefer \$54 today, or \$55 in 117 days?” Additional questions vary the reward sizes as well as the time period of delay.⁹

⁹ Other survey approaches attempt to elicit discount rates from questions about the desired slope of equal present-value consumption paths. For example, Barsky et al. (1997) follow this approach in the Health and Retirement Survey (although in a small sample) and find that, even with a zero interest rate, individuals prefer an upward sloping consumption profile, suggesting that these individuals exhibit a negative discount rate.

Our approach is similar to Kirby et al. (1999), although we ask individuals to specify their rate, rather than elicit it through a branching series of questions. Specifically, we describe a situation in which the individual has received 20,000 Kunas¹⁰ and is given a choice between keeping the money and doing with it as they please, or depositing the money with an “extremely reputable bank as a CD for one year, so that you will be promised a certain annual interest rate, but will not be able to touch the money until the year expires.” We then ask “If you would be willing to make such a deposit, what interest rate would the extremely reputable bank need to offer to pay you so that you would prefer to deposit the 20,000 Kunas as a CD for one year, rather than keep it and do with it as you please?” If respondents did not provide a meaningful response, we took them through a branching series of responses, asking them if they would deposit the money at various rates (5%, 10%, 15%, and finally 25%), to construct their rate of time preference for a one-year bank deposit.

Approximately 29% of respondents indicated that there was “no rate” at which they would be willing to give up current access to the money for a higher future return, which suggests, at a minimum, that these individuals have a very high rate of discount. Of the 71% of respondents who provided an answer to this question (either originally or through the “branching” questions), the mean and median rates were 8.65% and 7%, respectively. If we treat the three-tenths of respondents who did not provide a rate as being greater than 25 percentage points, the median rate of discount rises to 10%. Figure 2 illustrates the substantial heterogeneity in these self-reported rates of time preference. Whereas a large fraction of the respondents reports having a discount rate in excess of 25%, one-quarter of the respondents will postpone

¹⁰ This amount equals approximately \$4,000US. Also, it is equal to approximately one-third of the average annual wage in Croatia, and to about three-quarters of the average annual pension in Croatia.

consumption for a year for a bank-deposit return of 5% or less, while about a third will do so for a return in the 6-10% range.

The heterogeneity in respondents' self-reported rate of time preference corresponds in a sensible way to the heterogeneity in respondents' risk tolerance, financial experience, and beliefs – traditional factors that one would hypothesize should influence an individual's discount rate. To illustrate this, in Table 4 we report results of a censored regression specification using a Tobit model in which the handful of responses that reported a rate greater than 25%, as well as the three-tenths of the sample that reported there was no rate at which they would be willing to defer consumption, are censored at 25%. As with the summary statistics table, we group explanatory variables into six categories.

We find that individuals require a lower interest rate for the hypothetical if they are less risk averse, as shown in Panel A of Table 4 (i.e., are willing to take the 50/50 gamble to potentially double income at the risk of losing 10% of income), are savers, as shown in Panel B (i.e., have savings accounts either in Croatia currency or foreign currency), are more financially literate (specifically, are able accurately to calculate that an account earning 5% interest will have at least 10% more money after 2 years of compounding), as shown in Panel C, and if they report they are “moderately or very willing to take on risk,” as also shown in Panel C. We also find that individuals who expect future inflation to be very high (more than 16% per year) or place a higher likelihood on the Kuna being devalued report a higher required rate of time preference as shown in Panel F.

These results suggest that the discount rate question we asked does contain information. However, in Figure 3 we show that the response to this question is *not* significantly correlated with an individual's pension repayment choice. Specifically, there is little difference in the

likelihood an individual selected pension repayment Option A or B and their rate of time preference for a one-year bank deposit. For example, 29% of those who reported a rate of time preference between 1 and 5 percentage points selected Option B (the more deferred payment) – exactly the same fraction of those who reported a rate of time preference of 11-25 percent or greater than 25 percent.

One reason for this striking result (i.e., the pension repayment choice is not related to an individual's rate of time preference) is that many of the retirees in our sample have limited financial resources and limited financial sophistication. Thus, it is possible that, while there is some information contained in the responses to the time preference question, the extent of information varies by the sophistication of the respondent. More specifically, one might expect that those individuals with more experience investing in savings accounts and CD instruments have provided more meaningful answers than those who do not. This is especially likely to be true among individuals who have chosen to invest some of their savings in a foreign currency. We might also expect that the answers given by respondents who are not currently liquidity constrained to be more meaningful than those who do face major expenditures right away.

In Figure 4, we show that this indeed is the case. The first bar represents the simple relation between whether the individual selected option B and their stated rate of time preference (as well as an indicator variable indicating those who did not provide any rate at which they would deposit money with a bank for one year). The coefficient from this OLS regression suggests that a 5 percentage point change in the individual's rate of time preference is associated with only a 0.8 percentage point decline in the likelihood the individual picks Option B (the more deferred payment) – a result that is not statistically significantly different from zero (not surprising, given the histogram in Figure 3).

We proceed to split the sample based on whether the respondent owns a savings account or certificates of deposits (CDs) denominated in a foreign currency (such as Euros), the trait shared by just under three-tenths of the sample respondents. For those in this group, we find that having a higher discount rate (defined as requiring a higher rate of return to be willing to invest in the CD) is associated with a significantly lower probability of choosing the more deferred payout option (option B). Roughly speaking, a shift from a subjective discount rate of 5 percentage points (roughly equivalent to a move from the 25th to the 75th percentile of responses) is associated with a 5.1 percentage point reduction in the likelihood of choosing option B (a statistically significant result at the 1-percent level). For those who do not own such a savings account, there is no relation between the pension repayment choice and the subjective rate of time preference.

We also cut the sample by whether liquidity constraints were important for the individual when they made their pension repayment choice. To test directly for liquidity considerations, we specifically ask individuals to rate on a scale from 1 (not at all important) to 5 (extremely important) the importance of the following statement in influencing their decision: “An immediate need for money to help pay some expenses, such as debts, medical expenses, bills, home or apartment repairs or renovation, replacement of major appliances, or similar, for self, family, or friends.” One quarter of the respondents answered that liquidity constraints were not important (answered “1” or “2” to the above question), while one-half of the respondents answered that liquidity constraints were important (answered “4” or “5” to the above question). We find that for those who answered that liquidity constraints were not an issue for them, had their subjective rate of time preference significantly predict the pension repayment option they selected (higher rate is associated with lower likelihood of picking the deferred-money option).

For those who were liquidity constrained, the thought of deferring the pension repayment may not be considered a possibility under any rate of return and, therefore, the respondent's time rate of preference is not correlated with their decision.

These findings are reminiscent of other research that has indicated the importance of focusing on the sub-population for which a particular measure may have more meaning. For example, Malloy, Moskowitz, and Vissing-Jørgensen (2008) show that consumption-based asset pricing models perform better when focused on the consumption risk of stock-holders, rather than that of the overall population. In a different context, Brown (2001) shows that forward-looking utility-based measures of the value of guaranteed income are significantly correlated with annuity choice for individuals with longer planning horizons, but not for those who are more myopic.

5.2 Full Specification of Pension Repayment Choice

In Table 5, we present the full specification of the pension repayment choice. Our dependent variable is an indicator variable for whether the respondent selected pension repayment Option B (the more deferred payment option). This variable is expressed as 0 if the respondent picked Option A (more immediate payment) and 100 if the respondent picked Option B, thus the coefficients represent percentage point changes in the likelihood of picking Option B. The linear regression is estimated by OLS, with robust standard errors. All of the variables presented in the Table 3 summary statistics are included in the regression, with explanatory variables organized into the same six groups for ease of readability and exposition. We also include in the full-specification regression 24 indicator variables indicating the individual's county of residence

within Croatia, which we do not tabulate in this table. We defer our discussion of the effect of beliefs concerning political risk to Section 6.

5.2.1 Rate of Time Preference and Risk Aversion

As shown in Panel A of Table 5, there is no relation between an individual's stated rate of time preference and their pension repayment choice *for the full sample* (just like in the simple tabulations presented in Figures 3 and 4). In unreported results, we do confirm that a higher rate of preference is associated with a statistically significantly lower likelihood of picking Option B for the subpopulation of individuals holding a savings account in foreign currency and the subpopulation that is not financially constrained.

5.2.2 Income, Wealth, and Liquidity Constraints

In Panel B of Table 5, we report the effects of various demographic factors, many of which stand out in ways that are very consistent with the predictions generated by standard models of intertemporal choice.

We find that, consistent with prior research, higher income and wealthier individuals exhibit lower discount rates (as manifested by a greater likelihood to accept the deferred payments). Specifically, we find evidence of income and wealth gradients: middle and higher-income individuals, for example, are each 6 percentage points more likely to defer payments than low income individuals are.

We purposely did not ask directly for measures of overall net worth. We did, however, ask a series of “yes/no” questions about ownership of specific types of assets. While many of these measures (ownership of real estate, mutual funds, bonds, etc.) are not significant, we do

find that individuals who own stocks and have savings denominated in a foreign currency are more likely to defer payments, as are individuals with higher pension repayment amount (i.e., more money at stake in the Option A/B decision).

In discussing the fact that econometric studies of behavior and experimental/survey results come to very different conclusions regarding discount rates, Barsky et al. (1997) note that “one possible explanation of the finding of high subjective discount rates in the econometric work is the difficulty of controlling for features of the economic environment facing agents, such as liquidity constraints and the need for precautionary savings.” The fact that our income measures and stock ownership measure are negatively correlated with discount rates is consistent with such a liquidity-constraint explanation.

We also measure liquidity constraints through the direct question referenced in Section 5.1. We find, as reported in the bottom part of Panel B of Table 5, that individuals who rate liquidity constraints as being very important or important are 18 percentage points more likely to take the immediate payment option than those who rate it as unimportant or very unimportant.

5.2.3 Education, Financial Literacy, and Self-Assessments

As shown in the first row of Panel C, more highly educated individuals are more likely to defer payments. Specifically, those with more than a high school education are nearly 4 percentage points more likely to choose option B than those with a high school education or less are.

The growing literature has emphasized that overall education is not a perfect proxy for financial literacy, and that financial literacy has a direct effect on influencing financial decision-making (e.g., Lusardi and Mitchell (2007a, 2007b)). Thus, in addition to the overall education level, we also include numerous measures of financial literacy drawn from the extant literature.

While most of these measures (e.g., education or work experience in accounting, economics, or finance; self-reported assessment of numeracy) are not significantly correlated with the deferral decision, the exception is the individuals' ability to answer correctly a fairly simple question concerning how inflation affects purchasing power. Specifically, those able to report correctly that an individual can buy less a year from now than today if inflation is 3% and the interest earned on savings is 2% are 7 percentage points more likely to choose the deferred payments than those who answer this question incorrectly are. We also find that those who claim they were very confident they made the correct choice regarding the pension repayment options *at the time they were making it* were 11.5 percentage points more likely to have picked Option B.

5.2.4 Family Structure and Other Demographics

We also find that family structure matters. As shown in Panel D, there is a high degree of within-couple correlation in the choice. For those couples in which both spouses made a pension choice, there is a 50 percentage-point difference in the probability of choosing option B depending on whether one's spouse chose A or B. Of course, the high within-couple correlation should not be interpreted so much as a causal relation than as the outcome of a joint household decision. Nonetheless, we control for this in all specifications.

We also find that the presence of children in the household makes it 10 percentage points more likely that one will choose the higher-return, deferred payment option. This is consistent with a view that those with children may have bequest motives (and thus the higher total payments are more attractive, especially given that children are qualified to receive the payments if the pensioner dies before the full series of payments have been received). Consistent with this, we further find that those who indicated that leaving money to heirs is very important were 8.5

percentage points more likely to pick Option B relative to those for whom this was not an important consideration in their choice. Similarly, those for whom receiving the most money while they *were still alive* was very important were 5 percentage points more likely to take the more immediate payment option (less likely to pick Option B) relative to those for whom this was not important.

5.2.5 *Health and Longevity*

Individuals rationally discount the future not only because of the pure rate of time preference, but also because they rationally recognize that they may not live long enough to receive payments. This is a particularly relevant consideration in a sample of elderly individuals such as pensioners. Indeed, in standard consumption models, one can think about discounting by the sum of the pure discount rate and the mortality rate. However, in most studies of discount rate behavior, researchers have not had access to information about longevity expectations aside from a respondent's age.

In our survey, we find that beliefs about health and life expectancy (as reported in Panel E of Table 5) are quite important determinants of the intertemporal choice. First, for each additional year of age at the time the pension repayment choice was made, an individual is one percentage point less likely to defer consumption. Even after conditioning for age, individuals who rate themselves as being in very good or excellent health are significantly more likely to defer payments. In addition, those who were less confident at the time of the choice that they would live at least 7 years (the time required to receive all payments under option B) are nearly 8 percentage points more likely to take immediate payments. This suggests that there is substantial

heterogeneity in health and longevity expectations within age groups, and that this heterogeneity is important for understanding inter-temporal decision-making.

6. Political Risk

Through our informal discussions with Croatian retirees (prior to fielding our survey), one common theme that emerged was a fundamental difference in views about the extent to which people had confidence in the Croatian government along multiple dimensions. Specifically, retirees with whom we discussed these matters raised three strains of thought multiple times.

First, some individuals expressed concern about the commitment of the government to maintain the purchasing power of the promised future stream of benefits. This is a natural concern given Croatia's history with inflation. Simply put, in their lifetime Croatian retirees eligible for compensation have seen it all—war and the related destruction (twice), high inflationary periods, lasting several years at a time, if not decades, accompanied by “stabilization” attempts and recession (multiple times), and hyperinflation (at least twice).¹¹

¹¹ Most Croatian retirees eligible for compensation likely saw the effects of the Great Depression in their early childhood, WWII and the difficult recovery thereafter in their youth, and a multitude of high-inflationary periods. The example of Socialist Federative Republic of Yugoslavia, of which Croatia was a part until 1991, continues to serve as a textbook example of hyperinflation and, generally, rampant inflation. For example, the annual inflation (CPI) in 1965 was around 48 percent, only to be lowered to several percent per year in the period from 1966 to 1970. From 1971 to 1979, annual inflation was “only” around 20 percent per year in most years. Once Marshall Tito passed away in 1980, the economic outlook changed and the credit constraints forced a much higher inflation. In the period from 1980 to 1985, annual inflation rates ranged from 32.7 percent per year (1982) to 75.4 percent per year (1985). Late 1980s brought about further escalation, from 91.6 percent per year in 1986, to 240 percent per year in 1988, to 2,685 percent per year in 1989. A somewhat successful attempt of curtailing inflation was launched at the time by then Yugoslav Prime Minister Ante Marković, reducing the annual inflation in 1990 to “only” 120 percent per year. Political unrest that began in 1989 culminated with the secession of Slovenia and Croatia on June 25, 1991. The war ensued immediately thereafter and the annual inflation rate in Croatia in 1991 (no longer part of Yugoslavia, though subject to its military aggression and destruction) was 100 percent per year. The next two years, witnessing the heaviest fighting and destruction, saw annual inflation rates soar to 595 and 1,467 percent per year, respectively. The two years to follow, 1994 and 1995, saw stabilization of the inflation rates, with 112 percent per year and 24 percent per year, respectively. The period from 1995 to 2008, by comparison with the past, has seen relatively low annual inflation rates, ranging from 3.31 percent per year in 2005 to 8.16% in 1998. At the moment of making their choice, the retirees were in the relatively low inflationary environment (3.31% per year), and the inflation rate was on a moderate upswing at the point they responded to our survey in late 2008 (the annual inflation

However, the past decade before pensioners had to make the pension repayment choice was marked by fairly mild inflation. On a related note, Croatia is a relatively small, open economy, and thus even “average” citizens are aware of the importance of maintaining the Kuna’s purchasing power relative to other currencies (especially the Euro).

A second concern raised by some individuals is whether the government will actually “make good” on its commitment to make all future payouts. Such skepticism is understandable given that the initial basis of the Constitutional Court decision that led to the pension choice in the first place was that the government had, in the early 1990s, essentially reneged on part of its promised pension payments to retirees. Thus, some retirees continued to express a degree of skepticism about whether the government would be willing or able to follow through on these payments for the life of the program.

A third issue that came out of these discussions was that a sizeable minority of individuals expressed a strong desire to be “made whole no matter how long it takes.” This attitude came through as less of a matter of rational economics than as a matter of “justice,” or a desire to feel as if they ultimately had been treated fairly by the government. These individuals appear to have placed much weight on the idea that they received the full *nominal* amount they were owed, rather than the timing and present value of the payments received.

To address each of these issues, we included a range of survey questions designed to elicit views about these factors. The data supports that all these factors are quite important determinants of the pension choices that individuals made (coefficient estimates for these political risk questions are displayed in Panel F of Table 6). In other words, the survey provides

rate for 2008 is 6.38%, a far cry from the thousands of percent per year seen most recently only fifteen year ago, but about twice the rate compared to that which prevailed at the time of their choice in 2005.

strong evidence that political risk considerations strongly influenced the implicit discount rate individuals used when evaluating payout streams offered by the government.

6.1 Beliefs about Future Purchasing Power of the Income Stream

Our survey asked individuals “at the time you were making your A or B choice, how high did you think that annual inflation would be (that is, by how much would prices rise each year) over the period of the next several years from that time?” They were given a range of options to choose from (0 – 4%, 5-8%, 9-12%, 13-16%, more than 16%), which we collapsed into three ranges (0-8%, 9-16%, more than 16%). We find that those individuals who believe inflation will run at more than 16% per year are 11.5 percentage points less likely to choose the deferred payment option than those who believe it will be less than 8% per year are, suggesting inflationary concerns did influence the pension repayment decision.

We also asked “at the time you were making your A or B choice, what was your opinion about the movement of the Kuna relative to the Euro over the period of the next several years from that time?” Those who thought that the Kuna would go down relative to the Euro were 3.9 percentage points less likely to take the deferred payment option.

6.2 Confidence in the Government Making Good on Its Promise

We asked individuals “at the time you were making your A or B choice, how confident were you that the government would make all of the payments to all the retirees who selected option B?” They were given a 5-point scale, where 1 was “not at all confident” and 5 was “extremely confident.” We find that this has a quantitatively and statistically important effect on people’s decisions. Those who rate this factor as a 4 or 5 on the confidence scale are 11.5 percentage

points more likely to choose the delayed payout option than those who expressed little confidence in the Croatia government's ability to make all the payments it promised.

In our list of factors that respondents were asked to rate in terms of relative importance in their decision-making (a 5-point scale where 1 is "not at all important" and 5 is "extremely important"), we also asked people to rate the importance of a "concern that the government might not honor its commitment to payout all of the money owed." We find that, even after controlling for the confidence question above, the importance of this factor also has a significant effect. Those who rate this factor as a 4 or 5 on the importance scale are 7 percentage points more likely to choose the more immediate payment option than those who rate it as not an important factor are.

We also asked two additional questions that are useful for gaining insight into how individual attitudes about the government's likelihood of meeting its commitment matters for the pension repayment choice. First, we asked individuals what choice they would make *if they were able to make the choice today* (about three years after they had made their irrevocable pension repayment choices), thus creating an opportunity to examine whether the respondent would change their choice (if such a change were possible). Second, we asked "did receiving your first payment make you any more or less confident that you would receive all the payments?" (and provided a 5 point scale for responses).

Of the 1,818 individuals who had chosen the more immediate payout option (option A), 51% of them (935 respondents) stated at the time of the survey that they would choose option B if they were able to choose all over again. This stands in stark contrast to only 4.5% of those who chose option B wishing they had selected option A instead.

In a simple univariate regression, we find that those individuals who reported that actually receiving the first payment they were promised made them more confident that they would receive all of the payments promised by the Croatian government were 5.8 percentage points more likely to wish they had changed from A to B. In Table 6, we estimate a multivariate regression of individuals' desire to change from Option A to Option B, estimated over the respondents who originally selected Option A. Estimating the "change regression" helps determine other individual characteristics and beliefs that are conducive to wanting to change the choice, as well whether the "increased confidence in government after seeing the government follow through" effect survives after controlling for other factors.

The dependent variable in this linear (OLS) regression is an indicator variable for whether the respondent today would desire to change from Option A (more immediate payment) to Option B (more deferred payment) for the pension repayment plan. The dependent variable is expressed as 0 if the respondent would stick with the original selection of Option A and 100 if the respondent would switch from Option A to Option B. Thus, the coefficients represent percentage point changes in the likelihood of switching to Option B.

The inclusion of the host of other socioeconomic factors and beliefs in the specification has no effect on the "increased confidence in government effect" – those individuals who reported that actually receiving the first payment they were promised made them more confident that they would receive all of the payments promised by the Croatian government were 5.3 percentage points more likely to wish they had changed from A to B. Related to this, those individuals who at the *time of their choice* had little confidence that all the B payments would be made and picked Option A are 6 percentage points more likely to want to switch to Option B than people who originally were moderately or extremely confident that the government would

make all the payments are. These two sets of results suggest that, essentially, the government can lower the discount rates its citizens apply to them by successfully following through on its promised commitments, particularly for those who originally have had low confidence in the government's ability to make the payments it had promised.

As shown in Panel C of Table 6, financial literacy also plays a big role in individuals' willingness to switch from the more immediate payment option to the more deferred payment option. Individuals who described themselves as poor at everyday finance and those who could not answer correctly our two simple compounding interest rate questions were much more likely to report a desire to change their pension repayment choice. These results perhaps reflect that financially illiterate individuals benefit from seeing the government program actually implemented and its implementation helps them better assess the tradeoffs of the two options and thus reconsider their earlier decision.

We also find that those respondents who reported that there was no rate of interest that would induce them to deposit money with a bank for one year were not willing to reconsider their original choice of Option A and instead switch to Option B. Finally, those who had more money at stake in the decision (i.e., had a larger pension repayment amount) were more willing to switch from the immediate payouts to the deferred payouts.

6.3 The Importance of Receiving "What is Owed No Matter How Long It Takes"

As noted above, discussions with Croatian retirees prior to fielding our survey pointed to a strong feeling by a substantial minority of individuals that they felt they had been "wronged" by the government policy in the 1990s and felt that it was important that they receive the full amount they were owed "no matter how long it takes." Further probing of this idea suggests that many of

these individuals viewed the desire to receive what they were owed more as being related to a general sense of wanting “justice” than representing a well-defined economic consideration. In other words, some individuals felt strongly that it was important to receive the full pension repayment amount they were owed in nominal terms, regardless of the payment structure and the present value of the benefits. This would be consistent with these individuals having loss aversion around a reference point that represents the total amount of money they are owed in *nominal terms* – any settlement that did not result in payments at least equal to the amount owed them in nominal terms would be felt as a “loss” to these pensioners.

To test for this possibility, we asked individuals to rate on a 5-point scale the relative importance of the factor “desire that the full amount of the debt that you were due would be paid out, no matter how long it took.” Three-fifths of the population ranked this factor as very or extremely important (4 or 5 on a 5-point scale), while less than one-fifth rated it as not important to them at all.

As displayed in Figure 5, in a univariate setting we find that those who believe the “being made whole no matter what” factor is very/extremely important are 29 percentage points more likely to take the deferred payment relative to those who believe this is not important. This result is unchanged once we put in the full suite of other control variables – the effect is still a 27 percentage point change (Figure 5 and Panel F of Table 5). Thus, the being “made whole no matter what” effect is very important economically and it seems to act independently from a wide range of socioeconomic characteristics and beliefs (i.e., controlling for a whole range of factors that are important in their own right does not diminish the magnitude of the “being made whole” effect).

To give a sense for the economic magnitude of this attitude, if the entire population shifted from their current beliefs regarding the importance of being made whole no matter how long it takes (i.e., 61% believing this is very important and 13% believing this is moderately important) to everyone believing this is not an important consideration, the selection of the deferred-payment Option B would have fallen from 31 percentage points to 12 percentage points! Indeed, this effect is larger than virtually any other variable in our regression. The “being made whole” factor effectively lowers the discount rate of the pensioners regarding this particular financial decision, causing much larger uptake of the deferred money than otherwise would be the case if one focused only on more “traditional” determinants of the discount rate.

7. Summary and Conclusions

In this paper, we empirically examine the determinants of individuals’ discount rates. We exploit a unique “experiment” in Croatia – retirees there were given the choice between one of two payment streams to compensate them for past underpayments from the pension system. One option offered more immediate payments, while the other option offered a more deferred payment structure (but an internal rate of return of more than 26% compared to the first option). Our use of micro-level survey data enables us to examine a wide range of possible determinants of this choice, including proxies for beliefs about various types of political risk.

We find that many factors contribute to the “discount rate” individuals used in making this decision. As one might expect, those with higher income and wealth and those not facing liquidity constraints exhibited lower discount rates and thus were more willing to accept deferred payment from the government. Family structure and health were also important in this intertemporal tradeoff. Those with children and self-reported strong bequest motives were much

more likely to accept a deferred pension repayment option, while those who were older and reported poor health were more likely to accept much less money up front.

Unique to this study, we also examine the role beliefs concerning various types of political risk play in individuals' decision-making. In particular, we find that those individuals with low confidence in the government's ability to make all the payments promised are much more likely to select a more immediate, reduced payment stream. However, seeing the government honor its commitment (at least make the first payments on time) lowers the discount rate of individuals that originally had little confidence in the government's ability to follow through, thus resulting in many more people willing to accept the government's deferred payment scheme today than when first implemented.

Another important consideration expressed by individuals is the need to be "*made whole no matter how long it takes*" – that is, to receive the full amount owed to them in *nominal* terms, regardless of the present value of the stream of payments. Three-fifths of pensioners regarded this consideration as very important to them. The prevalence of this factor, and the intensity with which it was held, is estimated to have increased the proportion of the population opting for the deferred-payment plan by the government (which paid out the exact nominal amount owed to the pensioners, but spread it out over many years) from only 12% of the population to 31%.

Although Croatia's recent political history clearly differs from that of the U.S. and many other nations, the findings of this study have relevance for debates over public pension systems in the U.S. and elsewhere. The presence of political risk may lead participants in these systems to discount future benefits at a higher rate than would be predicted otherwise by the standard socioeconomic determinants of intertemporal decision-making. This would suggest that many retirees may view as attractive a government program offering pensioners a lump-sum payment

rather than a promised stream of benefits (even if offered at a substantial discount in present-value terms from the government's perspective). The Croatia policy implementation and our survey results also illustrate that confidence in government and assessments of political risk are dynamic. Those who once discounted government payouts very highly are more willing to accept more deferred government payouts in the future (i.e., value future government benefits more highly) once they witness the government follow through on its promises.

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Table 1: Summary Statistics of Pension Repayment Amount by Household Income

This table provides the distribution of the pension repayment amount owed to households in the survey, broken down by the self-reported income range of the household. Amounts are in Kuna (the Croatian currency).

| | 10th | 25th | Median | 75th | 90th | Mean |
|--|-------------|-------------|---------------|-------------|-------------|-------------|
| Full Sample | 12,000 | 25,000 | 38,938 | 50,000 | 66,000 | 39,668 |
| Lower Income (less than 2,000 Kn/month) | 4,250 | 9,400 | 16,650 | 24,000 | 43,000 | 20,936 |
| Medium Income (2,000 to 4,000 Kn/month) | 14,000 | 26,000 | 36,000 | 47,280 | 56,000 | 36,851 |
| Higher Income (4,000 Kn/month or more) | 18,000 | 32,000 | 43,000 | 60,000 | 78,000 | 46,598 |

Table 2: Hypothetical Example of Payments Under Two Pension Repayment Options

The table illustrates the breakdown and timing of the payments that would be made under Option A (the more immediate payments) and Option B (the more deferred payments) for a pension repayment amount of 60,000 Kunas. For reference, our survey was fielded between late October 2008 and mid-January 2009.

| | Option A | Option B |
|---|----------------------|-----------------|
| late December 2005 | Decision-Making Time | |
| late June 2006 | 7,500 | |
| late December 2006 | 7,500 | |
| late June 2007 | 7,500 | |
| late December 2007 | 7,500 | 10,000 |
| late June 2008 | | |
| late December 2008 | | 10,000 |
| late June 2009 | | |
| late December 2009 | | 10,000 |
| late June 2010 | | |
| late December 2010 | | 10,000 |
| late June 2011 | | |
| late December 2011 | | 10,000 |
| late June 2012 | | |
| late December 2012 | | 10,000 |
| Total Paid: | 30,000 | 60,000 |
| Discount Rate that Equates the Present Value of the Two Payout Streams | 26.56% | |

Table 3: Summary Statistics for Key Variables, in Percent Unless Stated Otherwise

| Panel A: Rate of Time Preference and Risk Aversion | | Panel C: Education, Financial Literacy, and Self-Assessments | |
|---|--------|---|------|
| <i>Not Willing to Deposit for 1 Year (no CD)</i> | | <i>Education</i> | |
| Willing (no CD=0) | 71.2 | High School or Less | 71.6 |
| Not Willing (no CD=1) | 28.8 | More than High School | 28.4 |
| <i>Deposit Rate for 1 Year (CDI if no CD=0)</i> | | <i>School Exposure to Acc., Bank., Bus., Econ., Fin.</i> | |
| 10th | 5 | Not at All | 46.1 |
| 25th | 5 | A Little | 24.3 |
| Median | 7 | A Lot | 27.4 |
| 75th | 10 | DK/Ref | 2.2 |
| 90th | 15 | <i>Job Exposure to Acc., Bank., Bus., Econ., Fin.</i> | |
| Mean | 8.6 | Not at All | 43.4 |
| <i>Risk Level Regarding Income Gamble</i> | | A Little | 22.9 |
| Take No Gamble | 52.9 | A Lot | 30.0 |
| Take Gamble 2x Income for 10% Loss | 9.9 | DK/Ref | 3.70 |
| Take Gamble 2x Income for 30% Loss | 15.2 | <i>Extensive Financial Calculations Picking A or B</i> | |
| Take Gamble 2x Income for 50% Loss | 8.8 | Not at All Extensive | 57.8 |
| DK/Ref | 13.1 | Somewhat Extensive | 22.1 |
| Panel B: Income, Wealth, and Liquidity Constraints | | Very Extensive | 11.0 |
| <i>Living Standard Relative to Average Retiree</i> | | DK/Ref | 9.3 |
| Below | 20.8 | <i>Good at Calculations</i> | |
| About the Same | 54.7 | Not at All Good | 6.3 |
| Higher | 20.6 | Somewhat Good | 31.8 |
| DK/Ref | 3.8 | Very Good | 59.9 |
| <i>Income (Kn/month)</i> | | DK/Ref | 2.0 |
| Lower Income (less than 2,000) | 9.1 | <i>Good at Everyday Finance</i> | |
| Medium Income (2,000 to 4,000) | 46.4 | Not at All Good | 5.0 |
| Higher Income (4,000 or more) | 44.4 | Somewhat Good | 11.3 |
| Lives With Children? | 42 | Very Good | 80.3 |
| Family Helped? | 32 | DK/Ref | 3.4 |
| <i>Owns...</i> | | <i>Self Perception of Inclination to Take Risk</i> | |
| House? | 87.7 | Not at All Willing | 59.6 |
| CD in Kn? | 30.2 | Moderately Willing | 25.4 |
| CD in Foreign Currency? | 29.1 | Very Willing | 12.2 |
| Vacation Home? | 19.8 | DK/Ref | 2.8 |
| Rental Real Estate? | 7.7 | <i>Financial Skill Relative to Others</i> | |
| Other Real Estate? | 31.6 | Worse than Others | 4.2 |
| Stocks? | 15.9 | About the Same as Others | 56.0 |
| Mutual Funds? | 3.4 | Better than Others | 30.2 |
| Bonds? | 0.9 | DK/Ref | 9.6 |
| <i>Reported Pension Repayment Amount?</i> | | <i>Response to Simple Interest Compounding Question</i> | |
| Did Not Report | 81.8 | Completely Wrong | 18.4 |
| Reported Pension Repayment Amount | 18.2 | Almost Correct | 23.8 |
| <i>Pension Repayment Amount in Kn, if Reported</i> | | Correct | 32.0 |
| 10th | 12,000 | DK/Ref | 25.8 |
| 25th | 25,000 | <i>Response to Simple Inflation Question</i> | |
| Median | 38,938 | Completely Wrong | 4.3 |
| 75th | 50,000 | Almost Correct | 7.6 |
| 90th | 66,000 | Correct | 74.9 |
| Mean | 39,668 | DK/Ref | 13.2 |
| <i>Immediate Need to Pay for Something</i> | | <i>Response to "Doubling" Compounding Question</i> | |
| Very Unlikely or Somewhat Unlikely | 20.8 | Wrong | 24.3 |
| Moderately Likely | 54.7 | Guessed 5-10 Years to Double at 10% | 44.7 |
| Very Likely or Extremely Likely | 20.6 | DK/Ref | 31.1 |
| DK/Ref | 3.8 | <i>Confident in Option Choice at Decision Time</i> | |
| | | Not at All Confident | 40.2 |
| | | Moderately Confident | 21.4 |
| | | Very Confident | 28.9 |
| | | DK/Ref | 9.4 |

Table 3: Summary Statistics for Key Variables (Continued)

| Panel D: Family Structure and Other Demographics | | Panel F: Political Risk | |
|---|------|--|------|
| <i>Married at Time of Option Choice?</i> | 71.1 | <i>Inflation Belief over Several Years at Choice Time</i> | |
| <i>Spouse Picked A?</i> | 18.9 | Annual Inflation in 0-8% Range | 43.6 |
| <i>Spouse Picked B?</i> | 8.0 | Annual Inflation in 9-16% Range | 11.6 |
| <i>Any Children?</i> | 90.6 | Annual Inflation More than 16% | 2.1 |
| <i>How Important that Money Would go to Heirs</i> | | DK/Ref | 42.7 |
| Not at All Important | 19.6 | <i>Exchange Rate Belief over Several Years at Choice Time</i> | |
| Moderately Important | 10.9 | Kn/Euro Will Remain the Same or Appreciate | 51.3 |
| Very Important | 60.3 | Kn Will Depreciate Against Euro | 21.7 |
| DK/Ref | 9.2 | DK/Ref | 27.0 |
| <i>Age at Time of Choice (in years)</i> | | <i>Confidence in Average Unknown Person</i> | |
| 10th | 60 | Not at All Confident | 64.2 |
| 25th | 63 | Moderately Confident | 23.9 |
| Median | 68 | Extremely Confident | 6.4 |
| 75th | 71 | DK/Ref | 5.6 |
| 90th | 75 | <i>Confidence in Croatian Government</i> | |
| Mean | 67.4 | Not at All Confident | 55.3 |
| <i>Important to Receive Most Money While Alive</i> | | Moderately Confident | 26.3 |
| Not at All Important | 22.2 | Extremely Confident | 14.4 |
| Moderately Important | 20.5 | DK/Ref | 3.9 |
| Very Important | 49.8 | <i>Choice Time Confidence All B Payments Will be Made</i> | |
| DK/Ref | 7.5 | Not at All Confident | 36.9 |
| <i>Croat Nationality?</i> | 87.6 | Moderately Confident | 29.1 |
| <i>Formerly Employed by State or Local</i> | 32.4 | Extremely Confident | 32.0 |
| <i>Female?</i> | 58.0 | DK/Ref | 2.1 |
| Panel E: Health and Longevity | | <i>Concern Government Might Not Honor Its Commitment</i> | |
| <i>Health Relative to Peers (Other Retirees)</i> | | Not at All Important | 26.1 |
| Very Poor or Poor | 22.4 | Moderately Important | 22.1 |
| Average | 45.0 | Extremely Important | 44.4 |
| Good or Excellent | 31.5 | DK/Ref | 7.4 |
| DK/Ref | 1.2 | <i>Desire to Receive Full Amount Due No Matter How Long it Takes</i> | |
| <i>Likelihood Alive 7+ Years Beyond Choice Time</i> | | Not at All Important | 17.0 |
| Not at All or Somewhat Likely | 21.8 | Moderately Important | 13.6 |
| Moderately Likely | 28.5 | Extremely Important | 60.8 |
| Very or Extremely Likely | 33.9 | DK/Ref | 8.6 |
| DK/Ref | 15.8 | | |

Table 4: Regression of Self-Reported Rate of Time Preference

The dependent variable is the self-reported rate of time preference for a one-year bank deposit (expressed in percentage points). We estimate the regression using a Tobit model as the time-preference variable is censored for the three-tenths of the sample that reported there was no rate at which they would defer consumption for one year via a bank deposit. These observations are censored at 25 percentage points as well as the handful of respondents that reported a rate of time preference greater than 25. Robust standard errors are calculated. The regression is estimated on 2,490 observations and the pseudo R-squared of the regression is 0.024. ***, **, * denote statistical significance at the 1-percent, 5-percent, and 10-percent levels, respectively.

| Panel A: Rate of Time Preference and Risk Aversion | | | Panel C: Education, Financial Literacy, and Self-Assessments | | |
|---|----------|------|---|----------|------|
| | Coef. | SE | | Coef. | SE |
| <i>Risk Level Regarding Income Gamble</i> | | | <i>Education</i> | | |
| Take Gamble 2x Income for 10% Loss | -2.40*** | 0.80 | More than High School | 0.32 | 0.57 |
| Take Gamble 2x Income for 30% Loss | -1.39** | 0.68 | <i>School Exposure to Acc., Bank., Bus., Econ., Fin.</i> | | |
| Take Gamble 2x Income for 50% Loss | 0.40 | 0.86 | A Little | 0.99 | 0.64 |
| | DK/Ref | 0.77 | A Lot | 1.62** | 0.72 |
| | | | DK/Ref | 2.68 | 1.77 |
| Panel B: Income, Wealth, and Liquidity Constraints | | | <i>Job Exposure to Acc., Bank., Bus., Econ., Fin.</i> | | |
| | Coef. | SE | A Little | -0.96 | 0.65 |
| <i>Living Standard Relative to Average Retiree</i> | | | A Lot | -0.80 | 0.70 |
| About the Same | 1.04* | 0.64 | DK/Ref | -3.78*** | 1.35 |
| Higher | 2.34*** | 0.86 | <i>Good at Calculations</i> | | |
| DK/Ref | 2.67* | 1.43 | Somewhat Good | -1.78* | 1.07 |
| <i>Income (Kn/month)</i> | | | Very Good | -0.66 | 1.06 |
| Medium Income (2,000 to 4,000) | 0.83 | 0.90 | DK/Ref | -0.22 | 2.14 |
| Higher Income (4,000 or more) | 1.94** | 1.00 | <i>Good at Everyday Finance</i> | | |
| <i>Lives With Children?</i> | | | Somewhat Good | -0.49 | 1.31 |
| | -0.40 | 0.49 | Very Good | -1.56 | 1.16 |
| <i>Family Helped?</i> | | | DK/Ref | -1.36 | 1.85 |
| | -0.18 | 0.53 | <i>Self Perception of Inclination to Take Risk</i> | | |
| <i>Owns...</i> | | | Moderately Willing | -2.34*** | 0.56 |
| House? | 0.08 | 0.73 | Very Willing | -2.30*** | 0.75 |
| CD in Kn? | -3.70*** | 0.55 | DK/Ref | 1.13 | 1.61 |
| CD in Foreign Currency? | -3.32*** | 0.57 | <i>Financial Skill Relative to Others</i> | | |
| Vacation Home? | -0.99 | 0.62 | About the Same as Others | 0.86 | 1.24 |
| Rental Real Estate? | 0.54 | 0.95 | Better than Others | -0.91 | 1.30 |
| Other Real Estate? | 0.57 | 0.53 | DK/Ref | -1.14 | 1.45 |
| Stocks? | -0.62 | 0.68 | <i>Response to Simple Interest Compounding</i> | | |
| Mutual Funds? | -0.19 | 1.33 | Almost Correct | -1.82** | 0.73 |
| Bonds? | 4.47* | 2.76 | Correct | -2.01*** | 0.69 |
| | | | DK/Ref | 0.76 | 0.79 |
| | | | <i>Response to Simple Inflation Question</i> | | |
| | | | Almost Correct | 0.89 | 1.41 |
| | | | Correct | 0.55 | 1.17 |
| | | | DK/Ref | 2.59* | 1.36 |
| | | | <i>Response to "Doubling" Compounding Question</i> | | |
| | | | Guessed 5-10 Years to Double at | 0.21 | 0.59 |
| | | | DK/Ref | 1.65** | 0.71 |

Table 4: Regression of Self-Reported Rate of Time Preference (Continued)

| Panel D: Family Structure and Other Demographics | | | Panel F: Political Risk | | |
|---|-------|------|---|--------|------|
| | Coef. | SE | | Coef. | SE |
| <i>Married at Time of Option Choice?</i> | -0.87 | 0.60 | <i>Inflation Belief over Several Years at Choice Time</i> | | |
| <i>Any Children?</i> | 0.30 | 0.86 | Annual Inflation in 9-16% Range | -0.56 | 0.78 |
| <i>Age at Time of Choice</i> | 0.01 | 0.04 | Annual Inflation More than 16% | 3.13* | 1.74 |
| <i>Croat Nationality?</i> | 0.89 | 0.72 | DK/Ref | 0.81 | 0.58 |
| <i>Formerly Employed by State or Local Gov't?</i> | 0.38 | 0.50 | <i>Exchange Rate Belief over Several Years at Choice Time</i> | | |
| <i>Female?</i> | 0.37 | 0.55 | Kn Will Depreciate Against Euro | 1.37** | 0.61 |
| | | | DK/Ref | 1.56** | 0.63 |
| Panel E: Health and Longevity | | | | | |
| | Coef. | SE | | | |
| <i>Health Relative to Peers (Other Retirees)</i> | | | | | |
| Average | -0.11 | 0.64 | | | |
| Good or Excellent | -0.55 | 0.70 | | | |
| DK/Ref | 1.74 | 2.44 | | | |
| <i>Likelihood Alive 7+ Years Beyond Choice Time</i> | | | | | |
| Moderately Likely | 0.15 | 0.69 | | | |
| Very or Extremely Likely | -0.20 | 0.70 | | | |
| DK/Ref | -0.39 | 0.83 | | | |

Table 5: Linear regression of decision to select Option B (more deferred payment) for pension repayment

The dependent variable is an indicator variable for whether the respondent selected pension repayment Option B (the more deferred payment option). This variable is expressed as 0 if the respondent picked Option A (more immediate payment) and 100 if the respondent picked Option B, thus the coefficients represent percentage point changes in the likelihood of picking Option B. The linear regression is estimated by OLS, with robust standard errors. The regression is estimated on 2,490 observations and the adjusted R-squared of the regression is 0.317. ^{***}, ^{**}, ^{*} denote statistical significance at the 1-percent, 5-percent, and 10-percent levels, respectively.

| Panel A: Rate of Time Preference and Risk Aversion | | | Panel C: Education, Financial Literacy, and Self-Assessments | | |
|---|-----------|-------|---|----------|------|
| | Coef. | SE | | Coef. | SE |
| <i>Not Willing to Deposit for 1 Year</i> | 1.10 | 2.33 | <i>Education</i> | | |
| <i>Deposit Rate for 1 Year (CD1 if no CD1=0)</i> | -0.15 | 0.17 | More than High School | 3.77** | 1.93 |
| <i>Risk Level Regarding Income Gamble</i> | | | <i>School Exposure to Acc., Bank., Bus., Econ., Fin.</i> | | |
| Take Gamble 2x Income for 10% Loss | -0.89 | 2.75 | A Little | 0.60 | 2.13 |
| Take Gamble 2x Income for 30% Loss | -1.33 | 2.23 | A Lot | 3.13 | 2.45 |
| Take Gamble 2x Income for 50% Loss | 0.58 | 2.92 | DK/Ref | -5.73 | 5.36 |
| DK/Ref | 0.72 | 2.57 | <i>Job Exposure to Acc., Bank., Bus., Econ., Fin.</i> | | |
| Panel B: Income, Wealth, and Liquidity Constraints | | | A Little | -3.05 | 2.20 |
| | Coef. | SE | A Lot | -3.70 | 2.33 |
| <i>Living Standard Relative to Average Retiree</i> | | | DK/Ref | 3.87 | 4.13 |
| About the Same | 0.20 | 2.13 | <i>Extensive Financial Calculations in Picking A or B</i> | | |
| Higher | 0.65 | 3.00 | Somewhat Extensive | 0.13 | 1.98 |
| DK/Ref | 1.77 | 4.63 | Very Extensive | 0.01 | 2.64 |
| <i>Income (Kn/month)</i> | | | DK/Ref | -4.69* | 2.76 |
| Medium Income (2,000 to 4,000) | 6.49** | 2.81 | <i>Good at Calculations</i> | | |
| Higher Income (4,000 or more) | 6.23* | 3.27 | Somewhat Good | 0.07 | 3.34 |
| <i>Lives With Children?</i> | 1.58 | 1.65 | Very Good | 0.96 | 3.30 |
| <i>Family Helped?</i> | 1.94 | 1.78 | DK/Ref | 9.90 | 7.51 |
| <i>Owns...</i> | | | <i>Good at Everyday Finance</i> | | |
| House? | -1.09 | 2.33 | Somewhat Good | -3.28 | 4.34 |
| CD in Kn? | 0.07 | 1.90 | Very Good | -6.54* | 3.89 |
| CD in Foreign Currency? | 3.26* | 1.98 | DK/Ref | -9.76* | 5.95 |
| Vacation Home? | 2.58 | 2.13 | <i>Self Perception of Inclination to Take Risk</i> | | |
| Rental Real Estate? | 1.92 | 3.25 | Moderately Willing | 0.92 | 1.93 |
| Other Real Estate? | 1.08 | 1.80 | Very Willing | -0.81 | 2.60 |
| Stocks? | 4.70** | 2.38 | DK/Ref | 5.98 | 5.81 |
| Mutual Funds? | -0.07 | 4.95 | <i>Financial Skill Relative to Others</i> | | |
| Bonds? | 1.83 | 12.40 | About the Same as Others | -4.80 | 4.06 |
| <i>Did Not Report Pension Repayment</i> | 19.01 | 12.28 | Better than Others | -3.84 | 4.26 |
| <i>ln(Pension Payment Amount, if Reported)</i> | 2.42** | 1.17 | DK/Ref | -1.55 | 4.70 |
| <i>Immediate Need to Pay for Something</i> | | | <i>Response to Simple Interest Compounding</i> | | |
| Moderately Likely | -7.44*** | 2.63 | Almost Correct | 2.23 | 2.46 |
| Very Likely or Extremely Likely | -17.74*** | 2.17 | Correct | -0.06 | 2.28 |
| DK/Ref | -0.31 | 5.14 | DK/Ref | 1.95 | 2.56 |
| | | | <i>Response to Simple Inflation Question</i> | | |
| | | | Almost Correct | 6.35 | 4.82 |
| | | | Correct | 6.84* | 3.88 |
| | | | DK/Ref | 5.11 | 4.48 |
| | | | <i>Response to "Doubling" Compounding Question</i> | | |
| | | | Guessed 5-10 Years to Double at | 0.02 | 2.03 |
| | | | DK/Ref | 1.94 | 2.34 |
| | | | <i>Confident in Option Choice at Decision Time</i> | | |
| | | | Moderately Confident | 3.70* | 2.10 |
| | | | Very Confident | 11.50*** | 2.14 |
| | | | DK/Ref | -2.07 | 2.89 |

Table 5: Linear regression of decision to select Option B (more deferred payment) for pension repayment, continued

| Panel D: Family Structure and Other Demographics | | | Panel F: Political Risk | | |
|---|-----------|------|--|----------|------|
| | Coef. | SE | | Coef. | SE |
| <i>Married at Time of Option Choice?</i> | 3.47 | 2.17 | <i>Inflation Belief over Several Years at Choice Time</i> | | |
| <i>Spouse Picked A?</i> | -16.76*** | 1.99 | Annual Inflation in 9-16% Range | -2.35 | 2.60 |
| <i>Spouse Picked B?</i> | 33.22*** | 3.26 | Annual Inflation More than 16% | -11.46* | 6.02 |
| <i>Any Children?</i> | 9.69*** | 2.50 | DK/Ref | -3.02 | 1.94 |
| <i>How Important that Money Would go to Heirs</i> | | | <i>Exchange Rate Belief over Several Years at Choice Time</i> | | |
| Moderately Important | 4.27 | 2.91 | Kn Will Depreciate Against Euro | -3.94** | 2.05 |
| Very Important | 8.52*** | 2.16 | DK/Ref | 1.25 | 2.11 |
| DK/Ref | 1.02 | 2.97 | <i>Confidence in Average Unknown Person</i> | | |
| <i>Age at Time of Choice</i> | -1.01*** | 0.14 | Moderately Confident | -1.89 | 1.93 |
| <i>Important to Receive Most Money While Alive</i> | | | Extremely Confident | -2.99 | 3.21 |
| Moderately Important | -6.15** | 2.57 | DK/Ref | -2.04 | 3.46 |
| Very Important | -4.46** | 2.19 | <i>Confidence in Croatian Government</i> | | |
| DK/Ref | -6.59* | 3.69 | Moderately Confident | -0.88 | 1.91 |
| <i>Croat Nationality?</i> | -2.59 | 2.39 | Extremely Confident | 0.74 | 2.51 |
| <i>Formerly Employed by State or Local Gov't?</i> | 0.17 | 1.71 | DK/Ref | 3.85 | 4.19 |
| <i>Female?</i> | -2.27 | 1.90 | <i>Choice Time Confidence All B Payments Will be Made</i> | | |
| Panel E: Health and Longevity | | | Moderately Confident | 7.05*** | 1.95 |
| | Coef. | SE | Extremely Confident | 11.54*** | 2.10 |
| <i>Health Relative to Peers (Other Retirees)</i> | | | DK/Ref | -4.19 | 5.11 |
| Average | 2.09 | 2.05 | <i>Concern Government Might Not Honor Its Commitment</i> | | |
| Good or Excellent | 5.79*** | 2.26 | Moderately Important | -1.75 | 2.36 |
| DK/Ref | 5.08 | 7.55 | Extremely Important | -7.03*** | 2.01 |
| <i>Likelihood Alive 7+ Years Beyond Choice Time</i> | | | DK/Ref | 4.13 | 3.82 |
| Moderately Likely | 7.82*** | 2.22 | <i>Desire to Receive Full Amount Due No Matter How Long it Takes</i> | | |
| Very or Extremely Likely | 7.91*** | 2.31 | Moderately Important | 11.52*** | 2.73 |
| DK/Ref | 5.50** | 2.61 | Extremely Important | 26.85*** | 2.11 |
| | | | DK/Ref | 8.48*** | 3.19 |

Table 6: Linear regression of desire to change from Option A (more immediate payment) to Option B (more deferred payment)

The dependent variable is an indicator variable for whether the respondent today would desire to change from Option A (more immediate payment) to Option B (more deferred payment) for the pension repayment plan. The regression is only estimated over the respondents that originally selected Option A. The dependent variable is expressed as 0 if the respondent would stick with the original selection of Option A and 100 if the respondent would switch from Option A to Option B. Thus, the coefficients represent percentage point changes in the likelihood of switching to Option B. The linear regression is estimated by OLS with robust standard errors. The regression is estimated on 1,729 observations and the adjusted R-squared of the regression is 0.102. ***, **, * denote statistical significance at the 1-percent, 5-percent, and 10-percent levels, respectively.

| Panel A: Rate of Time Preference and Risk Aversion | | | Panel C: Education, Financial Literacy, and Self-Assessments | | | |
|---|-----------------------|-------|---|-----------------------|-------|--|
| | Coef. | SE | | Coef. | SE | |
| <i>Not Willing to Deposit for 1 Year</i> | -12.81 ^{***} | 3.36 | <i>Education</i> | | | |
| <i>Deposit Rate for 1 Year (CD1 if no CD1=0)</i> | -0.21 | 0.21 | More than High School | -2.69 | 2.97 | |
| <i>Risk Level Regarding Income Gamble</i> | | | <i>School Exposure to Acc., Bank., Bus., Econ., Fin.</i> | | | |
| Take Gamble 2x Income for 10% Loss | 1.17 | 4.13 | A Little | 4.31 | 3.11 | |
| Take Gamble 2x Income for 30% Loss | -1.14 | 3.45 | A Lot | -0.21 | 3.71 | |
| Take Gamble 2x Income for 50% Loss | 0.30 | 4.27 | DK/Ref | -2.57 | 8.45 | |
| DK/Ref | 5.29 | 3.74 | <i>Job Exposure to Acc., Bank., Bus., Econ., Fin.</i> | | | |
| Panel B: Income, Wealth, and Liquidity Constraints | | | A Little | -1.51 | 3.19 | |
| | Coef. | SE | A Lot | -4.14 | 3.51 | |
| <i>Living Standard Relative to Average Retiree</i> | | | DK/Ref | 0.85 | 6.27 | |
| About the Same | -3.81 | 3.16 | <i>Extensive Financial Calculations in Picking A or B</i> | | | |
| Higher | -6.06 | 4.50 | Somewhat Extensive | -2.12 | 3.04 | |
| DK/Ref | -8.67 | 6.96 | Very Extensive | -2.80 | 3.97 | |
| <i>Income (Kn/month)</i> | | | DK/Ref | 1.04 | 4.16 | |
| Medium Income (2,000 to 4,000) | 3.82 | 4.20 | <i>Good at Calculations</i> | | | |
| Higher Income (4,000 or more) | 2.30 | 4.79 | Somewhat Good | -6.02 | 5.05 | |
| <i>Lives With Children?</i> | -1.76 | 2.49 | Very Good | -1.88 | 5.04 | |
| <i>Family Helped?</i> | 2.15 | 2.64 | DK/Ref | 4.38 | 10.33 | |
| <i>Owens...</i> | | | <i>Good at Everyday Finance</i> | | | |
| House? | 2.63 | 3.75 | Somewhat Good | -12.16 ^{**} | 6.34 | |
| CD in Kn? | 1.55 | 2.84 | Very Good | -8.01 | 5.75 | |
| CD in Foreign Currency? | 2.94 | 3.03 | DK/Ref | -24.97 ^{***} | 8.90 | |
| Vacation Home? | -0.12 | 3.21 | <i>Self Perception of Inclination to Take Risk</i> | | | |
| Rental Real Estate? | -10.44 ^{**} | 5.17 | Moderately Willing | 5.81 ^{**} | 2.88 | |
| Other Real Estate? | 1.26 | 2.69 | Very Willing | 0.21 | 3.72 | |
| Stocks? | -1.96 | 3.58 | DK/Ref | -0.82 | 7.93 | |
| Mutual Funds? | 11.06 | 6.85 | <i>Financial Skill Relative to Others</i> | | | |
| Bonds? | -17.60 | 19.22 | About the Same as Others | -0.75 | 5.97 | |
| <i>Did Not Report Pension Repayment</i> | 40.90 ^{***} | 16.75 | Better than Others | -5.13 | 6.37 | |
| <i>ln(Pension Payment Amount, if Reported)</i> | 4.13 ^{***} | 1.59 | DK/Ref | 0.05 | 6.83 | |
| <i>Immediate Need to Pay for Something</i> | | | <i>Response to Simple Interest Compounding</i> | | | |
| Moderately Likely | -0.69 | 3.99 | Almost Correct | -10.45 ^{***} | 3.72 | |
| Very Likely or Extremely Likely | 2.85 | 3.47 | Correct | -9.87 ^{***} | 3.43 | |
| DK/Ref | -2.46 | 7.56 | DK/Ref | -4.27 | 3.84 | |
| | | | <i>Response to Simple Inflation Question</i> | | | |
| | | | Almost Correct | -2.39 | 6.53 | |
| | | | Correct | -4.40 | 5.27 | |
| | | | DK/Ref | -3.11 | 6.37 | |
| | | | <i>Response to "Doubling" Compounding Question</i> | | | |
| | | | Guessed 5-10 Years to Double at 10% | -5.59 [*] | 3.00 | |
| | | | DK/Ref | -5.86 [*] | 3.53 | |
| | | | <i>Confident in Option Choice at Decision Time</i> | | | |
| | | | Moderately Confident | -4.76 | 3.23 | |
| | | | Very Confident | -18.20 ^{***} | 3.17 | |
| | | | DK/Ref | -1.05 | 4.35 | |

Table 6: Linear regression of desire to change from Option A (more immediate payment) to Option B (more deferred payment), continued

| Panel D: Family Structure and Other | | | Panel F: Political Risk | | |
|---|-----------|-------|--|----------|------|
| | Coef. | SE | | Coef. | SE |
| <i>Married at Time of Option Choice?</i> | 1.89 | 3.23 | <i>Inflation Belief over Several Years at Choice Time</i> | | |
| <i>Spouse Picked A?</i> | -2.70 | 3.12 | Annual Inflation in 9-16% Range | -1.05 | 3.89 |
| <i>Spouse Picked B?</i> | 7.13 | 7.21 | Annual Inflation More than 16% | -9.66 | 8.92 |
| <i>Any Children?</i> | 1.75 | 4.09 | DK/Ref | -2.60 | 2.90 |
| <i>How Important that Money Would go to Heirs</i> | | | <i>Exchange Rate Belief over Several Years at Choice Time</i> | | |
| Moderately Important | -5.08 | 4.52 | Kn Will Depreciate Against Euro | 4.22 | 3.06 |
| Very Important | 4.06 | 3.32 | DK/Ref | 5.70* | 3.05 |
| DK/Ref | 5.23 | 5.07 | <i>Confidence in Average Unknown Person</i> | | |
| <i>Age at Time of Choice</i> | -0.17 | 0.21 | Moderately Confident | 1.26 | 2.95 |
| <i>Important to Receive Most Money While Alive</i> | | | Extremely Confident | 0.57 | 4.74 |
| Moderately Important | 1.46 | 3.87 | DK/Ref | 3.53 | 5.45 |
| Very Important | 3.87 | 3.47 | <i>Confidence in Croatian Government</i> | | |
| DK/Ref | -4.43 | 5.71 | Moderately Confident | 0.34 | 3.03 |
| <i>Croat Nationality?</i> | 0.25 | 3.62 | Extremely Confident | 4.79 | 3.75 |
| <i>Formerly Employed by State or Local</i> | 1.81 | 2.50 | DK/Ref | 10.17 | 6.35 |
| <i>Female?</i> | 3.56 | 2.86 | <i>Choice Time Confidence All B Payments Will be Made</i> | | |
| Panel E: Health and Longevity | | | Moderately Confident | -6.49** | 2.94 |
| | Coef. | SE | Extremely Confident | -6.31** | 3.22 |
| <i>Health Relative to Peers (Other Retirees)</i> | | | DK/Ref | -3.55 | 8.15 |
| Average | 1.46 | 3.15 | <i>Concern Government Might Not Honor Its Commitment</i> | | |
| Good or Excellent | -1.84 | 3.52 | Moderately Important | 5.42 | 3.60 |
| DK/Ref | -8.05 | 10.55 | Extremely Important | 1.66 | 3.12 |
| <i>Likelihood Alive 7+ Years Beyond Choice Time</i> | | | DK/Ref | -4.97 | 5.66 |
| Moderately Likely | -4.25 | 3.35 | <i>Desire to Receive Full Amount Due No Matter How Long It Takes</i> | | |
| Very or Extremely Likely | -9.38*** | 3.49 | Moderately Important | 10.13** | 4.26 |
| DK/Ref | -16.03*** | 4.03 | Extremely Important | 13.38*** | 3.49 |
| | | | DK/Ref | 10.32** | 5.35 |
| | | | <i>Confidence in Likelihood All Payments Will Be Made After Seeing 1st Made</i> | | |
| | | | More Confident | 5.33** | 2.52 |
| | | | DK/Ref | -5.49 | 5.73 |

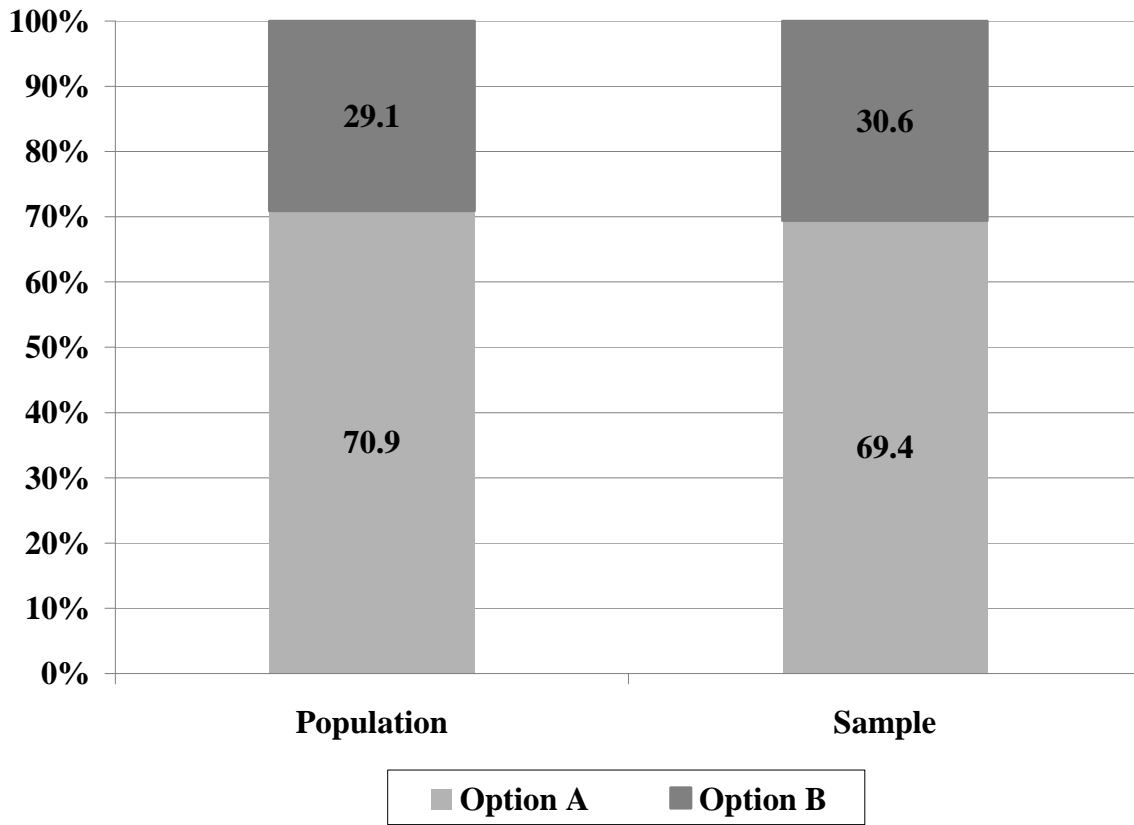


Figure 1: Percent choosing pension repayment Option A (more immediate payment) and Option B (more deferred payment) in the population and the sample.

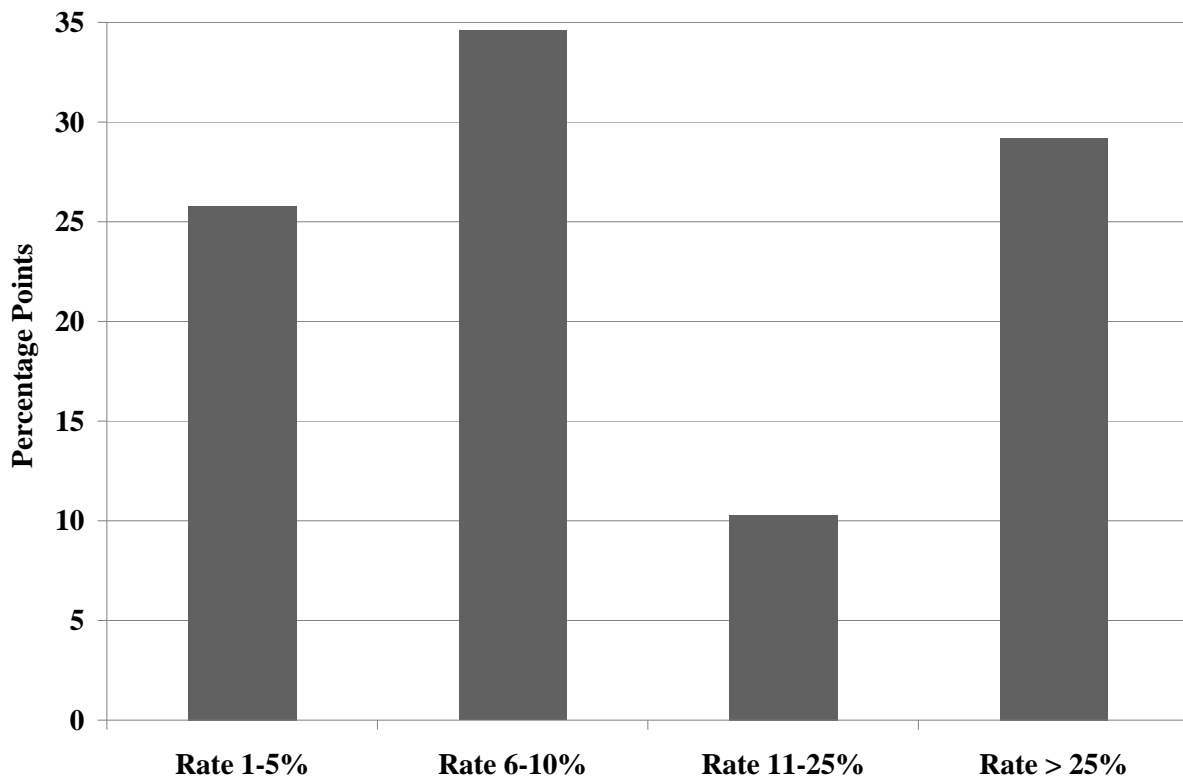


Figure 2: Distribution of self-reported rates of time preference.

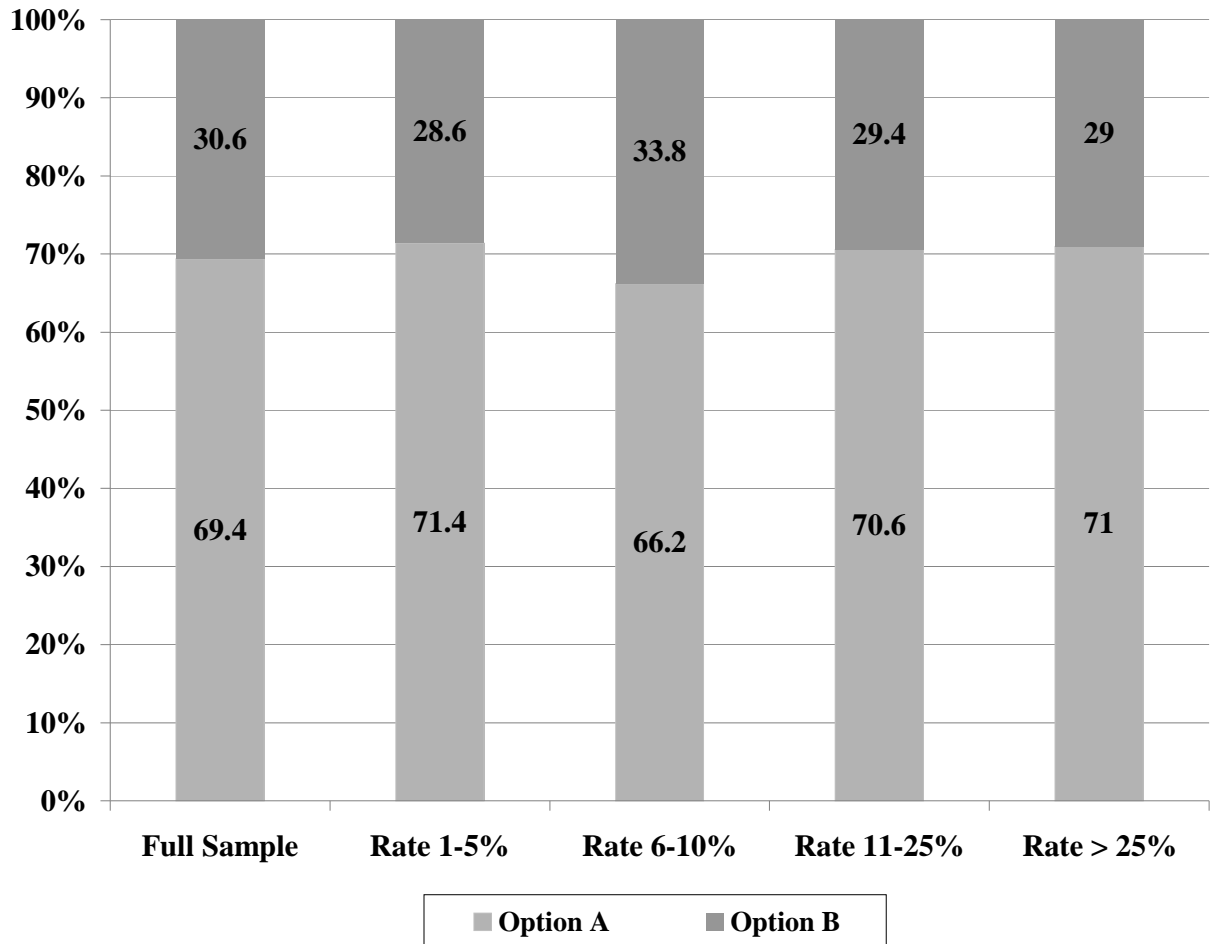


Figure 3: Percent choosing pension repayment Option A (more immediate payment) and Option B (more deferred payment) by self-reported rate of time preference.

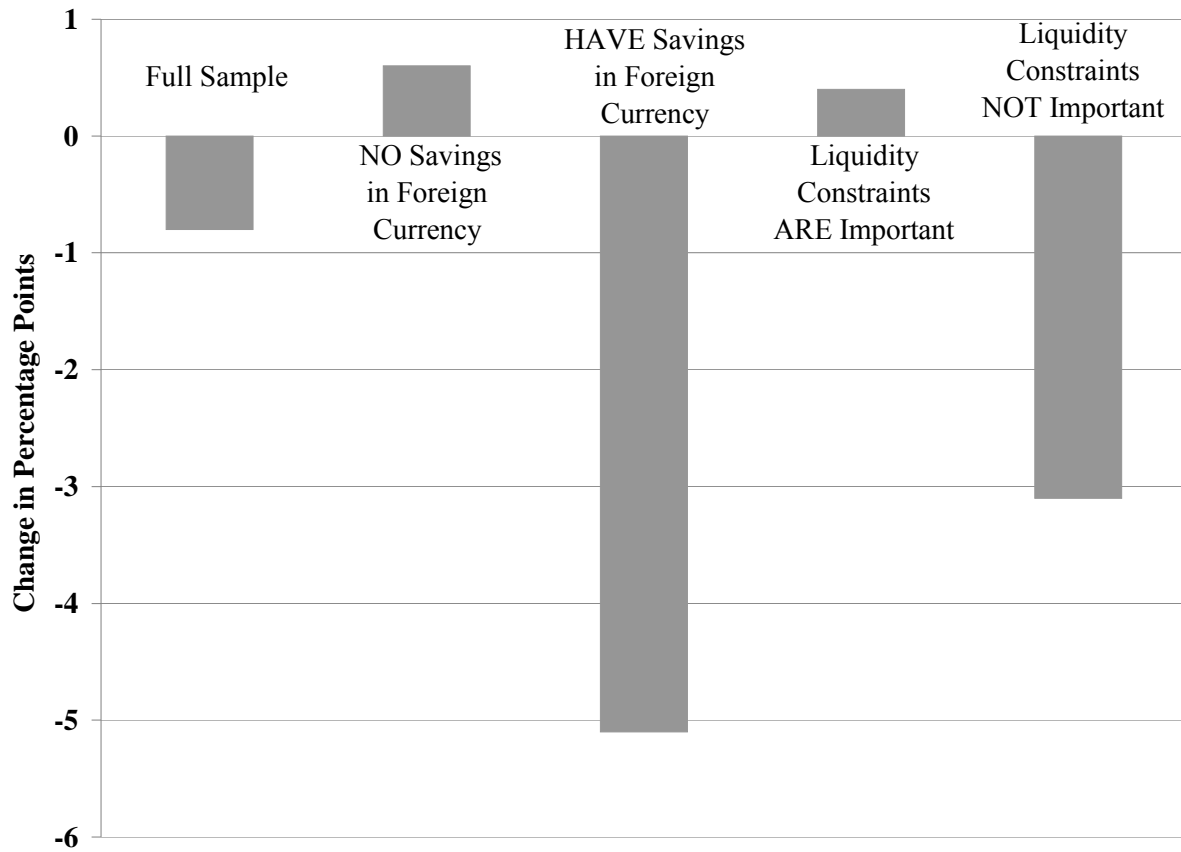


Figure 4: Change in likelihood of selecting pension repayment Option B (more deferred payment) associated with a 5% increase in the individual's stated rate of time preference, for the full sample and by subgroups.

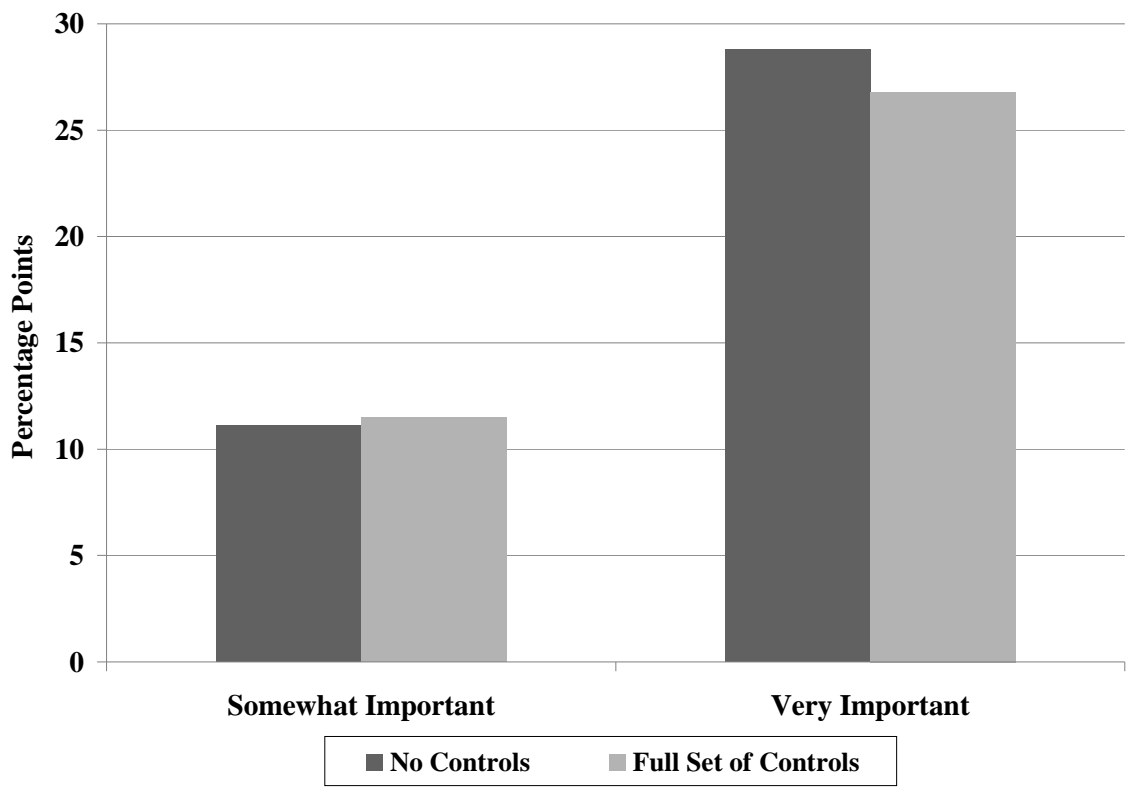


Figure 5: Likelihood of selecting pension repayment Option B (more deferred payment) for individuals for whom “being made whole no matter how long it takes” is somewhat important or very important (relative to those for whom it is not important).