

Mandatory Retirement Saving and the Efficiency Consequences of Transfers to the Elderly

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Abstract

This paper provides an efficiency-based motivation for mandatory retirement saving where savers are rational and lifespans are certain. In a model of the investment and transfer decisions of a benevolent government and a citizen, the distortion of young workers' saving by the government's preferred means-tested transfer to the aged is corrected through a mandatory saving program. The optimal policy rationalizes the structure of the existing Social Security earnings tax. In addition, the theory addresses two concerns regarding the suitability of the free rider problem as a rationale for mandatory retirement saving. First, I find that private retirement wealth can coexist with an effective public pension where citizens' earnings are uncertain. Second, where anticipated public pension income and transfer benefits are exempted from creditors' claims, as present Social Security and SSI benefits are, the citizen cannot "undo" mandatory retirement saving through inefficiently high debt.

Keywords: Social Security; mandatory retirement saving; social insurance

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1 Introduction

The ongoing debate over Social Security reform has led researchers and policymakers to revisit the arguments for mandatory public pension systems put forward in the last two decades. Equity effects of the redistribution implicit in the existing U.S. Social Security program and proposed reforms have been the subject of recent analysis.¹ This paper focuses on the contribution of a mandatory public pension system to economic efficiency.

Economists have constructed two popular efficiency-based arguments in support of an optimally devised social security program. Feldstein (1985) demonstrates that where individuals are myopic the government can improve public welfare by implementing mandatory retirement saving. While there exists a large body of research arguing that U.S. workers save too little for retirement, there is also a growing list of dissenters who reconcile observed saving with standard life-cycle models.² To economists who are convinced that Americans are rational savers, myopia may be an unsatisfying justification for Social Security's involuntary saving component. The second familiar rationale for Social Security comes from Eckstein, Eichenbaum and Peled (1985), who show that, where private information limits annuity markets, an earnings tax used to fund an annuitized retirement benefit may be Pareto improving. The incompleteness of private annuity markets functions as a chief argument for the Social Security program's compulsory saving and annuitization. However, the collection of reforms proposed by the President's Commission to Strengthen Social Security (2001) maintains the level of mandatory retirement saving in the current system while repealing much of the system's mandatory annuitization. This leads us to consider what benefit mandatory savings might offer in the absence of mandatory annuitization.³

If savers are rational and the public pension system does not contribute to the pooling of longevity risk, then what purpose is served by compulsory retirement saving? In this paper I argue that society's altruistic concern for the well-being of the aged threatens the efficiency of life-cycle

¹Examples include Brown (2002) and Liebman (2002).

²Arguments that Americans undersave can be found in Kotlikoff, Spivak, and Summers (1982), Moore and Mitchell (1998), Wolff (2002) and others. Engen, Gale, and Uccello (1999), Hurd and Rohwedder (2003), Hurd and Zissimopoulos (2003) and Scholz, Seshadri, and Khitatrakun (2003) contend that observed saving behavior can be rationalized using conventional life-cycle models.

³One possibility noted by Diamond (1977) is that Social Security is a desirable tool for the redistribution of wealth within and among generations. Though redistribution is certainly accomplished through Social Security, this objective does not explain the regressivity of the Social Security earnings tax or the increase in old-age benefits with work-life earnings in the present system and proposed reforms.

saving decisions, and that a mandatory saving program resembling Social Security may remove the threat. This argument for mandatory saving through Social Security is established in Musgrave (1967) and emerges independently in Kotlikoff (1987, 1989) and in Lindbeck and Weibull (1988), though the latter papers emphasize reservations. To my knowledge it is otherwise absent from the literature.⁴ My model formalizes and extends this rationale for mandatory retirement saving, generating new insight into the structure of Social Security taxes and benefits and a response to the concerns of Kotlikoff, Lindbeck and Weibull.

The decision-makers of interest are a citizen and an independent government that is concerned with citizens' private consumption and expenditures on public works. This approach allows the theory to focus on the influence of transfer and saving programs on the life-cycle efficiency of citizens' consumption behavior. I find that an optimizing government with concern for the welfare of its citizens values the ability to offer means-tested transfer benefits as insurance against the risk of financial hardship in old age. A mandatory retirement saving program permits such a government to offer its preferred old age transfer while removing or lessening the inefficiency in citizens' consumption that emerges in response to the transfer.

The theory implies that a proportion of the citizen's earnings up to a common taxable earnings ceiling is collected to support the optimal mandatory savings. Above the earnings tax ceiling, further mandatory savings have no positive efficiency consequences and do not benefit the government. This optimal collection scheme is consistent with the regressive structure of the U.S. Social Security earnings tax, a feature of the program unaddressed by existing efficiency arguments and with puzzling equity consequences.

In addition, the model addresses the concerns raised by Kotlikoff, Lindbeck and Weibull regarding the ability of the free-rider problem to justify compulsory saving. Where a transfer beneficiary's income is certain, Lindbeck and Weibull note that a compulsory saving program with desirable efficiency results must bind: no beneficiary required to save by a donor should hold voluntary private savings. For the case of a government and citizen, I demonstrate that the inclusion of earnings risk

⁴This statement is accurate where the analysis is restricted to the decisions of life-cycle savers. Veall (1986), Laitner (1988), and Hansson and Stuart (1989) express the tendency of the old to free-ride on the altruistic concern of the young in overlapping generations frameworks, and analyze the contribution of a pay-as-you-go Social Security program to efficiency in intergenerational allocations. Where their approach is able to address the role of pay-go, analysis of the life-cycle problem addresses other policy details such as the payroll tax structure and creditors' claims to benefits.

in the citizen's problem permits effective public pensions to coexist with private retirement wealth.

As observed by Kotlikoff, the effectiveness of compulsory saving hangs on the ability and propensity of the citizen to “undo” the imposed saving by depleting private assets or borrowing. Research on inter-vivos transfers has demonstrated that the nature of the capital markets to which a potential transfer beneficiary has access is a critical determinant of the amount of influence she has over the equilibrium allocation of resources. My model deals with the concern over the transfer recipient's borrowing ability by assuming that a citizen's creditors have no claim to her public pension wealth or transfer benefit in the event that she declares bankruptcy, as is the case in the existing Social Security and Supplemental Security Income (SSI) programs. Implications of bankruptcy protection include that the government-mandated stock of retirement wealth survives any choice made by the young citizen, and the citizen may not trade claims to expected means-tested transfers.

This paper is organized as follows. A brief description of the related literature, including sources in the inter-vivos transfers literature on which this paper relies, is included as Section 2. Section 3 establishes evidence from the General Social Survey (GSS) on the popularity of support for the disadvantaged elderly. Section 4 presents a model of the investment and transfer choices of a benevolent government and a citizen, and derives a welfare maximizing savings and transfer program for the government. Given these findings, Section 5 relates the model predictions to existing U.S. programs. This is followed by a section of concluding comments.

2 Related research

In the above-mentioned essay on the theoretical and practical roles of social insurance, including Social Security, Musgrave writes

The provision for minimum income, designed to assure that no one should suffer economic distress, must by its very nature be related to current needs. It is not enough for the humanitarian to assure adequate lifetime income. The aged but penniless Jack has to be supported even though his earlier income would have been sufficient to provide for his old age. Distress must be relieved even when due to negligence, and this is precisely why social insurance is needed. (Richard A. Musgrave 1967 p. 71)

It may be useful to note that the unwillingness of a "humanitarian", in Musgrave's terminology, to impose distress as punishment for negligence implies that humanitarian social preferences are sufficient to generate a role for mandatory saving. Thus the value of mandatory saving need not rely on indistinguishable chance- and effort-based components of citizens' income streams. Musgrave goes on to describe U.S. Old Age and Survivors' Insurance (OASI) as a compulsory (and contributory) saving program that is separate from programs for poverty alleviation but that nonetheless deters over-reliance on such programs. One task of the present research is to flesh out arguments extended by Musgrave (1967) regarding retirement saving.⁵

The influence of an exogenously determined, means-tested transfer on life-cycle saving is the focus of Hubbard, Skinner, and Zeldes (1995). Hubbard et al. observe that the lowest two quintiles of lifetime earners in the U.S. tend to hold little or no private retirement wealth. They argue that this observation represents the distortion produced by the SSI means-tested transfer benefit for individuals 65 and older, and that the inclusion of a realistic old age consumption floor in a life-cycle model of saving goes far in the direction of rationalizing the apparent undersaving of lower earners. In the context of Hubbard et al., this research adds the observation that a government free to design both a transfer benefit program and a retirement saving program can limit such saving distortions.

The approach taken here also borrows from the economic literature on intergenerational transfers, with analogies drawn between parents and governments, as benevolent authorities, and between children and citizens, as potential transfer recipients. Future transfer opportunities are known to complicate the interactions of altruistic parents and their children. While Becker's (1974, 1981) "rotten kid theorem" states that children behave in the interest of the family when interacting with an altruistic parent, this result is based on a static approach. Bruce and Waldman (1990) demonstrate that the addition of a second period and second transfer opportunity for the parent leads to strategic concerns for both parties, and the possibility of inefficient saving by the child. Where the parent makes a (positive) second period transfer, the child's second period consumption is a share of total family assets. Since this share is less than one, the child is rewarded for saving \$1 with less than \$1 in future consumption, and she saves inefficiently. This inefficiency is an instance

⁵Stephen Coate pointed out the connection to Musgrave's work. Coate's (1995) treatment of the social provision of disaster and health insurance shares some of the intuition of Musgrave's analysis of the humanitarian's problem where need may result from the decision not to insure.

of what Buchanan (1975) termed the Samaritan's dilemma.

Research on saving and transfers has dealt primarily with the case in which future events are certain, which isolates the detrimental effect of compensatory gifts on saving. This approach overlooks an important component of donors' motivation for withholding current transfers in favor of future ones: future transfers may be used to insure potential beneficiaries against income or other risks. Recognizing this limitation in the transfer literature, Altonji, Hayashi and Kotlikoff (1997) extend the dynamic model of inter-vivos transfers to include uncertainty in the outcomes realized by children, such as work-life earnings. This modification provides altruistic parents with a motive to forego giving until later in life, as later gifts can be used to compensate children for bad outcomes. Application of the approach taken by Altonji et al. to the question of old age transfers allows me to address the interaction of a means-tested transfer program, resembling the composite transfer to the elderly through SSI, food stamps, and Medicaid, and a mandatory savings program, such as OASI. Though an uninsurable income risk is not necessary to generate a role for mandatory savings, the addition of uncertain old age income allows the theory to generate predictions that are more consistent with observed retirement saving patterns.

Finally, the function of the citizen's borrowing ability in the model is understood by analogy to the effects of liquidity constraints on transfer behavior within the family. The nature of the capital markets to which a potential transfer beneficiary has access is a critical determinant of the amount of influence she has over the equilibrium allocation of resources. In general, a transfer recipient who can borrow an unlimited amount can accumulate debts that are collateralized only by expected transfers, and therefore has the most scope for strategic behavior. At the other extreme, a benefactor may use a relatively poor transfer beneficiary's inability to borrow to dictate the beneficiary's consumption and rule out strategic behavior.⁶

I choose to disallow borrowing by the citizen in the present application in order not to permit debts that are collateralized by the government transfer benefit. In an alternative approach, I have imposed bankruptcy protection that limits the set of loan collateral for the citizen to her own current and expected earnings. In either case the full amount of any government-mandated saving

⁶Lindbeck and Weibull (1988) and Bruce and Waldman (1990) describe transfer equilibria where the recipient's income is certain and she has unlimited access to credit. Bruce and Waldman (1991) disallow borrowing completely. Altonji et al. derive results for the case in which the child faces "soft" borrowing constraints and uncertain income. Cox (1990) emphasizes the role of liquidity constraints in shaping the equilibrium of multi-stage transfer games, and provides empirical evidence that many children receiving parental transfers appear to be borrowing constrained.

supports old age consumption. The omitted specification has some appealing traits, in that the equilibrium behavior it predicts may include any observed debt or savings on the part of a citizen and one may explore the manners in which the government exploits borrowing costs to discourage undersaving, but I find that such a complex specification of the credit market clouds demonstration of the central results.

3 Attitudes toward support for the aged

The model in section 4 and the comments from Musgrave reproduced in section 2 take society's altruistic concern for the consumption of the elderly to be primitive. While this is a strong assumption, it is useful to simplify the origin of the compensatory transfer in order to examine life-cycle saving incentives. The assumption is also supported in U.S. survey data.

The General Social Survey (GSS) is a nationally representative survey of U.S. adults. Its focus is respondents' attitudes on a variety of political and social issues. Modules on the role of government, associated with the International Social Survey Programme (ISSP) component of the GSS, were fielded in 1985, 1990, and 1996. These modules included three questions of interest:

"On the whole, do you think it should or should not be the government's responsibility to..."

"...provide a decent standard of living for the old?"

"...provide a decent standard of living for the unemployed?"

"...provide decent housing for those who can't afford it?"

Table 1 reports the frequencies with which those surveyed responded "definitely should be, probably should be, probably should not be, definitely should not be, can't choose," or gave no answer to the above questions. The question on the living standard for the unemployed was also asked in a 1989 module on work orientation. I combine these responses with those in the 1990 role of government. The question on the standard of living for the old was repeated in a 2002 module, and those responses are also reported.

The attitudes reflected in the response rates are quite stable across survey years for each of these three questions. Eighty to 85 percent of respondents felt that it probably or definitely should

be the government's responsibility to provide a decent standard of living for the old across the four waves in which the question was asked. Between 43 and 50 percent of respondents felt that it should probably or definitely be the responsibility of the government to provide a decent standard of living for the unemployed, and 61 to 68 percent of respondents felt it should be the responsibility of the government to provide housing to those who cannot afford it. These responses reflect not only a consensus that government should support the impoverished elderly, but also a sense of greater societal obligation toward the elderly poor than toward the working-aged poor. To the extent that the altruism of the populace generates a government whose objective includes support for the consumption of the elderly, the GSS responses provide some basis for the structure of the government objective in the following section.⁷

4 The economic environment

The model described in this section analyzes the behavior of a benevolent government and a citizen when the economic outcome to be realized by the citizen is uncertain and the government may transfer after the citizen's actions are taken and the uncertainty is resolved. The government can be interpreted as any organization that is concerned about the welfare of the citizen, has the authority to tax and experiences competing concerns that lead its overall welfare to depend on non-transfer expenditures. The citizen optimizes a selfish objective, reflecting the assumption that the marginal non-transfer dollar expended by the government has an arbitrarily small influence on the citizen's welfare. The approach isolates the influence of public policy on individual saving decisions by considering the behavior of a single citizen. While a complete analysis of old age transfer benefits would address the political sustainability of the transfer policy, political economy concerns, along with any allocative concern involving more than one citizen, are beyond the scope of this paper.⁸

A two period model with uncertainty in second period earnings for the citizen is sufficient to include meaningful outcome risk and produce the strategic behaviors that arise from repeated

⁷This approach assumes that true economic altruism, and not the desire for insurance, motivates the evident taste for redistribution to the elderly reflected in the GSS responses. See Keely and Tan (2004) for a discussion of altruistic and information-based tastes for redistribution.

⁸An alternative specification in which wealthy private donors may give to the elderly generates a similar means-tested transfer and a similar efficiency concern, but complicates the exposition.

interaction between a donor and a recipient. The altruistic government and selfish citizen interact through a second period transfer. Time periods are indexed by $t = 1, 2$, and the agents in the model are indexed by i , with $i = G, C$ representing the government and citizen, respectively. I assume that the government has initial resources w and no income. The citizen draws earnings e_t in period t , with e_1 known by both the government and the citizen in period 1 and $e_2 \sim f(\cdot)$ realized in period 2. I assume $f(e_2)$ has strictly positive density over $e_2 \in [0, +\infty)$ and associated, continuously differentiable distribution function $F(\cdot)$. While the minimum period two income $e_2 = 0$ is a useful normalization, the important properties of the f distribution are that the worst possible outcome is bounded and known to both agents, and the best possible outcome is arbitrarily large.⁹ The government may transfer $g \geq 0$ to the citizen in period 2. Government and citizen choose savings a^G and a^C in the first period. The government acts as a Stackelberg leader, choosing a^G before a^C is determined. The government realizes no non-asset income in the second period, and saves at a zero rate of interest between periods 1 and 2. The citizen may save at a zero interest rate but may not borrow.

Agent i enjoys consumption c_t^i in period t , with c^i representing consumption path $\{c_1^i, c_2^i\}$. The government's altruistic concern for the citizen is parameterized by α , such that

$$U^G(c^G, c^C) = \tilde{u}(c^G) + \alpha U^C(c^C).$$

The citizen's welfare function is selfish, with $U^C(c^C) = \tilde{v}(c^C)$. Utility of own consumption is assumed to be time separable for each agent, so that the government's utility of consumption path c^G is $\tilde{u}(c^G) = u(c_1^G) + u(c_2^G)$, and, similarly, the citizen's utility of consumption path c^C is $\tilde{v}(c^C) = v(c_1^C) + v(c_2^C)$. For simplicity, I set each agent's discount factor to one. Sub-utility functions $u(\cdot)$ and $v(\cdot)$ are fixed over time and have standard properties $u' > 0$, $u'' < 0$, $u'(0) = +\infty$, $v' > 0$, $v'' < 0$ and $v'(0) = +\infty$. I further assume that the government's altruistic concern for the citizen satisfies $0 < \alpha < 1$, and that both its own non-transfer expenditures and the citizen's consumption are normal goods to the government.¹⁰ An obvious restriction implied by this specification of

⁹As noted in sections 2 and 3, the inability to insure against earnings risk in old age is not necessary to generate a Samaritan's dilemma where a government or society experiences disutility from distress among its elderly population regardless of their previous imprudence. A simpler model in which second period earnings are certain generates a similar dilemma and role for mandatory saving. Its shortcoming is a prediction that no citizen required to save through the public pension holds private retirement wealth.

¹⁰The restrictions on α amount to the assumption that the government has some concern for the citizen's welfare,

preferences is that transfers occur in only one direction. The non-negativity of transfers narrows the scope of the government-citizen interaction from that studied by Lindbeck and Weibull, and has a substantial effect on the strategic behavior of the government and citizen.¹¹

The first period savings of the government and citizen, respectively, are

$$a^G = w - c_1^G \tag{1}$$

and

$$a^C = e_1 - c_1^C, \tag{2}$$

with $a^C \geq 0$. The government has the opportunity to transfer $g \geq 0$ to the citizen in the second period. Second period resources constraints are

$$c_2^G = a^G - g \tag{3}$$

and

$$c_2^C = a^C + e_2 + g. \tag{4}$$

4.1 Period 2

In the second period the government observes the citizen's earnings realization, e_2 , and chooses a transfer. The government's problem is

$$\max_{g \geq 0} \{u(c_2^G) + \alpha v(c_2^C)\},$$

but the citizen's welfare receives a lower weight than that on the welfare produced by non-transfer expenditures in the government's objective. The assumption that $\alpha < 1$ is convenient but not necessary for many of the results presented in this paper.

¹¹Bruce and Waldman (1990) show that a binding non-negativity constraint on transfers may be valuable to a donor. The constraint segments outcomes into those in which the recipient's consumption depends on family assets and those in which it depends on the recipient's income alone. Bruce and Waldman's donor, knowing the second period income of the recipient, may transfer in the first period in a manner that selects the latter outcome segment. With uncertainty, the non-negativity constraint leads the optimizing parent or government to implement what is effectively an asset-tested second period transfer program.

subject to (3) and (4). Define $\tilde{e}_2(a^G, a^C)$ as the e_2 such that $u'(a^G) = \alpha v'(a^C + e_2)$. The solution to the government's problem satisfies

$$\begin{aligned} u'(c_2^G) &= \alpha v'(c_2^C), \text{ (3) and (4) with } g \geq 0 \text{ where } e_2 \leq \tilde{e}_2(a^G, a^C), \text{ or} \\ u'(c_2^G) &> \alpha v'(c_2^C), \text{ (3) and (4) with } g = 0 \text{ where } e_2 > \tilde{e}_2(a^G, a^C). \end{aligned} \quad (5)$$

Where $e_2 \leq \tilde{e}_2(a^G, a^C)$, the government allocates total social resources $a^G + a^C + e_2$ as it prefers, and the resulting consumption allocation matches the solution to $\max_{c_2^C} \{u(a^G + a^C + e_2 - c_2^C) + \alpha v(c_2^C)\}$. Where $e_2 > \tilde{e}_2(a^G, a^C)$, however, the government makes no transfer, $c_2^C = a^C + e_2$ and $c_2^G = a^G$. Thus we can define the citizen's post-transfer consumption as $c_2^C(a^G, a^C + e_2)$. We can also write the government and citizen's second period utilities using the following indirect utility functions:¹²

$$\begin{aligned} M^i(a^G + a^C + e_2) \text{ where } e_2 &\leq \tilde{e}_2(a^G, a^C) \text{ and} \\ N^i(a^G, a^C + e_2) \text{ where } e_2 &> \tilde{e}_2(a^G, a^C), \quad i = G, C. \end{aligned}$$

Note that $\frac{\partial \tilde{e}_2}{\partial a^C} < 0$ and $\frac{\partial g}{\partial a^C} \leq 0$. The range of earnings realizations at which the citizen can expect a transfer and the amount of the transfer conditional on receipt decrease as her savings increase. This is evidence of the Samaritan's dilemma faced by the altruistic donor. The government's altruism toward the citizen leads to a compensatory transfer in the second period. Since the government cannot commit to compensate the citizen for bad earnings realizations but not for undersaving, the compensatory second period transfer deters first period saving by the citizen.

4.2 Period 1

In order to focus on the effect of future government transfers on the citizen's current saving, we restrict our attention to cases in which the government would like for the citizen to save at all. Let $a^G(0, w)$ be the government asset level defined by

$$u'(w - a^G) = \int_0^\infty (u'(a^G + e_2 - c_2^C(a^G, e_2))) f(e_2) de_2. \quad (6)$$

¹²Note that where $e_2 = \tilde{e}_2(a^G, a^C)$, $M^G(a^G + a^C + e_2) = N^G(a^G, a^C + e_2)$ and $c_2^C(a^G, a^C + e_2)$ is continuous but non-differentiable.

In addition, let $\underline{e}_1(w)$ be the minimum first period earnings for the citizen, at which

$$v'(e_1) = \int_0^\infty v'(c_2^C(a^G(0, w), e_2)) f(e_2) de_2. \quad (7)$$

As long as $e_1 > \underline{e}_1(w)$, a government choosing a^C subject to (4) on the citizen's behalf, as well as a^G subject to (3) on its own behalf, would set $a^C > 0$. By considering only cases in which $e_1 > \underline{e}_1(w)$, we exclude the case in which the government would prefer to provide consumption support to both the young and the old citizen.

Given M^i and N^i for $i = G, C$, the value of the future to the citizen from the perspective of the first period can be written

$$W^C(a^G, a^C) = \int_0^{\tilde{e}_2(a^G, a^C)} M^C(a^G + a^C + e_2) f(e_2) de_2 + \int_{\tilde{e}_2(a^G, a^C)}^\infty N^C(a^G, a^C + e_2) f(e_2) de_2,$$

and the value of the future to the government from the perspective of the first period can be written

$$W^G(a^G, a^C) = \int_0^{\tilde{e}_2(a^G, a^C)} M^G(a^G + a^C + e_2) f(e_2) de_2 + \int_{\tilde{e}_2(a^G, a^C)}^\infty N^G(a^G, a^C + e_2) f(e_2) de_2.$$

In the first period the citizen's consumption choice is

$$c_1^C(e_1, a^G) = \arg \max_{c_1^C} \{v(c_1^C) + W^C(a^G, a^C)\}$$

subject to (4) and $a^C \geq 0$. The solution to the citizen's problem is either (a) $c_1^C \leq e_1$ such that $v'(c_1^C) = \frac{\partial W^C}{\partial a^C}$, which occurs where (e_1, a^G) imply $v'(e_1) \leq \frac{\partial W^C}{\partial a^C}$ at $a^C = 0$, or (b) $c_1^C = e_1$, which occurs where (e_1, a^G) imply $v'(e_1) > \frac{\partial W^C}{\partial a^C}$ at $a^C = 0$.¹³

Proposition 1 *In the absence of a mandatory saving program, where (e_1, a^G) are such that $u'(a^G) < \alpha v'(e_1 - c_1^C(e_1, a^G))$ the citizen's consumption path is inefficient.*

Proof. The efficient consumption path for the citizen can be characterized using the following specification of the choices made by a cooperative government and citizen. Let the government

¹³The use of $\frac{\partial W^C}{\partial a^C}$ is a slight abuse of notation. Due to the non-differentiability in $c_2^C(a^G, a^C + e_2)$, the appropriate expression is $\int_0^{\tilde{e}_2(a^G, a^C)} \frac{\partial M^C}{\partial a^C}(a^G + a^C + e_2) f(e_2) de_2 + \int_{\tilde{e}_2(a^G, a^C)}^\infty \frac{\partial N^C}{\partial a^C}(a^G, a^C + e_2) f(e_2) de_2$, where the derivatives with respect to the limits of integration have cancelled. This shortcut in notation will be maintained throughout the section.

choose $c_1^G, c_1^C, a^G + a^C$ and $g \geq 0$ to maximize its total welfare subject to the welfare of the citizen meeting minimum level \bar{W} . In the second period, the government chooses g to equate its marginal utilities of non-transfer expenditures and the citizen's consumption. This leads to the first period problem

$$\begin{aligned} \max_{c_1^G, c_1^C, a^G + a^C} & \left\{ u(c_1^G) + \alpha v(c_1^C) + \int_0^\infty M^G(a^G + a^C + e_2) f(e_2) de_2 \right\} \\ \text{s.t.} & v(c_1^C) + \int_0^\infty M^C(a^G + a^C + e_2) f(e_2) de_2 \geq \bar{W} \\ & \text{and } c_1^G + c_1^C + a^G + a^C \leq w + e_1. \end{aligned} \quad (8)$$

At the efficient allocation, the citizen's consumption path satisfies

$$v'(c_1^C) = \int_0^\infty v'(c_2^C) dF(e_2). \quad (9)$$

Next note that, for given (e_1, a^G) , the citizen saves $a^C = e_1 - c_1^C(e_1, a^G)$. For given (a^G, a^C) , the government transfers $g > 0$ at some $e_2 \geq 0$ realization only if $u'(a^G) < \alpha v'(a^C)$. Together these conditions imply that positive transfers occur at some $e_2 \geq 0$ realization only for (e_1, a^G) such that $u'(a^G) < \alpha v'(e_1 - c_1^C(e_1, a^G))$. The assumption that both c_2^C and c_2^G are normal goods for the government implies $\frac{\partial W^C}{\partial a^C} < \int_0^\infty v'(c_2^C) dF(e_2)$ where $g > 0$ for some $e_2 \geq 0$. Therefore, given optimal first period consumption by the citizen, $v'(c_1^C) \leq \frac{\partial W^C}{\partial a^C} < \int_0^\infty v'(c_2^C) dF(e_2)$ and the citizen's consumption path fails to meet (9) as long as (e_1, a^G) are such that $u'(a^G) < \alpha v'(e_1 - c_1^C(e_1, a^G))$. ■

The inefficiency in the citizen's consumption path described above arises where a^G is large relative to e_1 . Thus we see a distortion in the citizen's consumption and saving where the endowments of the government and citizen, and the generosity of the government, lead the citizen to rely on the transfer system in old age positive probability.

The government's problem in the first period is

$$\max_{c_1^G} \{ u(c_1^G) + \alpha v(c_1^C(e_1, a^G)) + W^G(a^G, a^C) \}$$

subject to (1) and (2). Its solution is c_1^G such that $u'(c_1^G) - \alpha v'(c_1^G) \frac{\partial c_1^G}{\partial a^G} = \frac{\partial W^G}{\partial a^G}$, which reflects a decrease in first period government expenditures in anticipation of the citizen's strategic first period consumption.

4.3 Mandatory savings and the Social Security earnings tax

Now suppose that the government has the authority to confiscate retirement saving s from the citizen in the first period, shield it from the claims of the citizen's creditors, and return it to the citizen after all debts are paid in the second period. In this case, the government is able to impose a mandatory retirement saving program that effectively supports a second period consumption floor for the citizen no matter what saving or borrowing choice the citizen makes. We will see that the government's preferred mandatory saving intervention in some cases restores the consumption and saving behavior of the citizen and government to full efficiency, and in all cases leads to the consumption and saving behavior for the two agents that the government would dictate if subject only to asset constraints (1) and (2), and the restriction that $g \geq 0$.

Proposition 2 *Define mandatory savings level $s(w)$ such that $u'(\frac{w}{2}) = \alpha v'(s(w))$. Where the government sets $c_1^G = \frac{w}{2}$ and required public savings $s = s(w)$ in the first period, $g = 0$ for all e_2 realizations and for any initial citizen earnings e_1 .*

Proof. Where $c_1^G = \frac{w}{2}$, $a^G = w - c_1^G = \frac{w}{2}$. In period 2, $u'(\frac{w}{2}) = \alpha v'(s(w))$ and $a^C \geq 0$ imply $u'(a^G) \geq \alpha v'(s(w) + a^C + e_2) \forall e_2 \geq 0$, and therefore the optimal second period transfer is zero for any earnings realization e_2 and for any initial earnings e_1 . ■

Note that the mandatory saving level that guarantees that the citizen consumes independently where the government smooths consumption depends only on government assets, and not on the citizen's initial earnings. Next, define initial earnings $\bar{e}_1(w)$ such that

$$v'(\bar{e}_1(w) - s(w)) = \int_0^{\infty} v'(s(w) + e_2) dF(e_2). \quad (10)$$

Proposition 3 *Where $e_1 \geq \bar{e}_1(w)$, (i) the government (weakly) prefers to impose mandatory saving $s(w)$ for the citizen in period 1, (ii) at $s = s(w)$ the consumption paths of the government and citizen*

are fully efficient and (iii) the government does not benefit from increasing the saving requirement beyond $s(w)$.

Proof. See appendix. ■

Where the citizen's initial earnings are less than $\bar{e}_1(w)$, the government may not prefer to force independence through its retirement saving program. Instead, the benevolent government may prefer to suffer a distortion in the citizen's savings in exchange for the ability to insure the needy citizen against a bad earnings realization. The derivation of the government's optimal saving intervention where $e_1 < \underline{e}_1(w)$ sheds light on the trade-offs faced by the government in designing a retirement saving policy for a citizen with lower initial earnings.

Given the assumption that the government acts as a Stackelberg leader, we derive the reaction of the citizen to any chosen government assets and mandated retirement saving, $c_1^C(e_1, a^G, s)$, and use it to determine the government's preferred saving intervention where $e_1 < \bar{e}_1(w)$. In the second period, the government's chosen transfer behaves according to (5), but with the modification that the citizen's savings now consist of $a^C + s$. In the first period, for fixed government choices a^G and s , the citizen chooses

$$c_1^C(e_1, a^G, s) = \arg \max_{c_1^C} \{v(c_1^C) + W^c(a^G, a^C + s)\}$$

subject to updated resource constraint (2'): $a^C + s = e_1 - c_1^C$ and, as before, $a^C \geq 0$. The mandatory saving level at which the citizen's private saving just equals zero is $\underline{s}(e_1, a^G)$ that meets $v'(e_1 - s) = \frac{\partial W^C}{\partial s}$. Thus the government may set investment and its mandatory saving policy either where $s \leq \underline{s}(e_1, a^G)$ and $a^C \geq 0$ does not bind or where $s > \underline{s}(e_1, a^G)$ and $a^C \geq 0$ binds. In the former case, $c_1^C = e_1 - s$, while in the latter case c_1^C is determined by $v'(c_1^C) = \frac{\partial W^C}{\partial (a^C + s)}$.

Two final values are needed to complete the description of the optimal mandatory saving policy. First, define $a^G(s, w)$ to solve

$$u'(w - a^G) = \int_0^\infty u'(a^G + s + e_2 - c_2^C(a^G, s + e_2))f(e_2)de_2.$$

Second, let public saving $\bar{s}(e_1, w)$ be such that

$$v'(e_1 - \bar{s}) = \int_0^{\infty} v'(c_2^C(a^G(\bar{s}, w) + \bar{s} + e_2))f(e_2)de_2. \quad (11)$$

Proposition 4 *For given e_1 and w , the government can do no better than to impose the mandatory public saving program*

$$s(e_1, w) = \begin{cases} s(w) & \text{where } e_1 \geq \bar{e}_1(w), \\ \bar{s}(e_1, w) & \text{otherwise.} \end{cases}$$

Further, this saving intervention restores the government and citizen's consumption paths to the paths the government would dictate if subject only to (1), (2') and $g \geq 0$.

Proof. See appendix. ■

Note that we can be even more specific for the $e_1 < \bar{e}_1(w)$ case. The fact that the citizen's consumption path fails to meet condition (9) both where $s < \bar{s}(e_1, w)$ and where $s > \bar{s}(e_1, w)$ implies that $s = \bar{s}(e_1, w)$ yields higher government welfare than any other saving intervention, and is therefore the unique optimal mandatory retirement saving policy for the government where $e_1 < \bar{e}_1(w)$.

5 Implied and Actual Policy

5.1 The earnings tax

It is clear that where $e_1 > \underline{e}_1(w)$, so that the government would never prefer to transfer in the first period in order to relieve the $a^C \geq 0$ constraint, $0 < \frac{\partial \bar{s}}{\partial e_1} < 1$. Where the government saves for the citizen through its mandatory pension system, a positive fraction of each dollar earned is allocated to savings. The optimal mandatory savings policy implied by the model is one in which each dollar earned by the citizen when young is taxed at a strictly positive rate, up to an earnings tax ceiling of $s(w)$. The ceiling is common across all initial citizen incomes, and is based on the affluence and generosity of the government. Comparing this optimal policy predicted by the theory to the characteristics of the existing mandatory old age saving component of the U.S. Social Security

program, we observe two major points of consistency. As of 2004, earnings were taxed to support OASI benefits at a rate of 5.35 percent on both the employer and the employee sides. The tax was applied to earnings up to a common ceiling of \$87,900 (TIAA-CREF, 2004).

The regressive structure of the Social Security earnings tax, including the ceiling on the earnings tax that is independent of citizens' characteristics, is consistent with the policy prescribed by the model of transfer benefits and mandatory saving. The theory indicates that mandatory savings up to a fixed level are a valuable means of instilling independence in potential old age transfer beneficiaries. Above the ceiling on mandatory savings, further interventions in individual decision-making do not influence the likelihood that an individual will rely on the government transfer, but do impose a cost to the extent that they deviate from citizens' preferred savings. The model provides an explanation for Social Security's regressive funding mechanism.

5.2 The exemption of retirement benefits from creditors' claims

Kotlikoff (1987) remarks that the effectiveness of any mandatory saving intervention hangs on the ability of the citizen to “undo” the mandated public saving by borrowing or decreasing private saving. In the specification used in the present analysis, it is clear that if the citizen is permitted to borrow against public savings s then she will be able to reverse any portion of s that exceeds her preferred saving level and recover the inefficient equilibrium consumption and transfers of the model without mandatory saving in section 4.2. Even where $s = s(w)$, if the borrowing constraint requires only that $a^C + s \geq 0$, then the citizen may choose $-s(w) \leq a^C < 0$ and reverse some or all of $s(w)$'s effects. It is only where the borrowing constraint reflects the citizen's inability to meet accumulated debts with public pension income, so that $0 \leq a^C < a^C + s$, that the public saving intervention does not perfectly crowd out private saving. For this reason, the exemption under federal law of Social Security OASI benefits from creditors' claims in the event that the beneficiary declares bankruptcy is also consistent with the predictions of the theory for the optimal saving policy.

5.3 Public and private retirement assets

Lindbeck and Weibull (1988) model savers with overlapping interests. Though their specification employs complete credit markets, they hypothesize that a compulsory saving program could al-

leviate the demonstrated inefficiency in the presence of appropriate credit limitations. In their comments on the potential for Social Security to correct transfer beneficiaries' under-saving, Lindbeck and Weibull note that mandatory savings must bind in order to be effective. This is generally true for the case in which the potential transfer recipient's future income and assets are known. The empirical frequency with which households hold both public and private retirement assets suggests that the inability to explain overlap in retirement assets would be a serious limitation for any model of saving.¹⁴ However, where the means-tested transfer benefit is constructed to insure the citizen against some meaningful outcome risk, the mandatory saving amount need not bind in order to be effective. Consider the citizen with $e_1 > \bar{e}_1(w)$ who is subject to mandatory first period saving $s(w)$. For this citizen, (12) is satisfied only where $a^C > 0$. By definition $s(w) > 0$, so the citizen holds both public and private retirement wealth.

The optimal policy implied by the model is subject to the Lindbeck and Weibull criticism where $e_1 \leq \bar{e}_1(w)$. In this case the citizen holds no private retirement wealth, and the mandatory saving program exerts its influence on the behavior of the citizen by forcing $a^C \geq 0$ to bind. The implication of the model is that a citizen with low initial earnings holds only public pension wealth and relies on the public transfer system with positive probability, while a citizen with higher initial earnings holds both private and public pension wealth and is certain never to rely on the government transfer. These predictions are not at odds with the gross facts on the retirement portfolios of U.S. households. For example, Scholz et al. report that median private pension holdings are zero and Social Security wealth is positive for HRS households in the first three deciles of the lifetime earnings distribution. Additionally, McGarry (2002) finds that SSI participants have considerably less schooling than nonparticipants. If we take schooling as a proxy for pre-retirement earnings, then this suggests that workers with low earnings when younger face a positive risk of relying on SSI in retirement. U.S. workers with sufficient Social Security OASI benefits, based on work-life earnings, are relatively certain not to participate in SSI.

One implication of the model that does arouse concern, however, is that no worker earning less than the earnings tax ceiling holds private retirement wealth. Modification of the current specification to include more realistic access to credit does not lead the citizen with earnings below

¹⁴For example, Scholz et al. find that the medians of both private and public pension wealth are greater than zero within all but the lowest three lifetime earnings deciles among households in the first wave of the Health and Retirement Study (HRS).

the ceiling to select $a^C > 0$ under the optimal policy. In order to capture this aspect of behavior, more fundamental changes in the specification are required. Helpful modifications might include allowing the government to determine an optimal common transfer and saving policy to be applied to citizens with heterogeneous earnings distributions, discount factors, or private information about potential earnings, or the extension of the time component of the model to include multiple earnings realizations and saving opportunities for the citizen.

6 Conclusion

In both families and government, we observe the efforts of concerned benefactors to encourage saving or investment for the future by potential transfer recipients. Compulsory old age saving through Social Security in the U.S. induces workers to accumulate retirement assets that cannot be withdrawn before retirement or dissaved through legal borrowing. Previous research by Lindbeck and Weibull (1988) and Bruce and Waldman (1990) has explored the manner in which a potential transfer from an altruistic donor may induce undersaving on the part of a beneficiary. This paper presents a dynamic model of transfers from a benevolent government to a selfish citizen in which the citizen's income is uncertain. I derive the optimal transfer policy for the government and determine the conditions under which mandated retirement saving can support efficient consumption on the part of the citizen, even given the promise of a means-tested transfer benefit for the elderly.

The optimal mandatory retirement saving policy generated by the theory rationalizes the regressive structure of the existing Social Security OASI earnings tax. In addition, the model resolves two concerns voiced by other researchers regarding the value of the free-rider problem as a rationalization for compulsory saving. I find that a program in which mandated retirement savings are exempted from creditors' claims does provide a reliable old age consumption floor that cannot be "undone" by citizens, and can therefore be effective in deterring dependence on federal benefits by retirees. A model in which citizens' risk of poverty in old age induces the government to offer a means-tested transfer benefit can explain the decision of some citizens to hold both public and private retirement wealth.

In sum, the savings inefficiency associated with means-tested transfers to the elderly stressed by Hubbard, Skinner, and Zeldes (1995) itself provides an efficiency-based rationale for the compulsory

saving component of Social Security when government actions are endogenized. In the presence of mandatory retirement saving through the Social Security system, the under-saving of lower earners resulting from SSI, Food Stamp and Medicaid old age transfer benefits is less severe than that predicted in the absence of mandatory saving.

A Appendix

Proposition 3. Where $e_1 \geq \bar{e}_1(w)$, (i) the government (weakly) prefers to impose mandatory saving $s(w)$ for the citizen in period 1, (ii) at $s = s(w)$ the consumption paths of the government and citizen are fully efficient and (iii) the government does not benefit from increasing the saving requirement beyond $s(w)$.

Proof. (i) and (ii): Suppose the government chooses $c_1^G = \frac{w}{2}$ and collects $s = s(w)$ in the first period. Proposition 2 implies that, in equilibrium, $g = 0 \forall e_1, e_2 \geq 0$. Therefore, the citizen consumes $c_1^C = e_1 - s(w) - a^C$, where a^C satisfies

$$v'(e_1(w) - s(w) - a^C) \geq \int_0^{\infty} v'(a^C + s(w) + e_2)f(e_2)de_2 \quad (12)$$

and $a^C \geq 0$, with (12) holding with equality where $a^C > 0$. (10) implies that the citizen's optimal $a^C = 0$ only where $e_1 = \bar{e}_1$, and that $a^C > 0$ for $e_1 > \bar{e}_1$. Therefore, where $e_1 \geq \bar{e}_1$ (12) is met with equality at the citizen's choice of a^C . In addition, $c_1^G = a^G = \frac{w}{2}$ and $g = 0$ together imply

$$u'(c_1^G) = \int_0^{\infty} u'(a^G - g)f(e_2)de_2, \quad (13)$$

as each side of (13) equals $u'(\frac{w}{2})$. It must also be true that

$$c_1^G + c_1^C + a^G + a^C \leq w + e_1 \quad (14)$$

in equilibrium. Finally, the independence of the citizen's consumption where $c_1^G = \frac{w}{2}$ and $s = s(w)$ ensures that she enjoys the level of welfare in equilibrium that she could guarantee herself if acting independently. Together, these four equilibrium conditions ((12) holding with equality, (13), (14) and the citizen's welfare guarantee) coincide perfectly with the solution to cooperative problem (8) for the case in which

$$\bar{W} = \max_{c_1^C} \left\{ v(c_1^C) + \int_0^{\infty} v(e_1 - c_1^C + e_2)f(e_2)de_2 \right\}. \quad (15)$$

The above version of the cooperative problem is the same as the government's dictatorial choice of its non-transfer expenditures and the citizen's consumption over time subject to social resource constraint (14) and the citizen's welfare meeting her outside option, as in (15). Therefore for $e_1 \geq \bar{e}_1$ the government can do no better than to set $c_1^G = \frac{w}{2}$ and collect $s = s(w)$ in the first period. (Note also that the consumption and saving paths for the government's dictatorial solution subject to less restrictive conditions (14) and (15) satisfy more restrictive conditions (1), (2'), and $g \geq 0$.)

(iii): Suppose $e_1 \geq \bar{e}_1$ and the government imposes mandatory savings $s' > s(w)$. Define $a^C(e_1, w)$ as the saving level for the citizen such that

$$v'(e_1(w) - a^C(e_1, w)) = \int_0^{\infty} v'(a^C(e_1, w) + e_2)f(e_2)de_2.$$

If $a^C(e_1, w) \geq s'$, then where mandatory saving $s = s'$ is imposed the citizen chooses her first period private savings so that $a^C + s' = a^C(e_1, w)$, and the efficiency condition $v'(c_1^C) = \int_0^{\infty} v'(c_2^C)f(e_2)de_2$ is met. In this case the equilibrium consumption paths of the government and citizen are unchanged by the increase in mandatory savings from $s(w)$ to s' . However, if $a^C(e_1, w) < s'$, then $a^C \geq 0$ binds for the citizen and, in equilibrium, $v'(c_1^C) \geq \int_0^{\infty} v'(c_2^C)f(e_2)de_2$. Here the citizen's consumption path fails to match the solution to (8) with \bar{W} defined according to (15), and the government's welfare is decreased by the change in mandatory retirement saving from $s(w)$ to s' . Therefore the government's welfare is never improved and may be worsened by an increase in s above $s(w)$. ■

Proposition 4. *For given e_1 and w , the government can do no better than to impose the mandatory public saving program*

$$s(e_1, w) = \begin{cases} s(w) & \text{where } e_1 \geq \bar{e}_1(w), \\ \bar{s}(e_1, w) & \text{otherwise.} \end{cases}$$

Further, this saving intervention restores the government and citizen's consumption paths to the paths the government would dictate if subject only to (1), (2') and $g \geq 0$.

Proof. The proof of proposition 3 above demonstrates that the government can do no better than to impose mandatory retirement saving $s(w)$ where $e_1 \geq \bar{e}_1(w)$, and that where $s = s(w)$ the

government and citizen's consumption paths are equivalent to those the government would dictate if subject only to restrictions (1), (2'), and $g \geq 0$. Where $e_1 < \bar{e}_1(w)$, either (a) the government chooses a^G and s such that $s < \underline{s}(e_1, a^G)$ and the citizen saves in equilibrium, or (b) it chooses a^G and s such that $s \geq \underline{s}(e_1, a^G)$ and the citizen does not save. Consider case (a). Given the government's choice of a^G and s such that $s < \underline{s}(e_1, a^G)$, the citizen's private savings $a^C > 0$ meet

$$v'(e_1 - s - a^C) = \int_0^{\infty} v'(c_2^C(a^G, a^C + s + e_2)) \frac{\partial c_2^C}{\partial (a^C + s)} f(e_2) de_2.$$

This expression is identical to the citizen's first order condition for the problem

$$\max_{(a^C + s)} \left\{ v(e_1 - (a^C + s)) + \int_0^{\infty} v(c_2^C(a^G, (a^C + s) + e_2)) f(e_2) de_2 \right\}.$$

The net assets for the citizen ($a^C + s$) that solve the problem are the same as the private savings for the citizen that solve the citizen's optimization problem given a^G in the absence of a mandatory saving program. Since the choice of s such that $s < \underline{s}(e_1, a^G)$ has no effect on the citizen's net savings, any equilibrium in which a^G and s are such that $s < \underline{s}(e_1, a^G)$ is one in which c^C and c^G replicate the equilibrium consumption paths in the absence of a mandatory saving program. As demonstrated in proposition 1, c^C in this equilibrium fails to meet the condition $v'(c_1^C) = \int_0^{\infty} v'(c_2^C) f(e_2) de_2$ and must be inconsistent with the solution to the government's dictatorial problem.

Alternatively, suppose that the equilibrium is as in case (b). Then $s \geq \underline{s}(e_1, a^G)$, $a^C = 0$ and $c_1^C = e_1 - s$. The government can use the binding of the citizen's borrowing constraint to dictate the citizen's consumption, as long as its choice of (a^G, s) does not violate $s \geq \underline{s}(e_1, a^G)$. A government whose choices were constrained only by (1), (2') and $g \geq 0$ would choose the unique (a^G, s) solution to $a^C + s = \bar{s}(e_1, w)$ and $a^G = a^G(\bar{s}, w)$. We compare $\bar{s}(e_1, w)$ and $\underline{s}(e_1, a^G(\bar{s}, w))$ in order to determine whether $s \geq \underline{s}(e_1, a^G)$ is met by this government choice. Based on their definitions, $\underline{s}(e_1, a^G(\bar{s}, w))$ is such that

$$v'(e_1 - \underline{s}) = \int_0^{\infty} v'(c_2^C(a^G(\bar{s}, w), \underline{s} + e_2)) \frac{\partial c_2^C}{\partial (a^C + s)} f(e_2) de_2$$

and $\bar{s}(e_1, w)$ is such that

$$v'(e_1 - \bar{s}) = \int_0^{\infty} v'(c_2^G(a^G(\bar{s}, w), \bar{s} + e_2))f(e_2)de_2.$$

The above expressions, along with the condition $0 < \frac{\partial c_2^G}{\partial (a^G + s)} \leq 1$ based on the normality of c_2^G and c_2^G for the government, imply that $\bar{s}(e_1, w) \geq \underline{s}(e_1, a^G(\bar{s}, w))$. Therefore the government's choice of (a^G, s) is not undone by the citizen's choice of a^C . Where $e_1 < \bar{e}_1(w)$, the government sets case (b) investment and mandated saving $a^G = a^G(\bar{s}, w)$ and $s = \bar{s}(e_1, w)$, and achieves its dictatorial outcome subject only to (1), (2') and $g \geq 0$. ■

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Table 1: GSS Role of Government Module Responses

Government's responsibility to...	Module Year							
	1985		1990		1996		2002	
	frequency	%	frequency	%	frequency	%	frequency	%
<i>Provide a decent standard of living for the old:</i>								
Definitely should be	267	39.44	460	37.80	484	36.34	504	43.86
Probably should be	309	45.64	545	44.78	608	45.65	409	35.60
Probably should not be	63	9.31	119	9.78	125	9.38	135	11.75
Definitely should not be	17	2.51	24	1.97	42	3.15	45	3.92
Can't choose	10	1.48	32	2.63	19	1.43	48	4.18
No answer	11	1.62	37	3.04	54	4.05	8	0.70
<i>Provide a decent standard of living for the unemployed:</i>								
Definitely should be	98	14.48	397	14.87	153	11.49	–	–
Probably should be	217	32.05	944	35.36	418	31.38	–	–
Probably should not be	206	30.43	722	27.04	396	29.73	–	–
Definitely should not be	104	15.36	364	13.63	230	17.27	–	–
Can't choose	39	5.76	162	6.07	76	5.71	–	–
No answer	13	1.92	81	3.03	59	4.43	–	–
<i>Provide decent housing for those who can't afford it:</i>								
Definitely should be	–	–	236	19.39	240	18.02	–	–
Probably should be	–	–	588	48.32	572	42.94	–	–
Probably should not be	–	–	231	18.98	295	22.15	–	–
Definitely should not be	–	–	66	5.42	106	7.96	–	–
Can't choose	–	–	57	4.68	61	4.58	–	–
No answer	–	–	39	3.20	58	4.35	–	–