Intergenerational Transfers and Private Savings: an Experimental Study

Eline C.M. van der Heijden, Jan H.M. Nelissen, Jan J.M. Potters and
Harrie A.A. Verbon*

I. INTRODUCTION

In many western countries Pay-As-You-Go (PAYG) public pension schemes
coexist with Capital-Reserve (CR) financed (private or semi-collective) occu-
pational pension schemes. This mixture of financing systems can be interpreted
as a risk-spreading device for the individuals concerned. However, individuals
are generally not able to choose their optimal mix themselves, as the decision-
making process differs between the two schemes. While the former schemes
are decided upon in the political process, the structure of the latter schemes is
mostly determined during wage negotiations. Moreover, due to the fact that in
the latter schemes explicit contracts are agreed upon, the commitment to obey
these contracts might be larger than in the former schemes where the political
contracts are of an implicit nature. Generations that find out to be the losers of
the PAYG-schemes might urge politicians to cut the public pension benefits.
Given the uncertainty whether future generations will stick to the PAYG-
scheme, individuals might choose lower proportions of the PAYG-scheme if
they would have the option.

   In this respect it is of interest to observe tendencies towards privatization of
the public old-age provision. In the UK, for example, individuals are given the
opportunity to withdraw from the PAYG-financed State Earnings-Related
Pension Scheme (SERPS) and to decide for themselves to some extent how to

organize their old-age pension provision. This contracting-out appears to be very popular[1]. However, in particular for the low-income earners it holds that contracting-out can imply an expected income loss in comparison with the existing situation. This suggests that the uncertainty as to the future maintenance of the PAYG-part of the pension system drives individuals out of the standard old-age pension system, even if that collective system promises a higher rate of return than an individual system.

As in many areas of economics, a more detailed inspection of the determining factors of individual decision-making is possible in an experimental environment[2]. This paper tries to shed more light on the individual choice between PAYG and CR in an experimental overlapping- generations (OLG) setting. We conduct an experiment where individuals have to choose between investing in a PAYG-system with an uncertain future and investing in a CR-based system with a certain but negative return, and compare this with an experiment where individuals do not have the option to save for themselves. By doing so, we want to investigate to what extent the possibility of saving (which can be seen as an individual CR pension scheme) affects the willingness to support a voluntary transfer system (which can be seen as a PAYG public pension scheme).

To examine this question, we have designed two treatments within the OLG framework. In both treatments, experimental subjects are matched in a sequence of overlapping players. In the first treatment we examine the developments of voluntary transfers if the level of transfers is the only decision people can take. In particular, player (generation) P_t decides on a transfer to player P_{t-1}. Then, player P_{t+1} decides on a transfer to player P_t, player P_{t+2} decides on a transfer to player P_{t+1}, and so on. No commitment is possible. So, a player who transfers a positive amount cannot be guaranteed that she will be 'rewarded' with a positive transfer by the next player. The rate of return on transfers is thus uncertain. The establishment and maintenance of a voluntary transfer system is induced to be collectively efficient but individually costly. As will be shown below, the unique Nash equilibrium is for all players to transfer nothing.

---

1. After the extension of the possibilities of contracting out in 1988, the percentage of employees who are member of contracted-out personal pensions increased by about 15 percentage-points. In 1992, about 28% of male and 19% of female employees had contracted out (Dilnot et al. 1994, p. 19–20) in spite of the obligation to keep contributing a minimum amount to the SERPS (the contracted-out rebate).

2. Apart from observing the small real-life experiments as in the UK, the application of stated preference methods could be an alternative. However, answering questions in this method does not affect the individual, which could influence the quality of the answers. In economic experiments the earnings of the experimental subjects depend on their decisions, so that incentives exist to give the 'right' answer.

In the second treatment, players can save for the next period in addition to making a transfer. So, in this treatment player P_t decides both on her savings and on her transfer to player P_{t-1}. Savings earn a fixed rate of return. As a result, savings are more certain than transfers. The attractiveness of savings is, however, reduced by assuming a negative rate of return on savings. This assumption forces subjects to make a trade-off between private savings with a certain but relatively low rate of return and an investment in a collective transfer system with uncertain but possibly higher rates of return. The (collectively) efficient outcome can only be obtained if all people join the collective scheme[3].

One dominant finding of our experiment is that individuals indeed choose to (gradually) opt out of the intergenerational transfer system. In particular, compared to the case where only intergenerational transfers are possible, transfers are lower in the case with savings. The average individual pay-offs are also lower but the distribution among individuals is less volatile. This suggests that risk aversion is a driving force behind the reduction of intergenerational transfers. The willingness to give to previous generations does not disappear completely, however. Moreover, the degree of cohesion between successive generations, measured by the correlation between current and past transfers does not diminish significantly after the introduction of the savings (or opting-out) option.

The paper proceeds as follows. The next Section discusses the underlying model. Section III describes the experimental design. The experimental results are presented in Section IV, whereas the last Section contains the conclusions and some discussion.

II. MODEL

The model that forms the basis for the experiment is a very simple two overlapping-generations (OLG) model in which each generation consists of one player. Each player lives for two periods. In the first period (when young), a player is endowed with a transferable endowment of 7 and a non-transferable endowment of 2. In the second period (when old), a player receives a non-transferable endowment of 1. In the treatment with no savings possibility (which we will call NS), the young player in period t (only) has to decide about

---

3. Note that in both treatments only an indirect relationship between players exists. That is, players make a transfer to another player than from whom they receive a transfer. So, in contrast with experiments with a bilateral matching structure, no direct (bilateral) punishing or rewarding is possible in experiments with an OLG structure.

the part T_t of the transferable endowment of 7 he wishes to transfer to the current old player, $0 \leq T_t \leq 7$. In the treatment with the possibility of savings (which we will call S), the young player has the possibility to save 3 units. So, young players in this treatment first decide in period t whether to save or not ($S_t \in \{0,3\}$) and then decides how much to transfer to the old player ($0 \leq S_t + T_t \leq 7$). In both treatments the remaining endowment is used for 'consumption'. Hence, first period consumption C_{1t} of player P_t (when young) is given by:

$$C_{1t} = 9 - S_t - T_t \tag{1}$$

whereby $S_t \in \{0,3\}$ in treatment S and $S_t = 0$ in treatment NS. Savings earn an interest at a constant rate $r = -1/3$ in the second period. In that period, players consume their savings plus the interest (if relevant), the transfer T_{t+1} received from player P_{t+1} in the second period of his life and the basic endowment 1. Second period consumption C_{2t} of player P_t (when old) is thus given by:

$$C_{2t} = 1 + T_{t+1} + \frac{2}{3}St \tag{2}$$

Total utility U_t of player P_t, $t \geq 1$, is given by the following utility or pay-off function $(t \geq 1)$[4]:

$$U_t = C_{1t} \times C_{2t} = (9 - S_t - T_t)(1 + T_{t+1} + \frac{2}{3}S_t) \tag{3}$$

The form of the pay-off function reflects the fact that consumption both in the first (young) and in the second (old) period matters. The multiplicative form,

---

4. Of course, in the experiment the sequence of players has to be started and stopped. The first player in the sequence, P_0, only plays the role of the receiving (old) player. The final player in the sequence, P_7 in the experiment, only plays the role of the transferring (young) player. No experimental standard has been developed yet on how to deal with this. In the experiment we chose to set player P_0's first period consumption (when young) equal to the basic endowment: $C_{10}=2$. Player P_7's received transfer (when old) was set equal to the average transfer to all previous receivers (rounded up). To a large extent this starting and stopping rule is an arbitrary matter. To check whether our results are affected by this choice, we ran an additional design for the basic experiment which mitigated the impact of this starting and stopping rule. The results did not indicate a significant impact of this starting and stopping rule (Van der Heijden et al. 1995).

in addition, implies that it is optimal to smooth consumption over both periods. In the treatment with savings, both savings and transfers can be used to realize this smoothing, whereas in the treatment without savings players can only use transfers.

What decisions should players make in this OLG game? In the treatment without savings a (non-altruistic) player P_t faces the following problem:

$$\max_{0 \leq T_t \leq 7} \quad (9 - T_t)(1 + T_{t+1}^e) \tag{4}$$

where T_{t+1}^e is player P_t's expectation about the next player's transfer. It is easily seen that if P_t expects T_{t+1} to be unrelated to T_t, he will choose to transfer $T_t = 0$. With a finite sequence of players (as we will have in our experiment) the backwards induction argument reveals that the unique Nash-equilibrium is for all players to transfer zero. If all players choose a transfer of 0, then the pay-off to each player will be 9 (and 2 for P_0; see footnote 4).

When savings are possible, the utility-maximizing player Pt faces the problem:

$$\max_{0 \leq S_t + T_t \leq 7} \quad (9 - S_t - T_t)(1 + T_{t+1}^e + \frac{2}{3} S_t) \tag{5}$$

Here also, the unique Nash-equilibrium is for all players to transfer zero. But, as savings are possible, one will save $S_t = 3$ and the resulting pay-off to each player will be 18 (and again 2 for P_0).

In both games the players forego considerable pay-off opportunities when all choose a transfer of zero. It is straightforward to derive from equation (4) that the socially optimal level of transfers T^* is given by $T_t = T^* = 4$, $\forall t$ if savings are impossible. Also if savings are possible but r is negative, as is the case here, the socially optimal levels of transfers and savings are given by $T_t = T^* = 4$, $S_t = 0$, $\forall t$. So, the efficient outcome would be for players to rely fully on the transfer system and to save nothing[5]. This would give a pay-off of 25 for all

---

5. If r is positive, an incentive to invest in the transfer system hardly exists. If r is positive, both the Nash-equilibrium and socially optimal level result in maximum savings and zero transfers. As this is not an interesting game we only looked at the more interesting case $r<0$. In that case, people have to make a trade-off between an investment in savings with a certain but relatively low rate of return and an investment in a transfer system with an uncertain but potentially higher rate of return.

players (except the first one), which is a considerable improvement over the Nash outcome, which gives a pay-off of 9 in treatment NS and 18 in treatment S.

The question is whether and how the socially efficient outcome can be attained without commitment and without the help of a social planner. From a theoretical perspective, a necessary (though not sufficient) condition for a positive transfer to be individually rational is that $\partial T_{t+1}^e / \partial T_t > 0$. If player P_t expects her transfer to player P_{t-1} to be positively related to the transfer she will receive from player P_{t+1}, then it may be rational for a non-altruistic player to provide such a transfer. Hence, if the players can establish or are motivated by a kind of 'overlapping reciprocity', then socially efficient transfers may come about[6]. In particular, if in the experiment 'strict reciprocity' is anticipated ($T_{t+1}^e = T_t$, that is, 'I expect to get what I give') then positive, and even optimal transfers may be achieved. It might be hypothesized, however, that the presence of a savings alternative to transfers undermines the force of such a reciprocity norm.

This paper examines whether intergenerational transfers occur in an OLG experiment based on the above model. In particular, we are interested to see whether and to what extent the willingness to support voluntary transfers is affected by the presence of a more secure but less efficient alternative (saving). Comparison of the results of the two treatments (NS and S) described above allows us to examine this.

III. EXPERIMENTAL DESIGN AND PROCEDURES

Eleven experimental sessions based on the model described above, were conducted in January and March 1995. Five sessions employed treatment S and six sessions employed treatment NS. Students were recruited from Tilburg University with the anouncement that the experiment would last for an hour and that they would earn an amount between 7 and 50 Dutch Guilders (i.e., between $ 4 and $ 29). All subjects participated only in one session, and subjects had no experience with related experiments. In each session eight subjects participated.

---

6. Variants of this argument have been put forward in the theoretical literature on the sustainability of voluntary intergenerational transfers. Some refer to the possibility of an implicit 'social contract' between successive generations (e.g., Sjoblom 1985, Kotlikoff et al. 1988). Another mechanism suggested in the literature is that successive generations 'build up confidence' in the maintenance of the system by looking at its past performance (e.g., Verbon 1987, Van Dalen and Van Praag 1992).

Upon arrival, subjects were randomly seated behind computer terminals, which were separated by partitions. Instructions were distributed and read aloud by the experimenter[7]. Then subjects were given several minutes to study the instructions more carefully and to ask questions. Then the experiment was run. After that, an anonymous questionnaire asked for some background information (gender, age, major, motivation). Finally, subjects were privately paid their earnings in cash.

In each session the same pay-off function was used (see equation (3)). The only difference between the two treatments was that in treatment NS subjects only decided about the transfer T_t, with $T_t \in \{0,1,...,7\}$, (no mention was made about savings), whereas in treatment S subjects decided about both a transfer T_t and savings S_t, with $S_t \in \{0,3\}$ and $T_t + S_t \in \{0,1,2,...,7\}$.

The OLG game consisted of a sequence of eight periods (0–7). Period 0 is an auxiliary period in which the first 'old' player was randomly selected from the eight participants. As no decisions are made in period 0, it will not enter the analysis. In each subsequent period (1–7), one of the remaining subjects was randomly selected to be the 'young' player in that period[8]. After being informed about the transfer decisions of previous players in that round, the young player in period t, ($1 \leq t \leq 7$) had to type a number S_t from $\{0, 3\}$, which denotes his amount of savings (only treatment S). Next he had to type a number T_t, which determines his transfer to the old player. First-period consumption of the (first) young player then was $C_{1t} = 9 - S_t - T_t$. Second-period consumption of the old player was $C_{2t-1} = 1 + (2/3) S_{t-1} + T_t$. The old player was informed about the transfer received and her pay-off (in points) in the round: $U_{t-1} = C_{1t-1} \times C_{2t-1}$. The young player became old in the next period (t+1) and a new young player, randomly selected from the remaining players, had to make a savings decision (S_{t+1}) and a transfer decision (T_{t+1}), leaving $C_{1t+1} = 9 - S_{t+1} - T_{t+1}$ for first-period consumption. Second-period consumption of the old player born at time t was $C_{2t} = 1 + (2/3) S_t + T_{t+1}$. This procedure was repeated until period 7. Then all players had participated in the round and a new round was started.

After the last round, the points earned in the 15 rounds were added and converted into money at a rate of 1 point = 5 cents. In addition, each player received a lump sum participation payment of 5 Dutch Guilders ($\approx$ $ 3). All aspects of the procedure were common knowledge.

7. These instructions are available from the authors upon request.
8. In the experiment we did not use terms like 'young' and 'old' generation, but referred to these as Decider and Receiver, respectively.

213

Two further features regarding the design should be mentioned. First, it is customary to allow the subjects to learn and understand the structure of the experimental game. No standard has been developed yet on how to allow for learning in an OLG setting. In our design we chose to have several repetitions (15) of an OLG game with a restricted sequence of generations (8) and no 'reincarnation' (like Cadsby and Frank 1990), rather than one OLG game with a long sequence of (say, 120) generations with reincarnation (like Marimon and Sunder 1993).

Second, recall that the player who was selected to be old in period 1 of a round did not play the role of a young individual in that round. Her first-period consumption (when young) was fixed at $C_1=2$. Similarly, the player selected to be young in the last (7th) period of a round did not play the role of the old generation in that round. His second-period transfer was determined to be equal to the average transfer received by all previous old players in that round (rounded up).

These latter two features of the design are to a large extent arbitrary. However, as they apply equally to both treatments we do not expect them to have a strong impact on the comparison of the two treatments, which will be our main focus in the analysis below.

IV. RESULTS

In this section we analyze the results. We will compare the two treatments (NS and S) in terms of the level of transfers in the two treatments, the level and variance of the pay-offs, and the role of 'overlapping reciprocity'.

A principal question to be addressed first is what to take as the unit of observation. There are (at least) two possibilities: each session, or each play of the OLG game. In total we have 11 sessions and 165 plays of the OLG game (15 rounds per session). Due to the possibility that the observations of different rounds in the same session are dependent (for one thing, they are played by the same subjects), we will use session aggregates as our basic unit of observation for the statistical analyses[9]. Furthermore, we will mainly use non-parametric tests (Mann-Whitney).

First, the level of transfers is considered. The data clearly reveal that the presence of an alternative for intergenerational transfers in treatment S reduces the level of these transfers. The average level of transfers is 1.83 in treatment

---

9. All (disaggregated) data are available from the authors upon request.

NS and 0.66 in treatment S. Average transfers are thus almost three times as high in treatment NS as in treatment S. The difference between the treatments is significant at $p = 0.004$ with a two-tailed Mann-Whitney test and the 11 session averages as observations ($n_{NS} = 6$, $n_S = 5$).

It turns out that 84% of the time, subjects in treatment S chose to save (S=3), and hence, the average level of savings is 2.52. The decision to save clearly acts as a substitute to making transfers. The average transfer after a decision to save (0.53) is much smaller than the average transfer after a decision not to save (1.30). This latter fact is perhaps not very surprising. Nevertheless, it should be realized that even if every player decides to save, then still it is collectively optimal to provide transfers. It is straightforward to check that the pay-off function (3), given that $S_t = 3$, is larger when $T_t = T_{t+1} = 1$ or 2 than when $T_t = T_{t+1} = 0$.

Figure 1

Average Transfer and Average Savings by Round in Treatments NS and S
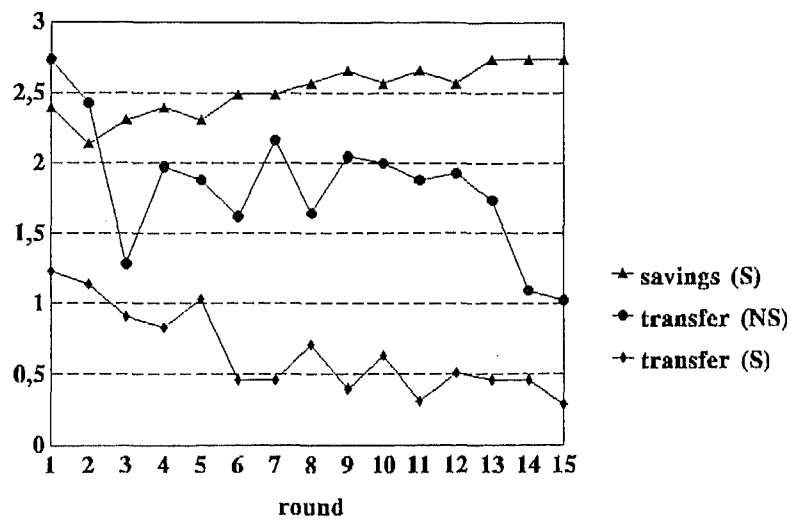
Further information can be obtained from *Figure 1* which pictures the development of the average transfer levels over the 15 rounds (repetitions) of the OLG game. In both treatments a more or less gradual decline of the transfer level can be observed. In treatment NS, transfers start at 2.74 in round 1 but decrease over time to a level of just over 1 in round 15. Hence, though voluntary transfers fall

short of the collectively efficient level of 4 in treatment NS, they stay bounded away from the Nash equilibrium level of 0. In treatment S, transfers start at an average level of 1.25 but drop to 0.26 in the final round. At the same time we see a slow increase of the savings rate over time[10].

The next question then is, does the possibility to save increase subjects' pay-offs? The results indicate that it does not. Average earnings per round are 19.98 in treatment NS and 18.97 in treatment S. On average, subjects do not gain from their enlarged strategy set. Nor do they lose much. The difference in pay-offs between the two treatments is not significantly different from zero ($p = 0.36$, two-tailed Mann-Whitney test with session averages as observations)[11]. At the same time the subjects in treatment S do gain in terms of risk. Averaged over the 11 sessions, the standard deviation of the pay-offs is much lower in treatment S (6.63) than in treatment NS (11.97). The difference is significant at $p = 0.004$ (two-tailed Mann-Whitney test with session aggregates as observatios). Hence, the results on pay-offs reveal that the introduction of the savings option makes subjects somewhat worse off in terms of pay-off averages but much better off in terms of pay-off variance (risk). A straightforward conclusion is that in the experiment risk aversion is a main motive to substitute intergenerational transfers for private savings.

Finally, we will have a look at 'overlapping reciprocity'. The Nash equilibrium predicts that there will be no transfers. Yet, in the theoretical literature it has been suggested that the adherence to implicit social contracts or norms could support the development of voluntary transfers if these lead to a systematic positive relation between the transfers of past and present generations. We will now analyze whether such a systematic relation is detectable in the data and, more interestingly, whether this relation is affected by the possibility to save.

Perhaps the most straightforward way to examine the presence of a relation between successive transfers is to calculate (Pearson) correlation coefficients (r) between the present transfer (T_t) and the transfer of the previous player/generation in a sequence (T_{t-1}, with $2 \leq t \leq 7$). Averaged over the sessions, the correlation coefficient is 0.074 for treatment NS and 0.043 for treatment S. Though positive indeed, this cannot be regarded as strong evidence for the presence of reciprocity. Furthermore, the relation is somewhat weaker in treatment S, but the difference between the two treatments is not significantly

---

10. It is noted that transfer and saving levels do not show a systematic pattern over the periods (1–7) of a round. Hence, we do not find any evidence for unravelling within each round.

11. It should be noted that we look at *average* pay-offs here. Due to the gradual decline of the transfer level over the rounds in both treatments and the increase in the savings rate in treatment S, average pay-offs in the round 15 are in fact higher in treatment S than in treatment NS.

different ($p = 0.662$, two-tailed Mann-Whitney test with the 11 session coefficients as observations).

A supplementary analysis corroborates this picture. For each treatment we ran OLS regressions with the present transfer (T_t) as the dependent variable, and as independent variables: the transfer by the previous player in the round (T_{t-1}), the round number (R), the period number (t), and (for treatment S only) the savings decision (S). Results are in *Table 1*[12].

Table 1

OLS Regression with the Transfer Level as the Dependent Variable

Independent variables	Treatment NS	Treatment S
Constant	2.16 (8.14)	1.27 (6.27)
Round number R	−0.04 (2.54)	−0.05 (4.00)
Period number t	−0.06 (1.37)	0.02 (0.76)
Previous transfers T_{t-1}	0.12 (2.71)	0.12 (2.72)
Savings S	–	−0.18 (4.09)
R^2_{adj}	0.028	0.102
# Obs.	540	450

t-values between parentheses.

As we have already noted earlier the transfer level gradually declines over the rounds, it is hardly affected by the period number, and it is negatively affected by a decision to save (in treatment S). At the same time we see a positive impact of the transfer level of the previous player in the round, but this positive impact is not different for the two treatments. Hence, though the introduction of a savings possibility strongly decreases the *level* of transfers, the strength of overlapping reciprocity that (allegedly) characterizes these transfers is not affected by the introduction of a savings option.

---

12. The regression is useful since it integrates all factors that have hitherto been analyzed in isolation. Note that here we violate the presumption that only session aggregates, and not individual decisions can be regarded as 'truly' independent observations. Therefore, the regression results should be interpreted with some care.

V. CONCLUDING DISCUSSION

This paper has presented the results of an OLG-experiment on the individual choice between intergenerational transfers and savings. Two treatments, based on a two-overlapping-generations structure have been designed and conducted. In the first (NS) treatment young players could only use their endowment for their own consumption or for making a transfer to an old player. In the second (S) treatment young players could also save their endowment for consumption in the second period. Savings earned a fixed but negative rate of return, while in both treatments the rate of return on transfers was determined by the behavior of the next young player. Given the next player's transfer, it would be individually optimal to give zero transfers oneself. However, the collectively efficient steady-state solution would be to have an intergenerational transfer system with a transfer equal to 4 and zero savings in both treatments.

In the NS-treatment the average transfer appeared to be about half way between the collectively efficient and the individually optimal zero-transfer level, but over the rounds the transfer level was falling. In this treatment individuals appear to have a generic willingness to contribute which, however, seems only weakly motivated by (overlapping) reciprocity. In the S-treatment the average transfer was about 25% of its value in the NS-treatment. Furthermore, it was gradually falling over the rounds but at a lower pace than in the NS-treatment, while savings increased. On average the pay-off in the S-treatment was (only) 5% less than in the NS-treatment. On the other hand, the players realized a substantial decrease in uncertainty on their pay-offs in the former treatment compared to the NS-treatment. Moreover, between the two treatments no significant difference in the (low) degree of reciprocity could be detected. In particular, in both treatments individual players responded to a given transfer of any previous player in the same way.

What stands out is that the collectively-inefficient savings system drives out the collectively-efficient transfer system in the S-treatment. This loss (in average pay-off) should, however, be weighed against the lower variability in income. Moreover, due to the fact that in the NS-treatment the transfer system is shrinking over the rounds more quickly than in the S-treatment, the average pay-off in the S-treatment in the last round turns out to be larger than in the NS-treatment.

Our experimental results are, of course, too stylized to lend themselves to quick real-world conclusions. However, with one eye turned to reality, our results indicate that a mixed financing system does not necessarily have to lead to a complete erosion of solidarity between generations. This can be derived from our results that under the S-treatment reciprocity remains active, while the

lower degree of intergenerational transfers under the S-treatment seems to be motivated by risk aversion. So, even a co-existence of PAYG and CR financing systems might be guaranteed if (more) credible commitments to the maintenance of the PAYG-system could be built into the decision-making process.

Irrespective of the 'external validity' of the results of our simple experiment, however, we have shown that the experimental methodology lends itself for an examination of the motivations and mechanisms that underly decision-making on transfers. Meaningful questions can be addressed and interpretable results can be obtained. Our initial probe in this direction shows in particular that it is possible to focus on a subset of the many factors that are at work simultaneously in real-world settings, and to study their effects in isolation. We believe this possibility of decomposition and isolation is a principle asset of experimental inquiry in comparison with other empirical methods.

REFERENCES

Cadsby, Charles B. and Frank Murray (1990). Experimental Tests of Ricardian Equivalence, *Economic Inquiry*. 29: 645–664.

Dilnot, Andrew, Richard Disney, Paul Johnson and Edward Whitehouse (1994). *Pensions Policy in the UK*. London: Fiscal Institute.

Kotlikoff, Lawrence J., Torsten Persson and Lars E. Svensson (1988). Social Contracts as Assets: A Possible Solution to the Time-Inconsistency Problem, *American Economic Review*. 78: 662–677.

Marimon, Ramon and Shyam Sunder (1993). Indeterminacy of Equilibria in a Hyperinflationary World: Experimental Evidence, *Econometrica*. 61: 1073–1107.

Sjoblom, Kriss (1985). Voting for Social Security, *Public Choice*. 45: 225–240.

Van Dalen, Harry P. and Bernard S. Van Praag (1992). Public Pensions, Market Power, and Intergenerational Confidence, in: Proceedings of the 48th Congress of the Institutional Institute of Public Finance, Seoul.

Van der Heijden, Eline C.M., Jan H.M. Nelissen, Jan J.M. Potters and Harrie A.A. Verbon (1995). Transfers and Reciprocity in an Overlapping-Generations Experiment, CentER Discussion Paper 9510, Tilburg University, forthcoming in: *European Economic Review*.

Verbon, Harrie A.A. (1987). The Rise and Evolution of Public Pension Schemes, *Public Choice*. 52: 75–100.

SUMMARY

This paper presents the results of an overlapping-generations experiment on the individual choice between intergenerational transfers and savings. One dominant finding of our experiment is that if savings are possible individuals choose to (gradually) opt out of the intergenerational transfer system. In that case the average individual pay-offs are lower but their distribution among individuals is less volatile. This suggests that risk aversion is a driving force behind the decline of intergenerational transfers. The willingness to give to previous generations does not disappear completely, however. Moreover, the degree of cohesion between successive generations, measured

by the correlation between current and past transfers does not diminish significantly after the introduction of the savings option.

ZUSAMMENFASSUNG

Dieser Artikel präsentiert die Ergebnisse eines Overlapping-Generations-Experiments, in dem sich die Teilnehmer zwischen intergenerationalen Transfers und Sparen entscheiden mussten. Eines der Hauptergebnisse besteht darin, dass die Einführung der Möglichkeit zur individuellen Zukunfts-vorsorge durch Sparen zu einer (allmählichen) Zurückdrängung von intergenerationalen Transfers führt. Im Fall des Sparens ist die durchschnittliche individuelle Auszahlung zwar geringer, dafür aber weniger unsicher. Die Zurückdrängung intergenerationaler Transfers lässt sich daher durch Risikoaversion erklären. Dennoch verschwindet die Bereitschaft, an die vorausgehende Generation abzugeben, nicht völlig. Ausserdem vermindert sich die Stärke des Zusammenhalts zwischen aufeinanderfolgenden Generationen, gemessen durch die Korrelation zwischen gegenwärtigen und früheren Transfers, nicht wesentlich durch die Einführung der Möglichkeit des Sparens.

RÉSUMÉ

Le papier présente des résultats expérimentaux sur les choix individuels entre transferts inter-géné-ration et épargne. Un des résultats principaux est que s'il est possible d'épargner, alors (progres-sivement) les agents passent du système de transfert inter-générationnel au système d'épargne. Dans de cas le payoff moyen des agents est plus faible mais la distribution des payoffs est moins volatile. Ceci suggère que l'aversion pour le risque est l'une des principales causes du déclin des transferts inter-génération. Cependant, les transferts inter-génération ne disparaissent pas totalement. De plus, le degré de cohesion entre les génération successives, mesuré par la corrélation entre les transferts présents et passés, ne diminue pas significativement après l'introduction de la possibilité d'éparg-ner.

220