Private Intergenerational Transfers between Parents and Children in the U.S., and Consequences of the Great Recession*

Alberto Palloni and Sebastian Daza†

Center for Demography and Health of Aging, University of Wisconsin-Madison

Dated: April 23, 2014

Abstract

Only a handful of studies examine intergenerational transfer patterns over long stretches of time to determine how they change with family dynamic, the experience of personal events (changes in employment, health, deaths), and external shocks, mostly associated with the business cycle. This paper contributes to the literature on intergenerational transfers in three ways. First, we estimate the existence, direction and size of transfer patterns of money and time of elderly individuals in the US over a period of nearly 18 years (1992-2010). Second, we gather empirical evidence to identify the effects of the great 2008 recession on the direction and magnitude of transfers. Third, we estimate differentials in transfers across three ethnic groups, Non Hispanic Whites, African Americans and other ethnic groups (mostly Hispanic White). We formulate alternative models to falsify competing conjectures regarding the nature of transfers and use 10 waves of the Health and Retirement Study to test these models. We focus on parent-child dyads as units of observations and account for within-household interdyad dependency of transfers as well as for reciprocal influence of transfers from parents to children (PtC), and children to parents (CtP). Our results confirm findings from previous research indicating that PtC transfers exceed CtP transfers and that the bulk of CtP transfers adopt the form of supply of time for caregiving. We discuss evidence of a modest but tangible effect of the 2008 recession as it led to a drop of PtC monetary transfers and modest increases in the time children spent caring for parents. We find a sharp ethnic divide in transfer regimes: PtC transfers are more prevalent among Non Hispanic Whites whereas CtP transfers and coresidence are dominant among African Americans and other ethnic groups. Finally, the effects of the 2008 recession are quite similar across ethnic groups.

*Paper prepared for the 2014 Population Association of America Annual Meeting, Boston, MA, May 1-3. **Please do not cite or circulate without the authors' permission**. The research on which this paper is based was supported by the National Institute on Aging via research project grants (R01 AG016209 [PREHCO], R03 AG015673, R01 AG018016, and MERIT award R37 AG025216), and by a Fogarty International Center award for Global Research Training in Population Health (D43 TW001586). The University of Wisconsin-Madison researchers are supported by core grants to the Center for Demography and Ecology, University of Wisconsin (R24 HD047873) and to the Center for Demography of Health and Aging, University of Wisconsin (P30 AG017266).

†Email: sdaza@ssc.wisc.edu

1 Introduction

New empirical research establishes that, contrary to claims by influential fertility theories (Caldwell 1982), up until very recently intergenerational transfers flows in human populations were predominantly from the older to the younger generations (Mason and Lee 2006). It is with the adoption of modern systems of social spending, including welfare, public pensions, health insurance programs, and establishment of safety nets, that the direction of flows reverses and older individuals' consumption exceeds their labor income. Throughout this transformation, however, private transfers, e.g., those originating in the family and best exemplified by flows between close kin belonging to different generations, are swamped by flows in the opposite direction, from parents to children (Leukhina and Santoro 2011). The magnitude of the difference between PtC and CtP transfer depends on economic, cultural and institutional conditions, including the size of public programs. In societies with a weak state, fragile economies, and incipient or inexistent social expenditures programs, private transfers from children to parents (CtP) constitute a large fraction of total private transfers, larger than in high income societies where public transfers are more solidly established (Mason and Lee 2006). In societies with culturally established norms of intergenerational solidarity and reciprocity, CtP transfers contribute the lion's share to intergenerational transfers independently of the size of public programs.

Rapid growth of the older population everywhere creates stresses on the system of public transfers financed by younger generations in the labor force. The stress is amplified when the growth of the older population is accompanied by increases in the demand for health care and caregiving due to longer lives and a rise in the prevalence and duration of chronic conditions and disability. The solutions to the problem vary. In some cases health public expenditures and pension systems are phased out altogether and replaced by privately funded programs; in others, central states embrace a mixed scheme and public expenditures complemented by privately financed programs; and yet in others societies adopt strategies that combine increases in tax revenues at younger ages and decreased benefits at older ages. In all cases though, and regardless of the strength of preexisting socially funded support programs, the nature, direction and magnitude of within-family private transfers is under pressure as it becomes a strategic mechanism to offset reductions in public transfers flowing to the elderly. The extent to which this is so, however, depends on conditions ranging from purely demographic constraints to broad cultural norms and expectations.

In most societies, private transfers - within-family or inter-vivos - are governed by unwritten rules based on intergenerational solidarity, reciprocity and altruistic motives. They can respond to external shocks and to unexpected changes in individuals status (employment, health, survival), and serve as stopgap measures to relieve public transfers shortfalls. But private transfers have their own shortcomings. Their existence and magnitude is tightly linked to family size and kinship, and both vary according to fertility and mortality regimes. They are also limited by family and individual's budgetary constraints and stiff inter-sibling competition. Finally, their strength and importance can be diminished by the erosion of the cultural props of intergenerational solidarity.

Unlike the public variant, private transfers cover a very broad array of resources, including time supply (provision of childcare/elderly care), space (coresidence), goods and/or financial resources (investment in purchase of property, education, food, clothing) and, finally, emotional support (Schoeni 1997). Like public transfers, private transfers operate as a conveyor belt to move resources across generations and in so doing they influence levels of well-being of different generations, shape patterns of consumption, individuals' health status, and individual decision making about marriage, fertility, or retirement.

Although still a controversial hypothesis, some researchers propose the idea that, in some social systems at least, private transfers exert considerable influence on aggregate levels of inequality (Kim 2012) and could restrict intergenerational social mobility (Albertini and Radl 2012; Zissimopoulos and Smith 2009).

While we know a fair amount about the nature and determinants of public transfers, we know less about the nature and determinants of private transfers. Extant research is less rich as in most cases describes patterns of intergenerational exchanges between family members using cross-sectional data (Albertini et al. 2007; Grundy and Shelton 2001) or, at best, with fairly limited retrospective information, focuses mostly on one-directional flows from parents to children (PtC) (McGarry 1999; Hurd and Smith 1999; Kim et al. 2012; Remle 2008), ignores the interdependency of flows within the family and rarely explores the connection between private transfers and family dynamics over the life course of parents and offspring alike.

This paper is designed to fill some of the knowledge gaps noted above. We use 10 waves of the Health and Retirement Study (HRS) to:

a. Explore the dynamics of private U.S. inter-vivos transfers over a period of 16 years, identify characteristics that are relatively stable and those that change as parents/offspring experience consequential events (marital status, labor force, health). We do this using models that account for both PtC and CtP transfers and represent explicitly the influence of one on the other over the time interval we study. To our knowledge there are only a handful of studies that describe transfers over such long period of time (Leukhina and Santoro 2011; Zissimopoulos and Smith 2009). We explicitly account for resource competition and explicitly assess the influence that PtC flows to one sibling may have on PtC flows directed to other members of the sibship.

b. We estimate the effect of the 2008 great recession, a sizable external shock whose effects have not yet completely unfolded. In theory at least, severe recessions stress familial safety nets as the needs of potential recipients rises just as resources of potential givers become depleted. The ultimate effects on the patterns of private transfers, however, depends on the magnitude, duration and nature of the economic recession. The great recession of 2008 presents a unique opportunity to explore the effects of economic strain on intrafamily flows of transfers. Previous studies have only superficially explored the effects of recession on private transfers (Cox and McDonald 2011; National Research Council 2011)

c. We identify patterns and determinants of flows across ethnic groups and assess differential responses to the recession.

There are six sections in this paper. In Section two we formulate conjectures based on three main theories. Section three discusses models and estimation strategies. Section four reviews the nature of the data, choice of indicators, and estimation procedures. Section five discusses key findings, and section six summarizes and concludes.

2 Theories and predictions

Our object of study is what is commonly known as inter-vivos transfers, that is, intentional transfers flowing among kin (usually parents and children) consisting of money, goods and services (mostly time). Although they are considerably more sizable than intentional transfers (Munnell et al. 2011), we ignore altogether accidental bequests or unintentional transfers.

Past research identifies a number of competing theoretical frameworks to explain the existence, amount, and patterns of inter-vivos transfers (Bianchi et al. 2008; Albertini and Radl 2012). We choose to evaluate the three most important theories and associated empirical predictions. These are summarized below.

2.1 Exchange and reciprocity

Also referred to as *reciprocity, risk-sharing and intra-family exchange contracts*: the core of the theory rests on the principle that transfers are motivated by self-interest, are subjected to budgetary and price constraints and that, in the long run, they are designed to maximize the well-being of the parts involved in the transactions. Direction, magnitude and timing of transfers is predicted from standard models for parental (children) utility functions. Parents and children engage in exchanges, frequently separated by decades, to reciprocally insure themselves against income or health shocks and to support consumption at various stages of the life cycle (education for children, health for elderly parents). These transfers are more important where insurance and annuity markets are imperfect and possibly affected by adverse selection, and where public transfers are inexistent, unreliable or insufficient. Because exchanges unfold over long swaths of time they are affected by enforceability problems (Silverstein 2006). Reciprocation and compliance depend on the moral power of kin ties, interpersonal trust, and calculus of future uncertainty to reduce incentives to defect.

Exchange theory is predicated on the logic of (selfish) individual cost-benefit calculations and, as a consequence, predictions about expected relations are derived from canonical utility function formulations. Because specifications of utility functions vary a great deal, empirical predictions from the models are highly diverse. The following, however, are standard conjectures that apply to PtC and CtP transfers.

a. PtC and CtP and income: Propensity and amounts of PtC monetary transfers should increase with both parental and child income. Not only are high income parents more likely to give than lower income parents but receipts should increase with the income of the child. This prediction derives directly from looser budgetary constraints affecting high income parents and children alike, and from calculations about uncertainty of future repayments (Hurd et al. 2008; Chan 2008).

Because parents from lower income groups face more severe budget constraints, higher risks of old age health deterioration and are less able to cope with health care costs, they are more likely to rely on kin reciprocity and have stronger incentives to engage in PtC non-monetary transfers and earlier that do high income parents (Lee et al. 1998). Children of poorer parents, on the other hand, are less likely to use monetary support to repay parents but much more likely to provide hours of support (Rendall and Bahchieva 1998).

b. PtC and CtP relations: There should be a direct relationship between PtC and CtP transfers. Past PtC transfers should be followed by CtP transfers and viceversa. CtP transfers in any form are more likely to occur to reciprocate past receipts, and do so when children are older and parents more exposed to health problems. Alternatively, CtP transfers could precede PtC flows as anticipatory behavior as children capitalize on opportunities to generate conditions for future returns (Albertini and Radl 2012; Alber and Köhler 2004; Saraceno et al. 2005; Henretta et al. 1997).

c. The effects of shocks: When the insurance motive dominates, the propensity and amount of PtC and CtP transfers should increase in the presence of external shocks and the amounts transferred should

increase with individuals' wealth and income. Shocks are events not induced by past or anticipated transfer behavior that affect one or both parts in the exchange and include health status deterioration, death, marriage disruption, loss of income, unemployment. In particular, the onset of a deep economic recession should increase short-term propensity to transfer from PtC if children are more affected by the crisis than parents and viceversa (Leukhina and Santoro 2011).

d. Ethnic differentials: There should be no discernible ethnic differentials in PtC and CtP transfers except those already embedded in the utility functions in the form of budget constraints, prices and other inputs. In theory at least, the utility functions may be ethnic group-specific and this could lead to predictions that are different.

2.2 Altruism

The literature on the altruistic motive contains an unfortunately large, heterogeneous and sometime misleading set of theoretical interpretations, some of which are inconsistent with each other. Perhaps the more traditional version of the theory in social sciences (Kohn 1976; Kohn et al. 1986; Elster 2006), asserts that PtC transfers are an expression of a motive that seeks maximization of pure joy of giving and helping others. A formalization of this interpretation in a coherent economic model is due to Andreoni (1990).

A second and more commonly used interpretation was first formulated by Becker (1991) and then extended and generalized by others (Altonji et al. 1997; Zissimopoulos and Smith 2009; McGarry 1999; Cox 1987, 2008; Shokkaert 2006). As a rule, this second formulation consists of two parts: a utility function for parents and a utility function for children. The key feature of the model is that parents' utility function includes as an element out of which parents derive utility, the utility that children derive from PtC transfers. This is a simple and straightforward way of formalizing the conventional (but not necessarily correct) idea about altruistic motives according to which the benefit for the bestower resides in the amount of satisfaction of the beneficiary.

An important feature of these two interpretations is that, unlike the exchange motive, altruistic motives do not require expected future repayments, that is, actors' calculations do not down-weight the cost of an action or transfer by the present value of an expected reciprocal future flow.

The third interpretation is from evolutionary biology and was first formalized in a simple way by Hamilton (1963; 1964). The formulation starts from the premise that altruistic motives are self-serving and selfish and that the actions driven by it are designed to improve the actors' reproductive fitness. Under standard conditions, altruistic behavior can only be a stable group trait if, on average, the loss of reproductive fitness that an altruistic entails action (cost of action) is more than compensated by gains in reproductive fitness accruing to the beneficiaries of the altruistic behavior. At the base of it all is the tight regulation exerted by the degree of kinship between altruist and beneficiary: for altruism to exist the cost to the altruist should be smaller than the (reproductive fitness) benefit for the beneficiary, where the weight is the strength of genetic concordance between actors involved in the exchange. Thus, the *evolutionary approach* views inter-vivos transfers, and specially PtC flows, as a mechanism through which the older generation invests in the younger generation to further its lineage, as way to increase chances of good health status, survival, and reproduction of children and grandchildren, the altruist's genetic endowment. It is more difficult to use evolutionary theory to understand CtP transfers for, as a rule, they involve no immediate reproductive fitness benefits for children. However, CtP flows can be

viewed as tactics used by offspring to increase the likelihood of resource flows originating in the parent generation to maximize their own (not parents') reproductive fitness, a sort of reciprocity-driven motive subservient to an agenda of evolutionary priorities.

Most of the literature in this area does not make a distinction between these three variants of altruism and, for the most part, ignores wholesale the third one (for an exception see Bianchi et al. (2008); Cox (2008)). This is problematic since predictions drawn from one might be inconsistent with those drawn from the other. For example, according to the first and second variant one would expect PtC transfers to target less well off children because the bestowing act is more likely to maximize parents' satisfaction or joy: the marginal utility drawn from a PtC transfer by a needy child is higher that the marginal utility drawn from the same transfer by a less needy child. Yet, according to the third interpretation this may be the worst of wrongheaded strategies, and hence not predicted as a stable one, if the least well-off offspring turns out to be also the one with lowest reproductive fitness.

In this paper we consider predictions derived from the first two variants of altruistic theory, the most commonly used in the literature. We also propose a prediction drawn the third variant of the theory. In all cases, we establish unambiguous links between prediction and one (or more) of the three variants.

a. PtC, CtP and income: PtC transfers will go disproportionately to needier children, should be more likely and larger when children's liquidity is constrained (school years; unemployment spells), and should take place independently of parental wealth or income (variant 2 above).

b. PtC and CtP relations: PtC transfers do not occur in anticipation of or as repayment for CtP transfers. There should be no discernible association between PtC and CtP flows (variants 1 and 2).

c. The effects of shocks: PtC flows will be more likely and larger during periods when children's conditions are affected negatively by external shocks (income or employment losses; health events) and during periods when parents incomes are high (variants 1 and 2 above).

d. Ethnic differentials: There should be no ethnic differences in PtC and CtP transfers except those captured by differences in marginal parental gratification from PtC flows or in children's conditions constraining CtP flows.

In addition, we consider the following prediction drawn from variant 3:

e. Strength of kinship and reproductive fitness: The propensity and magnitude of PtC transfers should be higher for natural children (as opposed to step children), for females rather than males, and for those children (specially daughters) who have grandchildren rather than for childless children.

2.3 Status preservation

Inter-vivos PtC are one of many forms of parental investments in children and are important inputs in the production of children' advantageous traits, educational attainment, and labor market careers. Thus, PtC transfers are a mechanism through which social inequalities and social stratification in one generation are preserved or modified in the next one (Silverstein 2006; Ermish et al. 2012). Although bequests are likely to rule in the territory of inequalities, the relative strength of inter-vivos transfers as a mechanism for reproduction of inequalities is an empirical question (Zissimopoulos and Smith 2009).

The status preservation approach contends that PtC investments are designed to prevent status losses and to minimize risks of downward mobility among those in higher positions (Albertini and Radl 2012). The strength of this motive depends on parental beliefs that PtC transfers facilitate children's SES attainment or preservation, and on considerations about the marginal costs of an additional transfer relative to expected benefits in children' SES gains or preservation.

This approach can be construed as a "social" variant of the evolutionary explanation of altruism: in the status preservation approach reproductive fitness is replaced by "social fitness", assessed by social position in a hierarchy, and genetic concordance is replaced by "social kinship concordance". The propensity to realize a PtC transfer should increase when parental economic costs and status losses associated with it are less than the child's weighed (by social kinship concordance) gain in social fitness. The similarities between the two approaches do not end here: social status preservation is as selfish as Hamilton's altruism in the sense that children status gains and losses are part of parental calculus about parental (not children's) social status. And yet, despite these similarities, the status preservation approach does not generate the same predictions as does the evolutionary variant of altruism. In particular, it does not lead to the expectation of a difference between step and natural children as long as the biological distance is counterbalanced by closeness of social relations. Like the other two theories, status preservation involves no expectations of reciprocity and therefore produces no predictions regarding relations between PtC and CtP transfers as the exchange theory does.

This approach contends that while PtC transfers are relevant among occupants of high SES positions, they should be less relevant among those in the low end of the stratification system. Parents with high SES utilize PtC transfers as a tool to assuage fears of social lineage erosion and as a shield to protect children and grandchildren from future social status losses. By contrast, PtC transfers should be irrelevant among those in low SES positions, a population that is persistently discouraged, has less confidence in and access to social mobility opportunities and, as a rule, adopts poorer future outlooks and high time preference. Minorities that experience discriminations and an uneven competition field should be expected to respond at two different extremes: those who occupy high SES positions should be all the more motivated to secure them while those at the bottom must be even less motivated to attempt upward moves.

a. PtC, CtP and income: Transfer propensities and amounts should be higher among those with high SES positions independently of children's income and expected or past CtP transfers and negligible among those in lower SES positions.

b. PtC and CtP relations: There should be no relation between PtC transfers as CtP transfers for CtP are not expected as conditions for PtC transfers or viceversa.

c. Effects of shocks: All else equal, post-recession PtC flows should increase sharply only among children of the well off social classes, e.g., those who stand to lose the most in terms of social ranking.

d. Ethnic differentials: To the extent that individuals in some ethnic groups experience stronger barriers to social mobility, unfavorable competition in labor markets, or degraded opportunities by virtue of their membership in such groups, we expect strong differentials *in the income gradient of PtC transfers: they should be much flatter among low SES minorities and much sharper among high SES minorities than in the majority groups.*

Although never directly formulated, it follows from status consistency that there must be a relation between aggregate income inequality and transfer inequality:

e. Inequality: Inter-vivos transfers are unequally distributed and contribute significantly to the persistence of income inequality across generations

2.4 Predictions and the ambiguity of empirical evidence

Empirical testing of these theories is problematic since they make similar predictions and imply similar empirical regularities. For example, PtC transfers to finance the purchase of a child's first home are expected by all three theories albeit for quite different reasons, and the empirical occurrence of the transfer is not useful to adjudicate among them.

Mechanisms sponsored by different approaches may occur jointly or in some ordered sequence. One could combine the evolutionary biology variant of altruism and the exchange motive so that both coexist, albeit with changing importance according to individuals' conditions or institutional context (see above). Indeed, Cox (1987) proposes an innovative exchange model in which parents act altruistically but also value the goods and services that children can provide, and offer compensation accordingly. Parents may invest in children's education out of altruistic motives (improvements in offspring social fitness) but also because they expect to receive support in old age in the form of caregiving. And, in turn, children may engage in CtP transfers expecting future reciprocation from parents. Similarly, the exchange theory highlights the power of sanctions and stigma (costs of defection) that could coexist with, and even be strategic for, reinforcing (weakening) Hamilton's altruism or exchange motives. In this blended regime, CtP flows should shrink under the onslaught of ideological changes that weaken extended kinship ties and favor preferences for nuclear families. Given price constraints parents may choose to support their own children in lieu of their own parents, a preference also expected under Hamilton's altruism because the gains in reproductive fitness are surely larger for PtC than for CtP transfers.

In summary, while each of the approaches defined above sheds light on unique aspects of the dynamic of transfers, it is a tall order to design a study that could unambiguously falsify predictions derived from them and suggest the superiority of one over the others. And this might not even be desirable. Indeed, it is unreasonable to begin with a prior tenet that only one motive is important in one place at one point in time. Most likely all motives for inter-vivos transfers perform some function sometimes and everywhere. What varies is their degree of dominance and the particular way in which they combine over time and across societies, social groups, and even stages in individual's life course.

For these reasons, we choose only the most salient predictions from each theory and estimate the implied relations in our data. We emphasize associations that emerge in the presence of (a) income and wealth differentials, (b) ethnic and race diversity and (c) effects of external shocks.

3 Models

We focus on the flow of two resources, direct financial support (PtC) and time for caregiving (CtP)[1]. Unlike other research we study the determinants of flows in both directions and we evaluate the effects that PtC transfers have on transfers from CtP and viceversa. Furthermore, we explicitly account for within-family dynamics and estimate the effects of PtC flows to one sibling on the likelihood of flows from PtC to other siblings. We also focus on the impact of the great 2008 recession and the existence of ethnic/race differentials as they offer opportunities to identify associations to falsify conjectures from the theories above. Finally, we consider an unusually long stretch of time that includes important changes in the life cycles of parents and offspring.

We model both propensities and quantity of transfers (money and time) for parents and non-coresident children. In all cases the universe of observations is the set of all possible parent-non coresident child dyads constructed in each household in the sample. Thus, a household with a targeted respondent associated with k non-coresident children contributes k dyads to the set of observations. The existence of a transfer of a given type is captured by a couple of binary variables, one for PtC and one for CtP. In all we consider six dummy variables, two per type of transfer. Quantity of transfers refers to flows involving money and time (hours of care per month).

3.1 Propensities to (prevalence of) PtC and CtP transfers

We use a series of logistic models for the propensity of parents to transfer to children and for children to transfer to parents in each wave. The main variables in these models are as follows:

- $T_{ij}(t)$ a dummy variable attaining the value of 1 if transfers from elderly in household i to the child $j = 1,2,...,k$ happens at time t; throughout t refers to a particular wave, not to calendar year: it defines the inter-wave period immediately preceding t (last two years).
- $T_{is\neq j}(t-h)$ a dummy variable attaining value 1 if transfers from elderly in household i to the child $s \neq j$ happens at time t-h.
- $T_{ij}(t-g)$ a dummy variable attaining value 1 if transfers from elderly in household i to another child $s \neq j$ happens at time t-g.
- $C_{ij}(t-r)$ a dummy variable attaining value 1 if transfers (time/money) from child j to elderly in household i happens at time $t-r$.
- $\overline{Z}_i(t)$ a column vector of characteristics of elderly in household i at time t: age, education, marital status, gender, labor force participation, disability.
- $\overline{V}_{ij}(t)$ a column vector of characteristics of child j in household i at time t: age, marital status, gender, kin (step/non-step children), employment, education.

[1] To simplify empirical testing we do not study determinants of child-parents coresidence even though each of the theories above makes predictions about its prevalence and duration. Apart from a handful of descriptive results we review for the sake of completeness, we only concern ourselves with non-coresident children. We are fully aware that this strategy may be problematic because coresidence is not a trivial "good" exchanged, particularly among minorities and poorer groups. We also estimated models that include coresidence (not shown) in addition to the other flows. Our results, however, do not lead to inferences inconsistent with those we draw.

- Y_i is the log of parental income
- W_i a categorical variable for wealth class of the elderly in the target household i (defined according to quartile of wealth at baseline).
- $R(t)$ a dummy variable for waves (dummies for wave with 2006 wave as reference category).
- E_1 and E_2 are dummies for ethnic groups (Non-Hispanic Whites, Non-Hispanic African American and others).

We estimate a logistic model for $T_{ij}(t)$ money and care (time). The models are designed to impose chances of unambiguously verifying the conjectures formulated before. We make some arbitrary decisions regarding a number of issues:

1. Values of lag indices g: this is not well specified by theories and one could choose a number of alternative definitions. In this paper we use the weak distinction ever/never.
2. Values of lag index r: in principle r could be any integer from 0 to the maximum time of observation and there is no a priori reason to prefer any of them over the others. As before we use ever/never.
3. Nature of S_i: in previous research (see Albertini and Radl (2012)) this variable refers to occupational class, a category defined independently of assets, income or education of the individual. In this paper we define the variable as a function of wealth at the outset, in the first wave of HRS. Because assets can change over time, and some times brusquely this is not a robust indicator but it is better that a categorical variable defined by occupation. In any case our findings should be interpreted with caution.
4. The variables $T_{is\neq j}(t-h)$ are meant to control for the strain produced by competition with other siblings. Here again the value for the lag index is somewhat arbitrary. We use the looser definition ever/never

The model to represent the parent-to-child transfer in dyad (i, j) is as follows:

$$ln\left(\frac{P(T_{ij}(t))}{1-P(T_{ij}(t))}\right) = \alpha_o + \overline{\alpha_1}\,\bar{Z}_i(t) + \overline{\alpha_2}\overline{V}_{ij}(t) + \sum_g \beta_g T_{ij}(t-g)$$
$$+ \sum_r \gamma_r C_{ij}(t-r) + \sum_s \lambda_s T_{is\neq j}(t-1) + \lambda Y_i + \sum_k \phi_k W_k + \varphi R(t)$$

Where the variables in the vector for elderly $\bar{Z}_i(t)$ include age, gender, marital status, education, income percentile, working status, ADLs, and number of children; the variables in the vector for children $\overline{V}_{ij}(t)$ are age, gender, if he/she is parent, kin (step/non-step children), education, working status, birth order, and income percentile. We estimate two models: one for the propensity of PtC money transfers and one for the propensity of CtP support parents (time).

The parameter estimates contained in the row vectors $\overline{\alpha_1}$ and $\overline{\alpha_2}$ represent the strength of the association between parental and child characteristics. Of particular importance to us are the effects of child and parental age and income, employment and marital status, child birth order and family size, and

health/disability status of parents. The estimates of β_g represent the effects of past parental transfers on current transfers. According to the status preservation theory these values ought to be positive and significant. The other theories do not make specific predictions for these estimates. The estimates γ_r reflect the effects of that past flows from children to parents have on current flows from parents to children. The exchange theory would predict that these quantities are positive and significant whereas the other theories make no predictions. The estimates of λ_s are measures of the strain induced by competing transfers to other siblings. According to the exchange theory and the second variant of the altruism theory these effects should be negative due to budgetary constraints whereas the other approaches stand neutral on this matter. The estimate of φ represents the additive effects of the recession and is expected to have a large effect according to all three theories.

Three clarifications are in order. First, a number of interaction terms must be constructed to test most conjectures. The most important are those involving the dummy for recession (for last wave) and ethnicity. Second, although the models should be estimated separately by ethnic group as well as by social class (defined by wealth), we only discuss results of additive models with limited interaction terms. Third, throughout we are only able to account for parental, not child income. The decision to exclude this variable altogether is based on considerations of data quality and missingness. Evidently a full empirical test requires to have both indicators simultaneously.

3.2 Models for quantities of transfers

For money transfer we use a random-intercept Tobit model for the log of the quantity transferred with a (low) truncation point established at $500, the lower limit above which quantities were specified in the HRS. For time transfers we use a linear random-intercept model for the number of hours supplied by children (parents). In both cases the sets of predictors are the same as those for propensity models.

3.3 Propensities and quantities of transfers: Which one is more important for theory verification?

Clearly, there is no theoretical reason to assign priority to predictions associated with propensities and quantities. The reality in our data at least (see below) is that only a third of the parental population ever engages in a PtC transfer and less than a tenth of all children become involved in CtP transfers. Under a regime of low average propensities the derivative of the total volume of transfers relative to any trait in the population is more sensitive to the responsiveness of the propensity to that trait than to the responsiveness of quantities transferred to the same trait. For this reason, we place slightly more emphasis on findings for propensities.

4 Data

4.1 The HRS

We use 10 waves of the Health and Retirement Study (HRS) from 1992 to 2010. All data are from the HRS Public Use files, RAND HRS Data Version M (August 2013), and RAND HRS Family Data Version B

(December 2012)[2]. In our analyses, we combine the HRS cohort (individuals born between the years 1931 and 1941) and the AHEAD cohort (individuals born before 1924). We only considered age-eligible members of the HRS cohort who responded to HRS 1992, and age-eligible members of the AHEAD cohort who responded to AHEAD 1993. We randomly selected an individual when the household had more than one age-eligible member. Thus, our analytical sample has always only one respondent per household.

At each wave, the HRS study collects information on all biological and stepchildren of the sample member. It is important to note that because the HRS is a sample of older adults, information on respondents' children comes from the reports of the parent generation. However, informants other than the children's parent provide information about the children (e.g., another adult in the household may complete the household roster). Throughout we only focus on the subsample of respondents with surviving children. In our analyses, we only consider respondents with valid sampling weights (>0), to be sure that our inferences were made respect to the finite population from which the original sample was drawn[3]. We also exclude all observations in which children were under age 18.

We consider two types of support:

a. Monetary transfers (financial assistance) from children to parents and from parents to children, are defined by the HRS as giving money, helping pay bills, or covering specific types of costs such as those for medical care or insurance, schooling, down payment for a home, rent. The financial help can be considered support, a gift or a loan. We use as outcomes prevalence of transfers and amounts (in 2010 U.S. dollars). Transfer questions were asked retrospectively (last two years from interview date) and refer to the household.

b. Help (care) from child to parents, we use the HRS classification of a child as helper. A helper may be a child that was reported by the respondent as providing help with ADLs or IADLs. The helper file contains information provided by each respondent about helpers, specifying number of hours and days of help. Help questions refer to an specific respondent not the household.

Finally, our analytical models include only non-coresident children, using both a lagged and current indicator of coresidence. Due to the retrospective character of our dependent variables (transfers during the last two years), all the time-variant covariates we use in our models were lagged, in order to be sure that they were measured before our dependent variables.

4.2 A quick review of the panel and statistics on propensities and amounts of PtC and CtP transfers

Table 1 displays basic sample statistics[4] and Table 2 the number of respondents (households) and the number of children associated with them in each wave. Variability in the number of households is due to wave-specific attrition and non-response. This causes changes in the number of dyads considered in each wave as well as in the total frequency of dyads we follow throughout the entire period[5].

[2]Because RAND HRS Family Data were only available until 2008 (Wave 9), we merged Wave 10 (2010) children records according to the HRS and RAND procedures. For more details, see: *Resources for Analysis of Family Data*, `http://hrsonline.isr.umich.edu/index.php?p=famdatmrgkid`

[3]This original sample excludes institutionalized respondents.

[4]Statistics that exclude time as a control are calculated by pooling all waves.

[5]There is no adjustment for attrition and the selection problems this may cause.

Table 3 displays wave-specific prevalence of PtC and CtP and associated amounts. Prevalence of PtC ranges between a low of .28 in the last two waves to a high of .37 in 1996. These values are consistent with those obtained in other research (Leukhina and Santoro 2011). CtP prevalence does not exceed 7% in any wave and confirms that PtC swamps CtP, thus supporting the idea that private transfers flow in the opposite direction than originally (Lee and Mason 2011). The average amount transferred from PtC is substantial, in the range $7,000-11,000 per wave, whereas the number of hours supplied by children to parents fluctuates between 40 and 55 per month. The contrast between mean and median suggests that the distributions of both quantities are highly asymmetrical and contain steep inequalities (see below).

The left panel of Figures 1 and 2 shows the proportion of parents engaged in PtC transactions, receiving CtP flows, and having coresident children among all and only non-coresident dyads respectively. The right panel displays the proportion of children who are the beneficiaries of PtC transfers, who provide transfers to parents, and who coreside with them. The prevalence of PtC transfers remains steady over time. There is not a modest downturn in 2010, two years after the great recession. Coresidence declines rapidly reflecting upward shifts of the risk of children leaving home but the drop in the last two waves is more marked, perhaps an effect of the recession (see below). Finally, CtP increases with time, surely a result of increased health-related demands from aging parents. The right panel of the figures corresponds to the same quantities described above but expressed in term of children (all and non-coresident).

Patterns by age and marital status (figures not shown) are as expected: PtC transfers decay precipitously with parental age (from about .4 to .15) whereas CtP flows increase sharply (from .03 to about .40). Prevalence of coresidence is U-shaped, with maximum values of around .4 and .25 at the youngest and oldest ages respectively and a minimum of about .20. Married parents give more than those who are divorced and these more than widow(er)s. Time trends are similar to those in the total population except for divorced parents who experience a modest decline over time.

Figure 3 shows large contrasts by race. The Non-Hispanic White population has much higher propensity to engage in PtC and much less so in both coresidence and CtP. These two forms of transfers are heavily favored by Non-Hispanic Blacks and other groups (mostly Hispanics). Time trends in all three types of transfers are similar except for sharper decreases in PtC transfers and increases in CtP transfers in the last two waves among African American and others.

Figure 4 shows evidence of the remarkable gradient of PtC prevalence by income: parents in the highest decile are 5 times as likely to engage in PtC transfers than parents in the lowest decile. Conversely, parents in the lowest income decile are more than three times as likely to experience CtP transfers and coresidence.

Figure 5 shows an even more remarkable pattern: while the income gradient of PtC transfers is sharp and similar across parental wealth quartiles (a .035 increase per decile), the levels of PtC increase substantially with wealth: the average prevalence of PtC transfers increases from about .22 in the first wealth quartile to about .38 in the last one. Conversely, CtP flows decline sharply with income decile and do so independently of parental wealth: the maximum prevalence in the first income decile in all wealth quartiles is around .15 and descends to about .03 in the last income decile.

Figure 6 and 7 show summary measures of amounts transferred. The median dollar amount of PtC flows in Figure 6 increases slowly by income decile. The main contrast is between the last two deciles and all others, a difference of about $2000-$3000. However, the interquartile distance rises sharply with income. This increase in variability translates in large levels of inequalities in PtC transfers (see below). Median hours supplied by children (Figure 7) decrease rapidly between the first and second (parental)

income deciles and thereafter remain steady. The variability of hours supplied (CtP) shows a pattern opposite to that found in PtC quantities: the interquartile distance is very large in the lowest income deciles and small in the highest ones.

5 Testing conjectures

Tables 4 through 7 display estimates of parameters and goodness-of-fit statistics. Below we evaluate each set of conjectures regarding income gradients, PtC and CtP relations, ethnic differentials, and effects of recession.

Estimates from the baseline model for PtC and CtP propensities are in Table 4. The first and third columns are parameter estimates and standard errors; the second and fourth columns are estimated average marginal effects. A number of features are worth noting. First, the estimated effect of time (wave) on PtC reveals a moderate post-recession impact: the estimate associated with the dummy for the last wave is significantly different from 0 and the magnitude of the change implied is of the order of 18% (exp(-.172)) or about .12 (.013/.11) of a standard deviation of the distribution of predicted propensities PtC. There is also a small upswing in CtP propensities approximately equivalent to 8.5% increase (exp(.084)) relative to the reference period (2006)[6]. Second, effects of parental age on PtC are concave downward with a peak around age 80 and rapid descent at very old ages. Instead, children propensity to support parents increases with their parents age: from an average of about 1.5% (.017-.002) when parents are in their late sixties to a high of 3.4% (.017+.017) when parents are older than 85. Third, increases in parental education increases propensities of PtC but discourages CtP transfers: whereas the probability that a highly educated parent gives to a child is about 60% ((.098+.059)/.098) above the mean (equivalent to a change of about one half of a standard deviation) and more that twice (2.17 = exp(.776)) the propensity of the lowest educated parent, they are slightly less likely to receive from children: highly educated parents are about 50% less likely to receive from their children. Since the magnitudes involved are small (about .02 on average), the absolute change is modest. Fourth, both the propensity of PtC and CtP transfers decays with child's age: parents are less likely to give to older children and older children are less likely to give to parents. But but a clear age gradient is only evident in PtC transfers. Finally, a child's education has either negative or no effects at all on either PtC and CtP.

The finding about education deserves special attention: if education is a form of capital, exchange theory would lead us to expect that highly educated parents give more and they give more to highly educated children and viceversa. But alas, we only detect half-truths: while more educated parents are indeed significantly more inclined to give to their children than low educated parents, their propensity to give is either unrelated or driven down by their children' education. Contrary to expectations, children are less inclined to give to more educated parents and children's own education has no effects at all on their propensity to give to parents. The magnitudes of changes is not trivial as the average changes in propensities implied by the estimates exceed 10% of the sample's average propensity.

[6]Throughout we use the approximation $ln(p) \sim ln(p/(1-p))$, where p is propensity which is reasonably good when $p < .10$.

5.1 Income and wealth gradients

Wealth and income are by far the strongest determinants of PtC transfers. Table 6 displays goodness of fit statistics of nested models that include wealth and log of income: the size of all three key statistics is large and confirms the empirical relevance of these two variables. But, as shown in Table 4, the observed relations are not always consistent with predictions from the theories. First, the effects of both wealth and parental income are statistically significant and quite large. The income elasticity of the probability of a PtC transfer is approximately .182: a 10% increase in income translates in a 1.8% in the probability of a PtC flow. Since the average probability of a PtC transfer in the sample is of the order of .10, the income induced change is anything but dismissible. Second, the effect of parental wealth is also large: a change from the first to the uppermost quartile of the wealth distribution implies a change (relative to the sample mean propensity) of almost 50% (.059/.098) and those who are in the uppermost quartile are more than twice as likely (exp(.773) = 2.17) to effect a PtC transfer than those who are in the lowest quartile.

So far, exchange theory, the first two versions of altruism and even the status preservation approach hold their ground well. It is in the CtP transfers where relations break down and do not work according to expectations: neither parental wealth nor parental income spike children' interest in engaging in CtP transfer. This runs counter exchange theory but is consistent with both the first two variants of the altruistic model as well as the status preservation approach. Consistency, however, is only a free pass for further empirical testing, not proof of validity. While we cannot reject the altruistic motive, the data by no means confirms it, particularly because at least half of the predictions of exchange theory prove to be correct. We will have more to say about the role of wealth and income and their impact of aggregate economic inequality.

Table 5 displays estimated effects on quantities transferred. The first column are for income from PtC and although most of the estimates mimic those in Table 4, three of deserve special attention. First, Table 4 revealed that the recession (reflected by the estimated effects of the last wave dummy) is somewhat neutral and slightly increases the propensity of CtP. Table shows that it significantly decreases the number of hours of support by 20% (exp(-.20)). Second, the income elasticity of PtC transfers is of the order of .06 so that a 10% increase in parental income results in .6% increase per wave in the income flow to children. Over the entire period spanning nearly 15 years this translates into average increases in income transferred of the order of $1,500 for every $3,000 (approximately) increase in income at baseline. Overall, a parent who starts out one standard deviation above the mean parental income contributes $68,000 more than a parent who starts out at the mean. This is far from a trivial quantity. And more importantly: we know from Figure 3 that the estimated elasticity is the result of a continuous change along the income distribution, not the expression of a threshold phenomenon. Third, the effects of wealth are substantial: income transferred by parents in the highest wealth quartile are about 70% higher than the amounts transferred by those in the lowest quartile. This is approximately equivalent to an increase of between $5,000 and $8,000 per wave or totals between $40,000 and $64,000 over the entire period.

Do quantities of CtP transfers (hours) behave as expected by various theories? The estimates in the second column of the table suggest no important effects of parental wealth or income. This means that PtC flows do not operate as incentives to encourage CtP flows. CtP flows are largely governed by of age, gender, and ethnic group and do are not sensitive to parental income, wealth or even to past parental transfers (see bottom panel of table).

5.2 Relations between PtC and CtP

Is there any evidence that PtC transfers echo CtP transfers and viceversa? While the exchange theory asserts such a relation, the others are agnostic about it. Results in Table 4 include three variables (see bottom of tables) constructed to detect key relations in the data. All three are crudely defined dummy variables for the presence (ever/never) of (a) past PtC money transfers, (b) past CtP support, and (c) past CtP money transfers. Despite the coarseness of these indicators, Table 6 shows clearly how powerful they contribute to increases in model fit. By far, the largest effects are associated with a past PtC money transfers: its existence doubles the probability of a current PtC transfer from an average of .10 to about .20. Furthermore, and as expected by the exchange theory, the lagged variable increases the probability of CtP. The increase is modest in absolute terms (from an average of .017 to .020) but so is the mean in the sample. The downside of these estimates is that, at least the one for PtC, is difficult to interpret: does it reveal an intrinsic (and unmeasured) parental propensity to persistently give to children or is the variable a conduit to smuggle effects of unmeasured conditions? While the answer may be impossible to retrieve with our model, there is partial evidence supporting the first interpretation: the effect of the third lagged dummy variable on PtC – past transfers to a sibling – is large and positive, much as one would expect if parents who give to one sibling are simply inclined to give to others as well, regardless of past transfers. This is sheer support for the presence of altruism. The large and negative effect that the same variable has on children' propensity to engage in CtP transfers is consistent with both an altruistic inclination (no help given where none is needed) and the exchange motive (less support bestowed on parents if other sibs are the beneficiaries of parental support). In sibships where one sib has received past support, other sibs may decrease the frequency of CtP transfers.

The second feature of estimates of lagged variables is that, contrary to exchange theory expectations, past support from children deflate the probability of parental support, much as it would occur if past CtP transfers are a sign of past (and current) parental precariousness. In fact, parents whose child engaged in a previous CtP transfer is about -.022 (about .20 of a standard deviation) less likely to participate in a PtC transfer. If accurate, this interpretation confirms the altruistic motive among children. As happened with past PtC, a prior CtP transfer enhances the chance of a current one: if a child provides support to parents in the past, the probability of engaging in another transfer raises to .048 (.031 + .017) virtually doubling the propensity. We now face the same ambiguity in interpretations highlighted above: does this effect reflect a propensity of children to give anyway, as expected from altruistic motives, or does the observed effect conceals the influence of a host of unmeasured variables?

An important issue related to sibling competition needs to be addressed at this point. In recent work, critiques conventional economic models of altruistic behavior for ignoring the role of sibling competition. In particular, Emery (2013) suggests that the second variant of the altruistic theory leads us to expect that, while not impeding the realization of parental altruistic motives, the size of sibship should attenuate propensities and quantities of PtC transfers. This is because potential transfers to each additional child impinge on parental consumption levels. Thus, we should expect that *the probability that any one child will receiv a transfer as well as the size of any subsequent transfer are negatively affected by the number of siblings that an individual has* (Emery 2013, p. 253). This is exactly what our data shows: the dummies for size of sibship exert powerful effects on the propensity to engage in PtC transfer: a parent who has 2 to 4 children is only 40% as likely to transfer to any of his children than a parent with two or less whereas a parent with 5 or more is only 20% as likely to transfer. These are very large effects. In fact, these variables have the largest effects in the model. Conversely, the probability of a CtP transfer drops precipitously as the sibship size increases, as one would expect if CtP support is always shouldered by one sibling rather than allocated in equal shares. Furthermore, the strong negative effect of birth order is

consistent with the idea that the addition of a child decreases the marginal PtC propensity (models not shown). This, confirms Emery's extension of the altruistic argument.

In summary, and as was the case with income and wealth, empirical testing of predictions about PtC and CtP flows is a mixed bag: some findings confirm exchange theory predictions, others run counter it but cannot be used to support the alternative, and yet others have ambiguous interpretations that favor neither of them.

5.3 Ethnic differentials

Exchange theory predicts that, once we account for income and wealth effects, there should be no differences across ethnic groups, and that propensities and quantities should behave as expected. Similarly, the three variants of altruism approach do not identify conditions that may result in strong ethnic differentials. Finally, the status consistency approach predicts ethnic differentials but none of them are observed and none of those observed are predicted by the approach.

First, our results in Tables 4 and 5 reveal that minority groups in the U.S. experience lower PtC propensities, significantly lower quantities in PtC monetary transfers, higher propensities of CtP flows (only African Americans), and significantly higher quantities of hours supplied by children. Further, in our initial review of the data we identified much higher levels of parent - child coresidence among African American and other ethnic groups. Overall, these findings are signs of a strong ethnic divide in transfers' patterns, one explained neither by exchange theory nor by the alternative approaches. We are missing an ingredient that could be culture and social norms. Approaches originating in sociology insist that the key motivation for intergenerational transfers springs from the perverseness of social norms, family ties, and expected sanctions. There is a fair amount of literature that finds important cross-cultural and historical differences in family transfers that are impossible to explain via insurance or altruistic motives, much less status preservation approaches. It is also known that modern shifts of marriage and family formation patterns erode traditional allegiances and introduce uncertainty in intergenerational solidarity expectation (Cherlin 2004). Since these shifts affect unevenly various ethnic groups, consideration of norms, values, and traditional expectations should be part of explanations designed to account for observed ethnic differentials detected here.

The status consistency approach is not suitable to explain what we observe but, more importantly, none of the ethnic differentials that the approach predicts are observed. In particular, PtC responsiveness to income (see Figure 3) is identical regardless of initial wealth, our measure of parental SES. Second, responsiveness to income changes are the same in each SES class and within each of the ethnic groups. This is inconsistent with the idea that among minorities flatter and sharper income elasticities are expected for PtC transfers within the lowest and highest classes respectively (estimates of interaction effects in Table 7). Furthermore, interaction terms involving the ethnicity dummy variables and income and wealth, reveal no effects at all. This runs counter status preservation as according to the approach we would expect that discrimination and disadvantages experienced by minorities deflate motivations for upward mobility and/or strengthen the need for status preservation. There is no evidence in our data for either a sharpening or a flattening of the income elasticity of PtC transfers.

5.4 Effects of the great recession

Past research has entertained the idea that economic recession must have enduring influences in intergenerational transfers (National Research Council 2011). But the evidence is elusive. We know of only one set of results (Cox and McDonald 2011) using Rand's American Life Panel (ALP) that confirm that, despite added budgetary constraints induced by the crisis, parents increased their financial help to support children who need to overcome liquidity problems, cushion the effect of unemployment spells and avoid foreclosure.

Are there any visible footprints of the great recession in our data? We find only a handful in our data and these are not very strong. First, descriptive statistics reviewed before show a negative effect on PtC propensity and a positive effect on CtP propensity. In fact, Table 4 confirms that CtP propensity increases by about 9% (exp(.084)) but the number of hours supplied to parents decreases. This pattern of results is the opposite of what one would predict given the nature of the recession: PtC should have increased to bail out children' debt-ridden portfolios, attenuate impact of foreclosures, and temporarily alleviate spells of unemployment. By the same token, CtP propensity to help and hours of support should increase partly in response to cuts in working hours (due to un or underemployment) and to an increase in parental needs. Furthermore, none of the interactions (see Table 7) with the dummy for the recession wave (2010) reveal anything of note, not even the interaction terms implicating ethnic groups.

A weak response to the great recession is not an outcome predicted by any of the three theories. The only plausible explanation is that the crisis has not yet run its course and that PtC (or CtP) flows react with lags not properly captured in the HRS data we use. Alternatively, our indicators and measures are deficient and not suitable for testing the prediction.

5.5 Hamilton's altruism

Is there any evidence in the HRS panel of the evolutionary variant of altruism? At the outset we stated three simple predictions. The first is that step children should be less favored in PtC exchanges. In fact, the estimated effects associated with stepchildren is large and negative: a step child is exposed to a probability of PtC transfer that is about 30% lower than average (exp(-.326)). The second prediction is that daughters rather than sons should be favored in PtC transferred [7]. The data confirms this as well: daughters are more likely to be recipients of a PtC transfer that sons. The magnitude of the difference is about 13% (exp(-.123)) relative to a son, a modest but suggestive change. Finally, the third prediction is that PtC transfers are more likely to be directed to children with offspring rather than to those who are childless. The data do not confirm this: although the sign of the coefficient of the variable (*parent)* is positively signed, the estimate is not statistically significant from zero.

5.6 Aggregate effects of intergenerational transfers: Do they promote aggregate inequality?

We end considering a conjecture closely related to the status preservation approach though it has never been explicitly formulated nor tested (Albertini and Radl 2012), namely, that inter-vivos transfers may influence aggregate levels of inequality. If inter-vivos transfers are regulated by insurance motives, one

[7] It is thought that parent child genetic concordance is harder to prove for a parent's son's children than it is for a parent's daughter's children.

would expect relatively high levels of inequalities in the flow of transfers. If, instead they obey altruistic motivations, inequality in flows should be much lower and there should be no relation at all between volume and patterns of transfers and aggregate inequality. However, if the status preservation is an accurate rendition of inter-vivos transfers, one would expect high inequality in transfers and a high impact of this on levels of aggregate income inequality. The conjecture of a relation between the two emerges most naturally in the context of the status preservation approach.

We know that unintentional transfers or bequests are important conduits for intergenerational transfers of wealth (Attanasio and Hoynes 2000; Hurd 1989; Avery and Rendall 1993; Munnell et al. 2011). It has been estimated that as of 2007, the boomer birth cohort (1946-1964) received a total of $2.4 trillion in bequests, an amount thought to be a firm lower bound due to heavy underreporting. Some researchers have argued that bequests maintain or induce more aggregate inequality than generated by virtue of differential labor market returns alone (Albertini and Radl 2012). Others dismiss this idea on account of the "small" amounts of money associated with inter-vivos transfers (Zissimopoulos and Smith 2009). However, according to recent accounting of the total $ 3.4 trillion that the US baby boom cohort had received by 2007, a full 38% originates in inter-vivos transfers (Munnell et al. 2011). This is not a small contribution by any means. Further, we already showed that the PtC flows over the fifteen years of life of our panel are substantial. Finally, we also find PtC transfers are tightly related to wealth and income, less to altruistic motives, and much less to intra-family shared risk insurance repayments of or expectations for CtP support. This evidence is strong enough to consider inter-vivos transfers' role in creating of aggregate inequality[8].

Figure 8 shows the Gini index of respondents income and of PtC transfer amounts over the fifteen year follow-up only among those who transferred. The level of inequality hovers around .47, somewhat lower that the actual levels in the U.S. in the most recent period (close to .51). Surprisingly, inequality embedded in PtC transfers is, on average, of the order of .70-.75, that is, 60% higher than income inequality. Because the amounts involved are large and are likely to be understated, these levels of inequality are potential producers of aggregate inequality in offspring generations that benefit from inter-vivos transfers. They probably translate into unequal levels of human capital formation (education), unequal magnitude of assets accumulation (investments, home and durable goods), unequal levels of liquidity. Thus, at least one condition that must be met for inter-vivos flows to sustain aggregate income inequality is confirmed by the data: the degree of inequality in PtC flows is higher than the degree of income inequality. If it were lower, inter-vivos transfers would only attenuate aggregate income inequality.

While elucidation of the exact relation, if any, between inter-vivos transfers and inequality is mercifully beyond the scope of this paper, we can at least search for the main contributors to he levels of inequality in transfers. We do this by computing counterfactual predicted amounts of PtC income transfers under different scenarios representing zero effects of income, zero effects of wealth, and zero effects of ethnicity (results not shown). While the counterfactual predicted Gini indices behave as expected, namely, decline when effects are set to zero, specially when we eliminate the effects of income and wealth, the predicted Gini values are well below the observed ones. This occurs because under a Tobit model on logs of income, the extreme values, e.g., those that play a key role in shaping any standard inequality index, vanish. In future research we will use non-parametric models to eliminate or circumvent the problem.

[8]In fairness to those who argue that inter-vivos transfers are not large enough to make a difference for income inequality it must be said that the average propensity of US parents to give is at most .30, that, is the majority does not give at all. If so, inter-vivos flows cannot exert much of a leverage to substantially modify aggregate inequality.

6 Summary and conclusion

The first and strongest of all findings confirms what other research had already uncovered, namely, that PtC dwarf CtP transfers. But while this is so in the population as a whole, there are sharp contrasts by ethnic groups: it is a dominant feature of intergenerational transfers in the Non-Hispanic Whites population but much less among African Americans and other groups.

The insurance motive or exchange theory is confirmed partially and with empirical evidence similar to that produced by past research. PtC transfers are much larger among those with higher income, higher wealth and higher education whereas CtP transfers, in the form of hours of support, are higher among those at the opposite end of the social hierarchy. Contrary to predictions from the insurance motive theory, there is no evidence of actual exchanges or reciprocity since PtC's are not related to past CtP's or viceversa.

Although neither variant of altruism is completely vindicated, confirmation of two out of three Hamilton predictions is not exactly a poor performance. Further, a number of predictions associated with the more conventional variants of altruism were also verified by the data. However, the strongest evidence for altruism is also the weakest possible evidence, namely, in the form of negative findings: relations that were not expected under the rule of altruistic motives were indeed not present in the data.

The status consistency approach is more difficult to parse empirically. In part this is due to the slippery notion of social class that, in some contexts at least, is associated with rather immutable features of occupational trajectory (e.g., the UK social class categories) but in most cases, including the U.S., requires relying on *ad hoc* indicators (such as wealth class as we do here). At the core of this approach is the idea that only PtC transfers are relevant, that they do not emerge as responses to or in anticipation of CtP transfers, and that the income elasticity of PtC propensities and amounts transferred should spike among those in the upper crust. Moreover, pressured by barriers associated with discrimination, stigma, and added disadvantages that shape the competition arena of minorities, one should expect much higher income elasticities of PtC among minorities in the upper classes and much lower among those at the bottom of the hierarchy. But none of this is verified in the data, not at least in a form consistent with the notion of class cum -wealth category as done here.

Overall, the empirical evidence reviewed above appears to be on the side of altruism, if ever so slightly. But the world is messy and it is conceivable that it could host human agents who behave both as calculating machines maximizing utility functions, struggling to avoid status losses or, at times, even altruistically. What we do not know, and what this paper did not in the least help to uncover, are the cultural and institutional conditions under which intergenerational transfers follow one rule or the other or, even, are the observed outcome of an unsteady and uneasy coexistence of both.

References

Alber, Jens and Ulrich Köhler. 2004. *Health and Care in an Enlarged Europe*. European Foundation for the Improvement of Living and Working Conditions.

Albertini, M, M Kohli, and C Vogel. 2007. "Intergenerational Transfers of Time and Money in European Families: Common Patterns Different Regimes?" *Journal of European Social Policy* 17:319–334.

Albertini, M. and J. Radl. 2012. "Intergenerational Transfers and Social Class: Inter-vivos Transfers as Means of Status Reproduction?" *Acta Sociologica* 55:107–123.

Altonji, Joseph G., Fumio Hayashi, and Laurence J. Kotlikoff. 1997. "Parental Altruism and Inter Vivos Transfers: Theory and Evidence."

Andreoni, James. 1990. "Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving." *The Economic Journal* 100:464–477.

Attanasio, Orazio P and Hilary Williamson Hoynes. 2000. "Differential mortality and wealth accumulation." *Journal of Human Resources* pp. 1–29.

Avery, Robert B and Michael S Rendall. 1993. "Estimating the Size and Distribution of Baby Boomers' Prospective Inheritances." *the American Statistical Association's 1993 Proceedings of the Social Statistics Section* pp. 11–19.

Becker, Gary S. 1991. *A Treatise on the Family*. Harvard University Press.

Bianchi, Suzanne M., Joseph V. Hotz, Kathleen McGarry, and Judith A. Seltzer. 2008. "Intergenerational Ties: Theories, Trends, and Challenges." In *Intergenerational Caregiving*, pp. 3–43. Wahshington, D.C.: The Urban Institute.

Caldwell, John Charles. 1982. *Theory of fertility decline*. Academic Press.

Chan, T W. 2008. "The Structure of Intergenerational Exchange in the UK." *Sociology Working Papers 2008/05: Oxford University* .

Cherlin, Andrew J. 2004. "The Deinstitutionalization of American Marriage." *Journal of Marriage and Family* 66:848–861.

Cox, Donald. 1987. "Motives for Private Income Transfers." *Journal of Political Economy* 95:508.

Cox, Donald. 2008. "Intergenerational Caregiving and Exchange: Economic and Evolutionary Approaches." In *Intergenerational Caregiving*. Wahshington, D.C.: The Urban Institute.

Cox, Donald and Megan McDonald. 2011. "Expectations versus Realizations of Familial Insurance: Evidence from the Great Recession of 2008." *Paper presented at the Population Association of America Annual Meeting* .

Elster, J. 2006. "Altrustic Behavior and Altruistic Motivation." In *Handbook of Economics of Giving, Altruism and Reciprocity*, pp. 183–206. Amsterdam: Elsevier.

Emery, Thomas. 2013. "Intergenerational Transfers and European Families: Does the Number of Siblings Matter?" *Demographic Research* 29:247–274.

Ermish, J, M Jantti, and T M Smeeding. 2012. *From Parents to Children: The Intergenerational Transmission of Advantage*.

Grundy, E and N Shelton. 2001. "Contact between Adult Children and Their Parents in Great Britain 1986-99." *Environment and Planning A* 33:685–697.

Hamilton, W.D. 1964. "The Genetical Evolution of Social Behaviour." *Journal of Theoretical Biology* 7:1–16.

Hamilton, William D. 1963. "The Evolution of Altruistic Behavior." *American Naturalist* pp. 354–356.

Henretta, J C, M S Hill, W Li, B J Soldo, and D A Wolf. 1997. "Selection of Children to Provide Care: the Effect of Earlier Parental Transfers." *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences* 52 Spec No:110–119.

Hurd, Michael, James Smith, and Julie Zissimopoulos. 2008. "Inter-vivos Giving Over the Lifecycle." *RAND Working Paper* .

Hurd, Michael D. 1989. "Mortality Risk and Bequests." *Econometrica* 57:779–813.

Hurd, Michael D and James P Smith. 1999. "Anticipated and Actual Bequests."

Kim, Jeungkun. 2012. "Family Conflict From the Perspective of Adult Child Caregivers: The Influence of Gender." *Journal of Social and Personal Relationships* .

Kim, Jinhee, Saeeun Choi, Swarn Chatterjee, and Haejeong Kim. 2012. "The Motivation for Intergenerational Time and Financial Transfers." *Family and Consumer Sciences Research Journal* 40:373–397.

Kohn, Melvin L. 1976. "Social Class and Parental Values: Another Confirmation of the Relationship."

Kohn, Melvin L, Kazimierz M Slomczynski, and Carrie Schoenbach. 1986. "Social Stratification and the Transmission of Values in the Family: A Cross-National Assessment." *Sociological Forum* 1:73–102.

Lee, Gary R, Chuck W Peek, and Raymond T Coward. 1998. "Race Differences in Filial Responsibility Expectations among Older Parents." *Journal of Marriage and Family* 60:404–412.

Lee, Ronald and Andrew Mason. 2011. "Life cycles, Support Systems, and Generational Flows: Patterns and Change." In *Population Aging and Generational Economy: A Global Perspective*, pp. 79–106. Massachusetts: Edward Elgar Publishing.

Leukhina, Oksana and Marika Santoro. 2011. "An In-Depth Look Into Intergenerational Flows." *Center for Retirement Research WP* .

Mason, Andrew and Ronald Lee. 2006. "Reform and Support Systems for the Elderly in Developing Countries: Capturing the Second Demographic Dividend." *Genus* pp. 11–35.

McGarry, Kathleen. 1999. "Inter Vivos Transfers and Intended Bequests."

Munnell, A, A Webb, Z Karamcheva, and A Eschtruth. 2011. "How Important are Intergenerational Transfers for Baby Boomers?" *Center for Retirement Research WP* .

National Research Council. 2011. "Assessing the Impact of Severe Economic Recession on the Elderly: Summary of a Workshop."

Remle, R C. 2008. *Kinship Status and Life Course Transitions as Determinants of Financial Assistance to Adult Children.* Ph.D. thesis, Duke University.

Rendall, Michael S and Raisa A Bahchieva. 1998. "An Old-age Security Motive for Fertility in the United States?" *Population and Development Review* pp. 293–307.

Saraceno, Chiara, Manuela Olagnero, and Paola Torrioni. 2005. *First European Quality of Life Survey: Families, Work and Social Networks.* Office for Official Publications in the European Communities.

Schoeni, Robert F. 1997. "Private Interhousehold Transfers of Money and Time: New Empirical Evidence." *Review of Income and Wealth* 43:423–448.

Shokkaert, E. 2006. "The Empirical Analysis of Transfer Motives." In *Handbook of Economics of Giving, Altruism and Reciprocity*, pp. 172–182. Amsterdam: Elsevier.

Silverstein, M. 2006. "Intergenerational Support to Aging Parents: The Role of Norms and Needs."

Zissimopoulos, Julie and James P Smith. 2009. "Unequal Giving Monetary Gifts to Children Across Countries and Over Time." *Working Paper* .

7 Tables and Figures

Table 1: Descriptive Statistics Child-Level (Unweigthed Data)

	Mean	Std. Dev.	Min	Max
Outcomes				
PtC	0.14	0.346	0.00	1.00
Natural logarithm Amount PtC, Last 2 years	8.08	1.222	6.21	14.01
CtP	0.02	0.147	0.00	1.00
Natural logarithm Hours CtP, Per Month	2.84	1.461	0.00	6.61
Respondent				
Female	0.59	0.492	0.00	1.00
Age				
50-64	0.35	0.477	0.00	1.00
65-74	0.37	0.482	0.00	1.00
75-84	0.19	0.396	0.00	1.00
85+	0.09	0.283	0.00	1.00
Race/ethnicity				
White non-hispanic	0.71	0.453	0.00	1.00
Black non-hispanic	0.17	0.378	0.00	1.00
Other	0.11	0.319	0.00	1.00
Marital status †				
Never married	0.01	0.086	0.00	1.00
Married	0.62	0.484	0.00	1.00
Divorced	0.13	0.334	0.00	1.00
Widowed	0.24	0.427	0.00	1.00
Years of education †				
<12 years	0.36	0.480	0.00	1.00
12 years	0.33	0.470	0.00	1.00
13-15 years	0.17	0.378	0.00	1.00
16+ years	0.14	0.344	0.00	1.00
Working status †				
Not working	0.71	0.452	0.00	1.00
<30 hours	0.06	0.229	0.00	1.00
30+ hours	0.23	0.422	0.00	1.00
Wealth Quartiles				
Wealth Q1	0.24	0.428	0.00	1.00
Wealth Q2-Q3	0.51	0.500	0.00	1.00
Wealth Q4	0.25	0.434	0.00	1.00
Ln income †	10.32	1.684	-4.61	17.92
Number of functional limitations †	0.28	0.800	0.00	5.00
Number of children †				
1 child	0.03	0.175	0.00	1.00
2-4 children	0.52	0.500	0.00	1.00
5+ children	0.45	0.498	0.00	1.00
Children				
Female	0.50	0.500	0.00	1.00
Age				
18-24	0.02	0.133	0.00	1.00
25-34	0.20	0.399	0.00	1.00

35-44	0.39	0.487	0.00	1.00
45-54	0.27	0.444	0.00	1.00
55+	0.13	0.331	0.00	1.00
Stepchild	0.11	0.312	0.00	1.00
Parent †	0.75	0.434	0.00	1.00
Years of education †				
<12 years	0.12	0.319	0.00	1.00
12 years	0.39	0.489	0.00	1.00
13-15 years	0.21	0.410	0.00	1.00
16+ years	0.28	0.447	0.00	1.00
Birth order	2.60	1.752	1.00	19.00
Working full time †	0.75	0.435	0.00	1.00
Transfers				
Lagged money from child ever	0.07	0.251	0.00	1.00
Lagged help from child ever	0.03	0.163	0.00	1.00
Lagged money to child ever	0.33	0.471	0.00	1.00
Lagged money to siblings ever	0.51	0.500	0.00	1.00

† One wave lagged variable.

Table 2: Records of Respondents and Children HRS/AHEAD
No coresident dyads, Unweighted Data

Year	Respondents	Children
1994	5457	16738
1996	9324	28522
1998	8505	26835
2000	7656	24681
2002	6930	22731
2004	6306	20830
2006	5653	18790
2008	5105	17238
2010	4414	14794

Table 3: Respondent Level Transfers Dyads
No Coresident Dyads, HRS/AHEAD, Weighted Data

Year	PtC	Mean Ptc Amt.	Median Ptc Amt.	CtP	Mean CtP hrs/mo	Median CtP hrs/mo
1996	0.373	14868	4169	0.050	61	28
1998	0.287	11482	4013	0.053	60	28
2000	0.291	14166	3799	0.050	57	24
2002	0.272	15765	3636	0.056	63	20
2004	0.289	12642	4155	0.055	58	26
2006	0.287	13557	4326	0.060	71	20
2008	0.279	14848	4051	0.054	54	20
2010	0.279	14034	4500	0.068	57	21

Table 4: Random Intercept Logistic Models Non-Coresident Dyads, Propensity to PtC and CtP, HRS/AHEAD

	PtC		CtP	
	β (SE)	AME	β (SE)	AME
Waves (ref = Wave 8 ≈ 2006)				
Wave 4	0.403^{***}	0.031^{***}	0.238^{**}	0.003^{**}
	(0.041)		(0.083)	
Wave 5	0.257^{***}	0.020^{***}	-0.107	-0.001
	(0.040)		(0.085)	
Wave 6	0.018	0.001	-0.029	-0.000
	(0.040)		(0.084)	
Wave 7	0.071	0.005	-0.096	-0.001
	(0.038)		(0.084)	
Wave 9	-0.104^{**}	-0.008^{**}	-0.223^{*}	-0.003^{*}
	(0.040)		(0.087)	
Wave 10	-0.172^{***}	-0.013^{***}	0.084	0.001
	(0.043)		(0.088)	
Respondent				
Female	-0.117^{***}	-0.009^{***}	0.397^{***}	0.005^{***}
	(0.030)		(0.061)	
Age (ref = 50-64)				
65-74	0.182^{***}	0.014^{***}	-0.119	-0.002
	(0.034)		(0.093)	
75-84	0.323^{***}	0.025^{***}	0.610^{***}	0.008^{***}
	(0.047)		(0.104)	
85+	0.211^{**}	0.016^{**}	1.248^{***}	0.017^{***}
	(0.066)		(0.117)	
Race/ethnicity (ref = White non- hispanic)				
Black non-hispanic	-0.018	-0.001	0.194^{**}	0.003^{**}
	(0.044)		(0.065)	
Other	-0.289^{***}	-0.022^{***}	-0.264^{**}	-0.004^{**}
	(0.056)		(0.084)	
Marital status (ref = Married) †				
Never married	0.105	0.008	0.233	0.003
	(0.190)		(0.235)	
Divorced	0.041	0.003	0.224^{**}	0.003^{**}
	(0.045)		(0.085)	
Widowed	0.021	0.002	0.499^{***}	0.007^{***}
	(0.037)		(0.063)	
Years of education (ref = <12)				
12 years	0.383^{***}	0.029^{***}	-0.361^{***}	-0.005^{***}
	(0.039)		(0.063)	
13-15 years	0.509^{***}	0.039^{***}	-0.577^{***}	-0.008^{***}
	(0.045)		(0.086)	
16+ years	0.776^{***}	0.059^{***}	-0.474^{***}	-0.006^{***}
	(0.048)		(0.102)	
Working status (ref = Not working) †				
<30 hours	-0.007	-0.001	-1.322^{***}	-0.018^{***}
	(0.055)		(0.258)	
30+ hours	0.028	0.002	-1.183^{***}	-0.016^{***}
	(0.033)		(0.139)	
Wealth (ref = Q1)				
Wealth Q2-Q3	0.405^{***}	0.031^{***}	-0.051	-0.001
	(0.045)		(0.060)	
Wealth Q4	0.773^{***}	0.059^{***}	-0.333^{***}	-0.005^{***}
	(0.051)		(0.089)	

Ln income †	0.182***	0.014***	−0.011	−0.000
	(0.014)		(0.016)	
Number of functional limitations †	−0.047*	−0.004*	0.353***	0.005***
	(0.018)		(0.018)	
Number of children (ref = 1 child) †				
2-4 children	−0.935***	−0.071***	−0.385***	−0.005***
	(0.068)		(0.107)	
5+ children	−1.655***	−0.126***	−0.826***	−0.011***
	(0.073)		(0.114)	
Child				
Female	0.123***	0.009***	0.789***	0.011***
	(0.028)		(0.052)	
Age (ref=18-24)				
25-34	−0.984***	−0.075***	−0.426	−0.006
	(0.097)		(0.321)	
35-44	−1.294***	−0.098***	−0.540	−0.007
	(0.100)		(0.318)	
45-54	−1.481***	−0.112***	−0.349	−0.005
	(0.104)		(0.322)	
55+	−1.747***	−0.133***	−0.256	−0.003
	(0.113)		(0.327)	
Stepchild	−0.326***	−0.025***	−1.185***	−0.016***
	(0.050)		(0.154)	
Parent †	0.071*	0.005*	−0.020	−0.000
	(0.030)		(0.064)	
Years of education (ref = <12) †				
12 years	0.068	0.005	0.076	0.001
	(0.058)		(0.080)	
13-15 years	0.200**	0.015**	0.115	0.002
	(0.061)		(0.091)	
16+ years	−0.011	−0.001	−0.023	−0.000
	(0.062)		(0.094)	
Working full time †	−0.124***	−0.009***	0.029	0.000
	(0.028)		(0.051)	
Transfers				
Lagged money from child ever	−0.286***	−0.022***	0.398***	0.005***
	(0.055)		(0.068)	
Lagged help from child ever	0.069	0.005	2.266***	0.031***
	(0.084)		(0.066)	
Lagged money to child ever	1.445***	0.110***	0.244***	0.003***
	(0.030)		(0.060)	
Lagged money to siblings ever	0.373***	0.028***	−0.175**	−0.002**
	(0.033)		(0.058)	
ρ	0.291		0.230	
σ_u	1.162		0.992	
Predicted probability	0.098		0.017	
SD Predicted probability	0.113		0.055	
Observations	128667		129878	
Children	29946		30094	
BIC	78399		20627	
AIC	77979		20207	

SE = Standard error; AME = Average marginal effect; † One wave lagged variable.
* p <0.05, ** p < 0.01, *** p < 0.001

Table 5: Random Intercept Models for Non-coresident Dyads, Amounts PtC and CtP, HRS/AHEAD

	Ln PtC Amounts β (SE)	Ln Hours CtP β (SE)
Waves (ref = Wave 8 ≈ 2006)		
Wave 4	0.082*	−0.114
	(0.035)	(0.097)
Wave 5	0.099**	−0.144
	(0.035)	(0.097)
Wave 6	0.102**	−0.071
	(0.035)	(0.095)
Wave 7	0.024	−0.040
	(0.033)	(0.094)
Wave 9	−0.100**	−0.142
	(0.035)	(0.098)
Wave 10	−0.051	−0.196*
	(0.038)	(0.100)
Respondent		
Female	−0.048*	−0.009
	(0.024)	(0.078)
Age (ref = 50-64)		
65-74	0.114***	−0.016
	(0.029)	(0.119)
75-84	0.284***	0.353**
	(0.041)	(0.133)
85+	0.350***	0.500***
	(0.058)	(0.147)
Race/ethnicity (ref = White non- hispanic)		
Black non-hispanic	−0.276***	0.223**
	(0.040)	(0.078)
Other	−0.152**	0.355***
	(0.051)	(0.102)
Marital status (ref = Married) †		
Never married	0.132	0.378
	(0.181)	(0.285)
Divorced	0.026	−0.032
	(0.038)	(0.108)
Widowed	0.100**	−0.103
	(0.031)	(0.074)
Years of education (ref = <12)		
12 years	−0.036	−0.047
	(0.035)	(0.078)
13-15 years	−0.004	−0.184
	(0.038)	(0.108)
16+ years	0.185***	0.185
	(0.040)	(0.130)
Working status (ref = Not working) †		
<30 hours	−0.002	−0.353
	(0.048)	(0.370)
30+ hours	−0.039	0.145
	(0.028)	(0.188)
Wealth (ref = Q1)		
Wealth Q2-Q3	0.139**	−0.012
	(0.042)	(0.072)
Wealth Q4	0.517***	0.095
	(0.046)	(0.114)

Ln income †	0.059^{***}	-0.006
	(0.009)	(0.023)
Number of functional limitations †	0.050^{**}	0.032
	(0.018)	(0.019)
Number of children (ref = 1 child) †		
2-4 children	-0.136^{*}	-0.298^{*}
	(0.056)	(0.119)
5+ children	-0.250^{***}	-0.403^{**}
	(0.060)	(0.128)
Child		
Female	-0.037	0.356^{***}
	(0.023)	(0.065)
Age (ref = 18-24)		
25-34	-0.230^{**}	-0.738
	(0.072)	(0.398)
35-44	-0.211^{**}	-0.625
	(0.075)	(0.399)
45-54	-0.263^{***}	-0.578
	(0.080)	(0.404)
55+	-0.185^{*}	-0.559
	(0.089)	(0.410)
Stepchild	0.044	0.158
	(0.046)	(0.225)
Parent †	-0.087^{***}	-0.194^{*}
	(0.026)	(0.079)
Years of education (ref = <12) †		
12 years	0.078	-0.257^{**}
	(0.054)	(0.095)
13-15 years	0.088	-0.370^{***}
	(0.056)	(0.110)
16+ years	0.230^{***}	-0.424^{***}
	(0.057)	(0.115)
Working full time †	-0.069^{**}	-0.206^{***}
	(0.024)	(0.059)
Transfers		
Lagged money from child ever	-0.124^{*}	-0.030
	(0.050)	(0.075)
Lagged help from child ever	-0.065	0.171^{**}
	(0.077)	(0.056)
Lagged money to child ever	0.200^{***}	0.038
	(0.026)	(0.074)
Lagged money to siblings ever	0.040	-0.026
	(0.030)	(0.074)
ρ	0.306	0.368
σ_u	0.638	0.854
Observations	14435	2845
Children	7778	2001
BIC	44636	10218
AIC	44303	9956

SE = Standard error; † One wave lagged variables;
* p <0.05, ** p < 0.01, *** p < 0.001

Table 6: Godness-of-fit Random Intercept Models,
Propensity and Amounts PtC and CtP, HRS/AHEAD

	Baseline (B)	B + Income (I)	B + I + Wealth (W)	B + I + W + Lagged Variables
Propensity PtC				
Observations	128667	128667	128667	128667
Children	29946	29946	29946	29946
Log Likelihood (*df*)	-40720.382 (34)	-40515.347 (35)	-40254.670 (37)	-38946.742 (41)
LR χ^2 (*df*)	-	410.071 (1)	521.353 (2)	2615.856 (4)
LR p-value	-	0.000	0.000	0.000
BIC	81864	81466	80968	78399
AIC	81513	81105	80587	77979
Propensity CtP				
Observations	129878	129878	129878	129878
Children	30094	30094	30094	30094
Log Likelihood (*df*)	-10477.285 (34)	-10475.699 (35)	-10461.873 (37)	-10060.572 (41)
LR χ^2 (*df*)	-	3.172 (1)	27.653 (2)	802.601 (4)
LR p-value	-	0.075	0.000	0.000
BIC	21378	21387	21383	20627
AIC	21027	21025	21002	20207
Amounts PtC				
Observations	14435	14435	14435	14435
Children	7778	7778	7778	7778
Log Likelihood (*df*)	-22324.910 (34)	-22283.537 (35)	-22146.003 (37)	-22107.412 (41)
LR χ^2 (*df*)	-	82.746 (1)	275.068 (2)	77.182 (4)
LR p-value	-	0.000	0.000	0.000
BIC	45004	44931	44675	44636
AIC	44724	44643	44372	44303
Amounts CtP				
Observations	2845	2845	2845	2845
Children	2001	2001	2001	2001
Log Likelihood (*df*)	-4939.263 (34)	-4939.220 (35)	-4938.650 (37)	-4933.843 (41)
LR χ^2 (*df*)	-	0.086 (1)	1.139 (2)	9.615 (4)
LR p-value	-	0.769	0.566	0.047
BIC	10173	10181	10195	10218
AIC	9953	9954	9957	9956

Table 7: Interactions Random Intercept Logistic Models Propensity to PtC and CtP Non-Coresident Dyads, HRS/AHEAD

	PtC		CtP	
	β (SE)	AME	β (SE)	AME
Set 1				
Stepchild × Lagged money from child ever	0.352	0.027		
	(0.315)			
Stepchild × Lagged help from child ever	0.515	0.039		
	(0.583)			
Stepchild × Lagged money to child ever			0.723*	0.010*
			(0.308)	
Set 2				
2010 × Lagged money from child ever	−0.034	−0.003		
	(0.135)			
2010 × Lagged help from child ever	−0.165	−0.013		
	(0.214)			
2010 × Lagged money to child ever			0.222	0.003
			(0.135)	
Set 3				
Ch Not working full time † × Lagged money from child ever	0.033	0.003		
	(0.117)			
Ch Not working full time † × Lagged help from child ever	0.085	0.006		
	(0.156)			
R Functional limitations (one or more) † × Lagged money to child			0.148	0.002
			(0.097)	
Set 4				
Ch Female × Ch Parent †	0.061	0.005		
	(0.057)			
Stepchild × Ch Not working full time †	−0.151	−0.011		
	(0.100)			
Stepchild × 2010	0.075	0.006		
	(0.118)			
Set 5				
Wealth Q2-Q3 × Ln income †	−0.036	−0.003	−0.078*	−0.001*
	(0.038)		(0.033)	
Wealth Q4 × Ln income †	−0.087*	−0.007*	−0.102*	−0.001*
	(0.038)		(0.048)	
Set 6				
Wealth Q2-Q3 × Lagged money to siblings ever	−0.241**	−0.018**	0.015	0.000
	(0.083)		(0.117)	
Wealth Q4 × Lagged money to siblings ever	−0.266**	−0.020**	0.073	0.001
	(0.090)		(0.161)	
Set 7				
2010 × Black non-hispanic	0.122	0.009	−0.097	−0.001
	(0.103)		(0.159)	
2010 × Other race	0.008	0.001	−0.609**	−0.008**
	(0.136)		(0.219)	
Observations	128667		129878	
Children	29946		30094	

SE = Standard error; AME = Average marginal effect; Ch = Child, R = Respondent. † One wave lagged variable.
* p <0.05, ** p < 0.01, *** p < 0.001

Figure 1: Transfers HRS/AHEAD All Dyads, Weighted Data

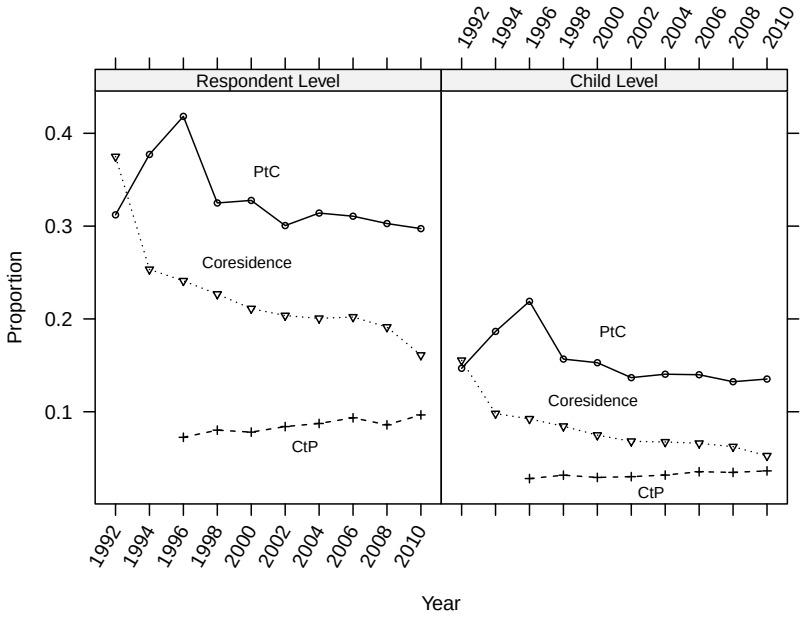

Figure 2: Transfers HRS/AHEAD No Coresident Dyads, Weighted Data

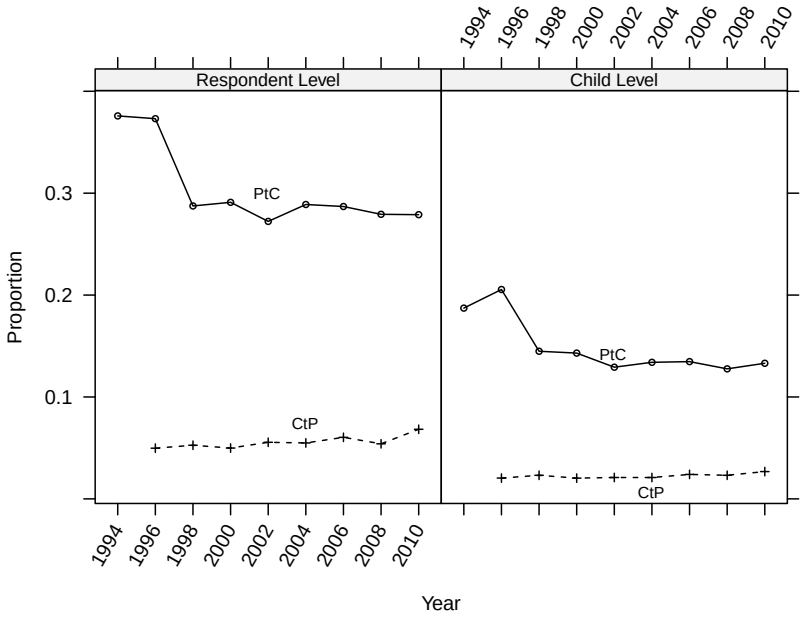

Figure 3: Transfers by Respondent's Race All Dyads HRS/AHEAD, Weighted Data

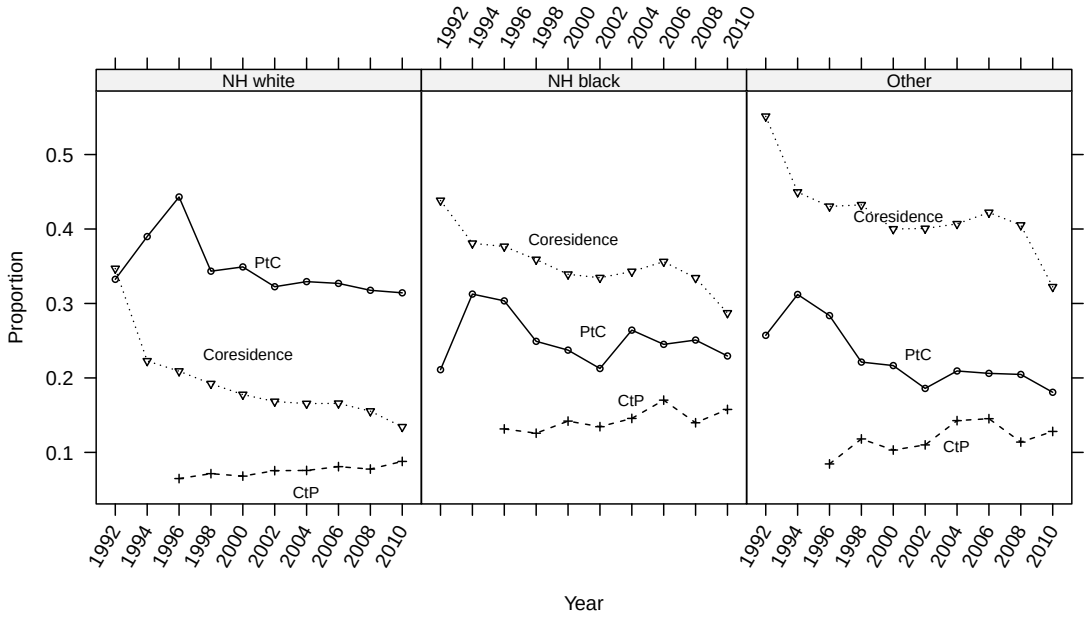

Figure 4: Transfers by Respondent's Income All Dyads HRS/AHEAD, Weighted Data

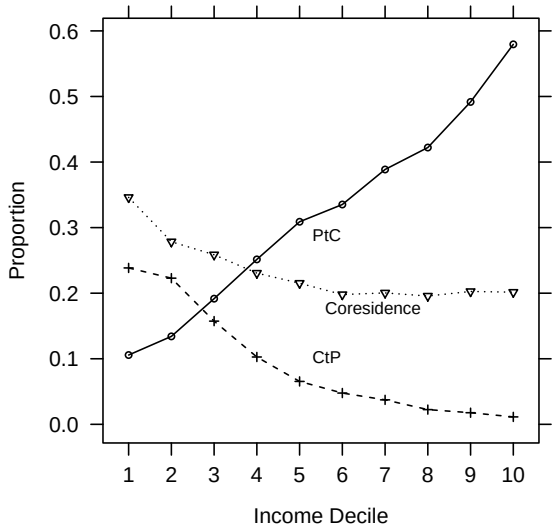

Figure 5: Transfers by Respondent's Income and Wealth
All Dyads HRS/AHEAD, Weighted Data

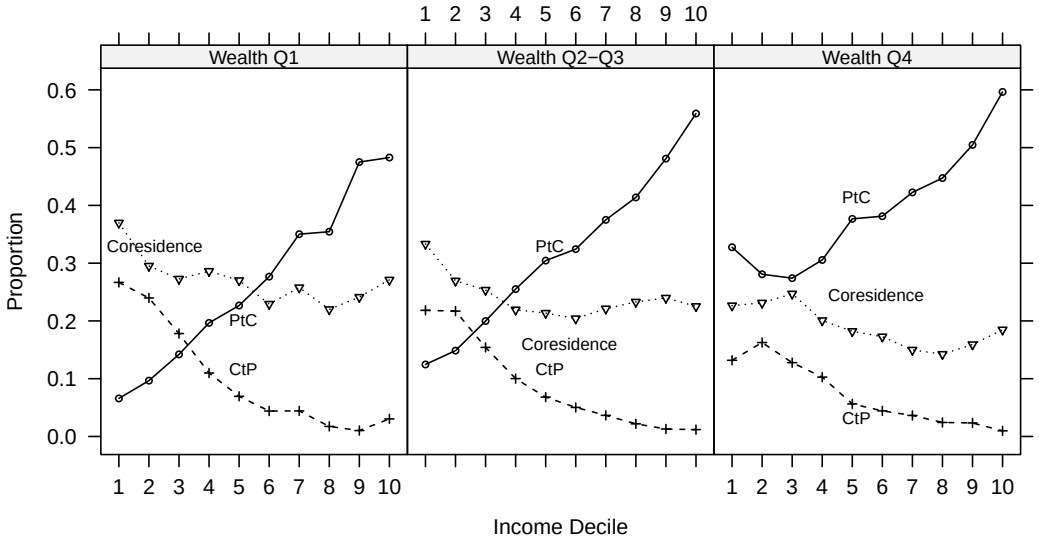

Figure 6: Median and IQR Amounts Transferred PtC by Income
All Dyads HRS/AHEAD, Weighted Data

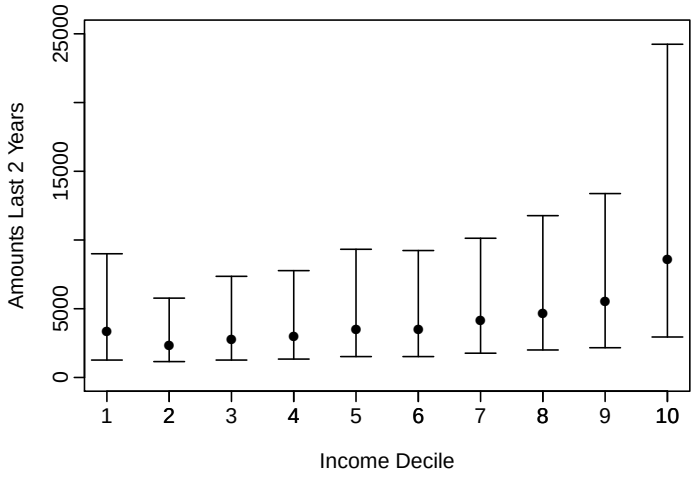

Figure 7: Median and IQR Hours per Month CtP by Income
All Dyads HRS/AHEAD, Weighted Data

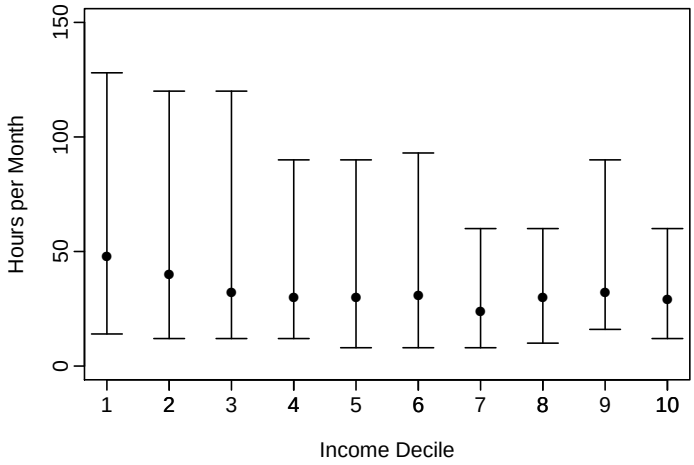

Figure 8: Gini Coefficients Respondent's Income and PtC HRS/AHEAD
All Dyads Only those who transferred; PtC = Money transfers last 2 years, Weighted Data