Do Public Caregiving Subsidies and Supports affect the Provision of Care and Transfers? [א]

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Abstract

We study whether caregiving and intergenerational transfer decisions are sensitive to changes in economic incentives following the introduction of new unconditional and universal allowances and supports, after the introduction of the 2006 Promotion of Personal Autonomy and Care for Dependent Persons Act (SAAD in Spanish), and the ensuing effects of its austerity cuts after 2012. We find that whilst the introduction of a caregiving allowance (of a maximum value of €530 in 2011) increased the supply of informal caregiving by 20-22pp, the inception of a companion system of publicly subsidised homecare supports *did not* modify the supply of care. Consistent with an exchange motive for intergenerational transfers, we estimate an average 17 pp (8.2-8.7pp) increase (decrease) in downstream (upstream) transfers among those receiving caregiving allowances. Our estimates are consistent to the reduction in the allowance after the austerity cuts in 2012 and are larger among lower-income families.

Keywords: caregiving, intergenerational transfers, unconditional transfer, long-term care, family transfers, exchange motivation, allowances, Spain.

JEL: I18, D14, G22.

1. Introduction

The public subsidisation of long-term care is more restricted than that of other social services. Although informal caregiving is still the main source of support for the elderly (Arno, 1999; Rodrigues et al., 2013), we know little about how cash subsidies (which we refer to also as 'allowances') and (home care) supports impact on family arrangements. Demand-side cash subsidies are often presented as a less costly alternative to the expansion of community care services. Such cash subsidies enable families to either purchase care in the market or compensate caregivers for their opportunity cost (Carmichael et al., 2010).[1] However, it is unclear whether such allowances, or an alternative network of home care supports, alter household decisions such as the supply of care[2] or intergenerational transfers.[3]

To date, there is limited quasi-experimental evidence on economic incentives influencing the supply of care and other related household decisions. An exception is the study by Kim and Lim (2015), who examine the effect that the demand for subsidies to access both formal and institutional care have on informal care in South Korea[4] (section two summarises the related literature on demand-side subsidies). We study evidence from the unforeseen introduction[5] of an unconditional universal allowance (a cash subsidy), and a system of home care supports for the entire Spanish population in January 2007 (SAAD).[6] We examine the

[1] Furthermore, they are designed to compensate caregivers for lost employment and income, and they can either be means-tested (e.g., attendance allowance in England) or universal. Similarly, they can either take the form of conditional allowances (e.g., vouchers) or provide an unconditional cash payment for households with dependents facing a significant caregiving burden.
[2] Del Pozo and Escribano (2012) have shown that economic benefits for informal caregivers are responsible for lower public long-term care costs.
[3] Intergenerational transfers are the most common informal credit mechanism influencing the lifetime income of offspring and parents (Sloan et al., 2002; Villanueva, 2005; Laferrere and Wolff, 2006).
[4] Kim and Lim (2015) use a regression discontinuity design to find that homecare is a substitute for informal care in intensive terms, but do not find such evidence in extensive terms. However, their work measures only the short-term effects of long-term care subsidisation, so further evidence for a longer time span might be informative.
[5] The reform was largely unexpected, as it was a legislative bill stemming from a parliamentary agreement involving a new minority government, elected after the Madrid bombings in 2004 (below we provide additional evidence on its exogeneity).
[6] SAAD: *Sistema de Autonomía y Atención a la Dependencia* – arising from Spain's Act 39/2006 on the Promotion of Personal Autonomy and Care for Dependent Persons. It was a unique insurance expansion in Europe that can

effect these cash allowances and home care supports have on the extensive margin of both the supply of informal care and intergenerational transfers (both upstream and downstream); in other words, we distinguish between the effects of a cash allowance (paid into the care recipient's bank account) of up to €530/month in 2011 (nominal euros) after a needs test,[7] and those of a network of publicly funded homecare benefits that led to a threefold increase in the number of monthly caregiving hours compared to the pre-reform period.

A unique feature of the Spanish reform is that it gave rise not to just one but to two quasi-experiments. Indeed, in July 2012 austerity reforms reduced the SAAD allowance (by about 25%), as well as the intensity of public homecare benefits (between 14% and 25% in care hours). Such additional intervention allows testing whether the partial reversion of the incentives yields consistent effects.

We use four waves of the Survey of Health, Ageing and Retirement in Europe from 2004-2013, covering the introduction and reduction of both caregiving allowances and benefits. To further test the robustness of our results, we compare both the ordinary least squares (OLS) and an instrumental variable (IV) to estimate how far the reform's implementation might have been influenced by potential omitted variables.[8] A final section reports several robustness exercises, as well as estimates on the SAAD's economic impact.

We contribute to the literature in the following ways; first, we report that the introduction of an unconditional caregiving allowance increased the extensive margin of both the provision of informal care and intergenerational transfers (both upstream and downstream).

be compared only to a few other reforms (e.g., the introduction of German social insurance in 1994 and Scottish free personal care in 2002).

[7] However, it is important to note that SAAD is not a model of consumer-directed care, like the Cash and Counselling Demonstration and Evaluation in the US (Brown et al., 2007), because it is designed to offer a choice of cash or service support, with final approval being granted by regional social services.

[8] We have tested the robustness of our estimates to other instruments used in the literature, such as the number of coresident daughters and the number of coresident daughters that have not recently moved to their parents' home.

More specifically, we estimate a 17.3 pp increase in the extensive margin of informal caregiving, a 14.5 pp increase in the probability of downstream intergenerational transfers, and a 7.3 pp reduction in the probability of upstream transfers[9]. In contrast, the expansion of subsidised homecare benefits *did not* change the provision of informal care. The effects on caregiving are consistent with an absence of substitution (Stabile et al., 2006; Bremer et al., 2017), or complementarity (Langa et al., 2001; Bakx et al., 2015; Chen et al., 2017) between formal and informal care. The effects on intergenerational transfers are in line with Norton and Van Houtven (2006) and Alessi et al., (2014), suggesting an underlying exchange motivation for intergenerational transfers.

Second, we show that the reduction in the allowance amidst austerity cuts in 2012 led to the reverse effect, although in contrast to previous studies (Golberstein et al., 2009, Kalsberg-Schaffer, 2015), we do not find any evidence to show that a reduction in benefits leads to an increase in informal care. Third, we report that the effect of the allowance differs across individual household income quintiles, kinship relationships, and co-residence between caregiver and care recipient.

Our results are robust to different samples, specifications, and other checks. We estimate that the economic impact of allowances for the period 2007-2011 amounted to 22.5 pp of total SAAD expenditure. Finally, the paper adds to the literature on the impact of SAAD over and above the effect on hospital admissions (Costa-Font et al., 2018), and provides evidence of how household decisions are altered by a system of caregiving allowances.

The next section discusses how this paper relates to the previous literature. Section three discusses the reform and identification strategy; section four reports the data and the descriptive

[9] These results are consistent with Costa-Font and Vilaplana (2017), who have found that homecare allowances have no impact on savings.

trends; section five presents the results, and a final section six contains several extensions. The paper ends with the conclusions.

2. Related literature

2.1 Informal caregiving

The supply of informal care is typically modelled as a household decision influenced by the age and other caregivers' characteristics, including the opportunity cost in terms of both free time and income (Spiess and Schneider, 2003), co-residence with the care recipient (Pezzin et al., 1996), gender norms (Fernandez and Fogli, 2009; Ryan et al., 2011), and the availability of formal care (Van Groeneu and De Boer, 2016). A number of studies have established that he supply of formal care is more common among people already receiving an above-average amount of informal care (Langa et al., 2001, Bakx et al., 2015), and formal care increases the provision of informal care (Bakx et al., 2015) consistently with a complementary effect of such care. A similar complementary effect of community and informal care is observed in Japan (Chen et al., 2017). In contrast, other studies estimate a substitution effect; that is, the expansion of public homecare services reduces the supply of informal care (Carcagno and Kemper, 1988) and increases the probability of independent living in old age among single people (Pezzin et al., 1996)[10]. Similarly, Stabile et al. (2006) also report a decline in informal care after an increase in the supply of public homecare in Canada. Other experiments, such as the extension of incentives to reconcile informal care and work, including paid and unpaid leave, are found to influence on the provision of informal care (Skira, 2015). Consistently, Golberstein et al. (2009) find that individuals offset reductions in the Medicare subsidisation of homecare with

[10] The National Long-Term Care Demonstration entailed the following tasks: (1) Comprehensive and structured needs assessment to identify individual problems, resources, and service needs; (2) Care planning to specify the types and amounts of care to be provided in order to meet each client's needs; (3) Care planning to specify the types and amounts of care to be provided to meet individual clients' needs; (4) Re-evaluation to adjust care plans to changing needs.

increased informal care. In contrast, Bowes and Bell (2007), based on evidence from the Scottish Community Care and Health Act of 2002, do not find an immediate effect on informal caregiving, in sharp[contrast to Kalsberg-Schaffer (2015), examining long-term effects, which documents a 6 pp increase in the probability of women supplying informal care. Finally, Motel-Klingebiel et al. (2005) does not document evidence of an effect on informal care after the increase in homecare allowances. Other studies show that home healthcare allowances give rise to an initial decline in informal care immediately after the provision of publicly funded homecare, although caregivers do not relinquish their caregiving duties when such homecare becomes available (Li, 2005). Hence, the evidence so far is mixed, and further research is called for. The expansion of SAAD, increasing benefits and allowances, can add to such debate by providing a clear source of exogenous variation.

2.2 Family Transfers

Caregiving supports and allowances can alter the relative income (and hence the financial incentives) of both parents and offspring. Indeed, intergenerational transfers are implicit contracts (Becker, 1981) that play an informal insurance role (Laferrère and Wolf, 2006). However, the provision of publicly funded home care supports and cash allowances can alter both upstream (offspring to parents) and downstream (parents to offspring) intergenerational transfers, yet this is a matter still poorly understood in the literature. The behavioural effect of cash windfalls, such as the SAAD allowance, depends on whether family members have an exchange motivation (McGarry and Schoeni, 1995; Stark and Falk, 1998; Cox,1987), or they are altruistic and support offspring with the least resources (McGarry,

2000).[11] Consistently, McGarry (1999) finds evidence that downstream transfers are made in response to an offspring's liquidity constraints.

Offspring typically provide more informal care to those parents unable to financially reward their efforts (Sloan et al., 1996, 1997; MacDonald and Koh, 2003). Nevertheless, Altonji et al. (1997) have found that an increase in parents' income reduces intergenerational transfers by only a few cents for each extra dollar of the offspring's income. In Europe, Alessi et al. (2014) document that intergenerational transfers (monetary downstream transfers, and time upstream transfers) are more consistent with traditional exchange motivations. A few studies do indeed find a positive correlation between intergenerational downstream transfers and the supply of care by a child (Cox and Rank 1992; Henretta et al. 1997; Norton and Van Houtven, 2006). For instance, Norton et al. (2013) report that an offspring providing informal care is more likely to receive intergenerational transfers in the US. However, downstream transfers tend to be a gift to resolve temporary financial difficulties (Hochguertel and Ohlsson, 2009). However, Nivakoski (2019), using data for Ireland, does not find any link between informal care provision and intergenerational transfers. Hence, there is still limited consensus in the literature about the interplay between family transfers and caregiving decisions.

This paper contributes to the literature by showing that caregiving subsidies and supports after SAAD modify for the probability of intergenerational transfers arising from caregiving needs (Sloan et al., 2002).[12] We use an identification strategy based upon an exogenous variation in transfer incentives (e.g., change in the transfer provider's relative

[11] A related question is that of bequest motives, where the evidence for exchange motivations is mixed. McGarry (1999) finds that bequests reward caregiving offspring, whereas Norton and Van Houtven (2006) do not.

[12] Indeed, family caregiving could be interpreted as a substitute for other types of insurance (e.g., long-term care insurance).

income) from a new, unexpected policy reform (e.g., the introduction of a new allowance and network of publicly funded care supports), as described in the following section.

3. Reform and identification strategy

3.1 The reform and post-reform

SAAD[13] has effectively increased the public funding of long-term care in Spain (see Figure 1 for a calendar of events). Before the introduction of SAAD, allowances were means-tested and funded by limited local authority budgets.[14] Disability allowances were granted solely for a degree of disability higher than 65%[15] and according to very strict income thresholds.

Unlike the pre-reform period, where care was means-tested, the introduction of SAAD universalised the access to allowances and supports, regardless of age or other socioeconomic characteristics. After a needs test to establish the amount of support needed, each applicant receives an 'individual plan' to determine the care that best matches their needs (after consulting the family). Individuals are then classified into four tiers 'not dependent', 'moderate', 'severe' or 'major dependent', pursuant to SAAD's official ranking scale.[16]

[13] Available at: http://sid.usal.es/leyes/discapacidad/13776/3-1-2/act-39/2006-of-14th-december-on-the-promotion-of-personal-autonomy-and-care-for-dependent-persons.aspx

[14] Access to different social services (homecare support, day centres, and nursing homes) depended on the score obtained on a rating scale that considered age, disability status, economic resources, and family situation.

[15] Order 8 March 1984 of Spain's Ministry of Labour and Social Security that establishes the ranking scales for determining the degree of disability and assessing different situations for receiving the benefits and allowances provided for in Royal Decree 383/84.

[16] The ranking scale evaluates 47 tasks grouped into the following ten activities of daily living: eating and drinking, control of physical needs, bathing and basic personal hygiene, other personal care, dressing and undressing, maintaining one's health, mobility, moving outside the home, and housework. Each activity of daily living is assigned a different weight, and there is a different scale for individuals with mental illness or cognitive disability. Additionally, the evaluation considers the degree of supervision required to perform each task. The final score is the sum of the weights of the activities of daily living for which the individual has difficulty multiplied by the degree of supervision required. The degree of dependency is determined as the result of the sum: not eligible (less than 25 points), moderate dependency (25 to 49 points), severe dependency (50 to 74 points), and major dependency (above 74 points). Spain's Royal Decree 504/2007, of 20 April, approved the dependency rating scale established by Act 39/2006, of 14 December, *Promoción de la Autonomía Personal y Atención a las Personas en Situación de Dependencia.*

Nature of the reform. The range of support available includes homecare,[17] day and night centres, and residential care, as well as allowances[18] to compensate for the costs of informal caregiving. The final decision on the content of the 'individual care plan' lies with the regional department of social services,[19] Since its implementation in 2007, the subsidy has increased the social security entitlements of informal caregivers below the official retirement age.

Subsidies. Based on the incompatibility between allowances and supports, the reception of an allowance is incompatible with other benefits (in particular, any homecare support) except for the provision of telecare. Figure 1 describes the evolution of allowances and homecare support. Allowances range between €390/month and €487/month in 2007 (nominal euros) for major dependants and increased to a range between €417 and €530 in 2011. However, the amount fell to between €387 and €442 in 2013 in the wake of the 2012 austerity cuts. Allowances for individuals with severe dependency became available only after 2010, and they ranged between €180 and €300 in 2011, but after the 2012 spending cuts, they were subsumed into one group that received between €236 and €268 in 2013.[20] Subsidies were

[17] Homecare support is provided by professional caregivers and includes services related to household work and personal care. Quality standards are defined, with professional services being endorsed by regional authorities.

[18] The informal caregiver selected by the care recipient, or the family must satisfy the following conditions: (i) be both over 18 and legally resident in Spain; (ii) be co-resident of the care recipient for at least one year before the application, otherwise the caregiver must have been registered in either the same or a neighbouring municipality for at least one year before applying. In addition, other criteria refer to minimum housing conditions deemed to meet the needs specified in the individual care plan.

[19] The current financing system for all Spain's Autonomous Communities (regions) - except the Basque Country and Navarre - has four basic elements. The first is a distribution of resources and tax competences between administrations that determine the gross fiscal capacity of these regions and their right to raise or lower the taxes that have been allocated to them. The second is a formula for spending needs that describes how the available resources are regionally distributed, so that they can all finance similar services resulting from an unadjusted capitation formula. In addition, a system of interregional transfer is in place to equalise the resources of regions with different income levels. In contrast, the Basque Country and Navarre levy all their own taxes (except for social security contributions) and negotiate their share of Spain's overall budget (*cupo*).

[20] For a better understanding of the significance of the magnitude of the caregiver allowance, it can be compared with the minimum wage, which was €570.60/month (2007), €641.40 /month (2011), and €645.30 /month (2013) (see Table A7 for further details). Although the reform catered for a caregiving allowance for 'moderate dependency', its implementation was delayed until 2015, and hence, only people with severe and major dependency received support.

always below the minimum wage and were unconditional, that is, the cash was paid directly into the care recipient's bank account.

Homecare support. The intensity of homecare support ranged from 70-90 hours/month for major dependency, Level 1, which was four times the average provision before the reform (16 hours/month), and 55-70 hours/month for Level 2. Between 2007 and 2011, the system extended to the lower levels of dependency of severe and moderate. As with allowances, austerity cuts in 2012 downgraded the support. Government funding of the SAAD fell by 1,409 million euros between 2012 and 2014.[21] For example, monthly hours decreased between 14 and 20 hours for those classified as Level 2, and between 9 and 15 hours for Level 1, which meant a reduction of 17.5-25 % in the former and 14.4-24 % in the latter.

[Insert Figure 1 about here]

Figure 2 shows the uptake in allowances in both absolute and relative terms since 2008, showing that they increased over time[22] until summer 2012, when the austerity cuts were introduced. However, in relative terms, the growth flatlined after September 2009, and then gently fell.[23] The subsidy declined between 15% and 25% conditional upon the degree of dependency, and informal caregivers lost their social security registration entitlements.[24] The spending cuts affected both those receiving allowances and homecare support. The incompatibility between the two benefits was maintained, and it was not possible to change the option chosen (i.e., swapping from allowance to homecare support or vice versa).

[21] *Observatorio de la Asociación Estatal de Directores y Gerentes de Servicios Sociales*. July 2015.
[22] The sharp jump in the percentage of caregiving allowances with respect to total benefits between September and October 2009 is because official statistics available in September recognised 209,559 unclassified benefits, which appeared in the corresponding categories in October 2009.
[23] Austerity cuts were an immediate reaction to the 2012 Spanish public deficit (8.9 per cent) which led to an implicit bailout of the Spanish economy and the implementation of severe budgetary cuts for the SAAD in July 2012 (Royal Decree 20/2012, 13 July 2012, on measures to guarantee budget stability and foster competitiveness).
[24] Royal Decree 20/2012 established that 85% of the payment of registration entitlements corresponded to the informal caregiver between September and December 2012, and this percentage increased to 100% as from January 2013.

[Insert Figure 2 about here]

Unforeseen nature of the reform. The SAAD reform was introduced following the unexpected formation of a new government by the Spanish socialist party, when the polls had predicted a conservative majority instead, after the 2004 Madrid bombings only three days before the election (Garcia Montalvo, 2011). The reform was unforeseen, shifted away from proposals of previous government, and relied on the support of smaller regional parties, and hence the wording of the final regulation remained up in the air until its final passing by the Spanish Parliament. SAAD superseded the previous long-term care system. Although the development of a network of homecare support was the reform's priority, a caregiving allowance was also designed to compensate informal caregivers. Furthermore, another important characteristic of the SAAD is that it was implemented by Spain's regions rather than by the central government. This introduced some regional heterogeneity, as it was faster in some regions run by the same party as the central government (Costa-Font, 2010).[25] However, this was not the result of the different preferences of people living in regions governed by the socialist party, or differences in healthcare investment. Evidence from a representative survey of informal caregivers (the "Informal Support Survey") prior to the SAAD in 2004 did not reveal different policy priorities across those groups of regions.[26] Furthermore, Bacigalupe et al. (2016) find no evidence of an association between socialist support in a region and higher investment in public healthcare services, or vice versa, a positive relationship between conservative run regions and privatisations of public hospitals. We will return to this point in section 3.3.

[25] This is reflected in Figure A1, showing a negative relationship between the percentage of socialist vote and the percentage of subsidies (with respect to total benefits), as the socialist party's main priority was the development of a network of homecare support.

[26] Table A5 displays the percentage of informal carers who answered several questions by regions, and the test shows that we cannot reject the hypothesis of the equality of preferences between socialist and non-socialist regions.

3.2 The identification strategy

Our identification strategy exploits the reform and expansion of long-term care benefits after the implementation of SAAD (2007) and its subsequent benefit cuts (2012). We identify the key parameters of the model assuming, initially exogeneity of the key reform, though we check the exogeneity assumption with an instrumental variable strategy, considering the political affiliation of each regional incumbent influencing electoral incentives of an early rollout of SAAD.

In this setup, we examine whether the extensive margin of informal caregiving and both upstream and downstream transfers was changed following the introduction of the caregiving allowance and the system of homecare support after SAAD.[27] The Spanish reform is unique in that the exposure to it can be clearly identified by : a) the severity of their disability and the needs assessment, b) the place of residence, as the reform was implemented faster in some regions,[28] and c) the time when the need emerged. We have not considered the simultaneous choice between informal and formal care because the SAAD is not a self-directed long-term care system (as is the Cash and Counselling Experiment for instance). It is rather a consumer-advised system in which the care recipient and their family manifest their preferences, but the final decision is taken by the regional department of social services (and the fraction receiving allowances varies widely by region).

We rely on the most complete source of available microdata provided by the Survey of Health, Ageing and Retirement in Europe. Specifically, we use data from the first four waves of the Survey of Health, Ageing and Retirement in Europe for Spain, referring to the period

[27] Data do not allow us to analyse the exact amounts transferred.

[28] There was a wide variation in the percentage of beneficiaries (e.g., 3.19% in Andalusia versus 1.17% in the Canaries, using data for 2010). Similarly, the reliance on caregiving allowances differs across regions, representing a high dispersion rate in the cost per dependent (e.g., €5,093 in the region of Murcia versus €12,715 in the region of Madrid, while the percentage of informal caregiver allowances with respect to total benefits awarded is 68.7% and 18.6%, respectively; Barriga et al., 2015).

2004-2013, which capture the exposure to the reform and the subsequent budgetary cuts.[29] Specifically, wave 2 allows distinguishing between those interviewed in 2006 and 2007, thereby enabling us to increase the pre-reform sample (2004 and 2006) and more accurately assess the effects of SAAD. We provide a lengthier description of the data in section 4.

3.2.1. OLS estimation

Our estimates are retrieved from a difference-in-differences (DiD) strategy identifying at the individual level the rollout of SAAD which universalised previously means tested benefits (Winkelmann, 2004; Chou et al., 2010), controlling for care needs using the Katz index from available information in the dataset. However, rather than the canonical DiD model, the assignment to treatment is made based on the information available in the survey[30] which identifies both treated and untreated individuals (a fraction of the population did not receive neither of the benefits), before and after the introduction of SAAD in 2007[31].

Our model basically involves comparing the effect in the extensive margin of informal unpaid) care (IC_{irt}), upstream transfers (TR_{irt}^{UP}), and downstream transfers (TR_{irt}^{DOWN}) of benefit recipients *i* in region *r* and time *t*, before the implementation of SAAD (or pre-SAAD regime, when they received a disability allowance (DA_{irt}) or homecare support (HCB_{irt})), and after the implementation of SAAD when they received allowance (SU_{irt}) or homecare support (HCA_{irt}). The counterfactual being the available benefits in the absence of the reform. Using

[29] Wave 4 interviews were conducted entirely in 2011. As the SAAD reform (with the introduction of budgetary cutbacks) was approved in July 2012, there is no interference with wave 4 interviews.

[30] Similar approaches have been used before to assess the impact of long-term care programmes that were uniformly introduced across the country and whose coverage was universal in Korea, Japan and Germany (Shimizutani et al., 2008; Tamiya et al., 2011; Hyun et al., 2014; Fukahori et al., 2015; Fu et al., 2017; Geyer and Korfhage, 2018). Treatment and control groups in these studies are not defined based on exogenous group-level exposure to the introduction of the new long-term care system, as implied by a standard DiD framework.

[31] A similar definition of treatment and control groups is provided by Hyun et al. (2014) who analyse the introduction of a new long-term care system in Korea, primarily targeting the over-65s in the context of an ageing population. They define the treatment group as those aged 65 and over who use the benefits offered by the long-term care system, and the control group as those aged 65 and over who do not use these benefits.

the terminology proposed by Callaway and Sant'Anna (2002), in our model there is *staggered adoption* because once units have been treated, they remain so in the following periods (units do not "forget" the treatment). Our model specification is defined as follows:

$$Y_{irt} = X'_{irt}\alpha_0 + \alpha_1 E_{rt} + B\_Pre_t \cdot \left(\alpha_2 DA_{irt} + \alpha_3 HCB_{irt}\right) +$$

$$+B\_Post_t \cdot (\alpha_4 SU_{irt} + \alpha_5 HCA_{irt}) + \Gamma_r + \Psi_t + \varepsilon_{ict} \quad (1)$$

$$Y_{irt} = \left\{IC_{irt}, TR_{irt}^{UP}.TR_{irt}^{DOWN}\right\}$$

The main outcomes (Y_{irt}) of interest are provided by three binary variables: IC_{irt} takes the value 1 if the potential care recipient *i* lives in region *r* in year *t* and received informal care[32] (0 otherwise). TR_{irt}^{UP} denotes upstream transfers, being a binary variable that takes the value of 1 if the care recipient has received any monetary transfer from their informal caregiver during the last year (0 otherwise). TR_{irt}^{DOWN} refers to downstream transfers, being a binary variable that takes the value of 1 if the care recipient has given their informal caregiver a financial reward during the previous year (0 otherwise).

The key covariates of our specification are the following: (i) DA_{irt} is a binary variable equal to 1 if the care recipient received a disability allowance in region *r* before the SAAD, and 0 otherwise; (ii) SU_{irt} is a binary variable equal to 1 if the care recipient received an allowance from the SAAD after 2006 in region *r*, and 0 otherwise; (iii) homecare support HCB_{irt}, is a binary variable equal to 1 if the care recipient received publicly funded homecare before the SAAD in region *r*, and 0 otherwise; and (iv) HCA_{irt} is a binary variable equal to 1 if the care recipient received publicly funded homecare support after the SAAD in region *r*, and 0 otherwise. These covariates are interacted with either *B_Pre* or *B_Post* which are defined

[32] The questionnaire records help received from up to three people and it is possible to identity the link between the caregiver and the recipient. We consider that the individual receives informal care (personal care and/or household help) if at least one of these caregivers is a family member, friend or neighbour (i.e., we exclude professional caregivers such as nurses and household employees).

as follows: B_Pre_t takes the value 1 if an individual gets a benefit in a year before the 2007 reform and in all the periods the individual is in sample with the same type of benefit, and zero in all other cases. B_Post_t takes the value 1 if individual i gets a benefit in a year after the introduction of the SAAD reform in 2007 and in all the periods the individual is in sample with benefits, and 0 in all other cases.

Therefore, the treatment group before the reform is composed by individuals receiving the benefit before the SAAD (either DA_{irt} or HCB_{irt}), and those receiving the benefit after the reform (either SU_{irt} or HCA_{irt}) which differs by individuals need and regional implementation of SAAD. The control group consists of individuals who were not getting any benefit either before or after the reform. Hence, comparing the treatment and control groups, it is possible to estimate analogous coefficients to the canonical DiDs model. Consequently, the coefficients α_4 and α_5 refer to the average treatment effect of caregiving allowances and home care supports respectively after SAAD.

In addition to the above covariates, X_{irt} refers to a vector of control variables including the respondent's sociodemographic characteristics (age, gender, marital status, level of education, degree of dependency rated by the Katz's index,[33] income, and assets in real terms), E_{rt} is a vector of regional economic characteristics according to the respondent's place of residence (real per capita GDP, unemployment rate), which helps to control for the effect of potentially relevant macroeconomic conditions. All regressions are estimated using calibrated sampling weights.[34] Finally, Γ_r and Ψ_t denote regional fixed effects and year fixed effects, respectively, and ε_{irt} is an individual-specific error term.

[33] The Katz Index (Katz, 1983) determines functional status as a measurement of the ability to perform six activities of daily living independently. We have computed this index using the information on activities of daily living provided by the Survey of Health, Ageing and Retirement in Europe. Respondents have been classified into four categories: Katz_0 indicates that the individual performs all activities independently; Katz_1 indicates that the individual performs four or five activities independently; Katz_2 indicates that the individual only performs two or three activities; Katz_3 indicates that the individual needs help for all these activities (or all but one).

[34] The Survey of Health, Ageing and Retirement in Europe provides two types of weights. The sampling design

Bootstrapping. As discussed in Bertrand et al. (2004), the DiD specifications may underestimate the standard errors. We overcome this problem by applying their solution and applying block bootstrap (Efron and Tibshirani, 1994) because it maintains the autocorrelation structure, grouping all the observations that belong to the same region.

Parallel trends. One of the model's core assumptions is that the time trend is common to both groups, meaning that the treatment and control individuals would behave in the same way without the long-term care reform, after controlling for observables. Although the common time trend assumption is not directly testable, there are sound reasons for it to hold. First, Figure A1 in the Appendix reports suggestive evidence of common parallel trends for the three main dependent variables, especially before 2007. Before the SAAD, there are parallel trends between care recipients with and without disability allowances for the three outcomes (informal care, upstream transfers, and downstream transfers). In contrast, the SAAD (in 2007) led to an increase in informal caregiving and downstream transfers (from care recipient to caregiver), and a decrease in upstream transfers (from caregiver to care recipient) among those receiving allowances. In 2013 (after budgetary cuts), the percentage of informal caregiving and downstream transfers decreased, while the opposite was true for upstream transfers. In contrast, those receiving publicly funded homecare support do not record any significant differences in the probability of receiving informal care and downstream transfers.[35]

weights are defined as the inverse of the probability of being included in the sample of any specific wave. Although these weights compensate for the unequal selection probabilities of the sample units, unbiased estimators of the population parameters can only be obtained under the ideal situation of complete response. Unfortunately, given that data are affected by problems of unit non-response and sample attrition, estimators constructed using sample design weights alone may be biased (Lessler and Kalsbeek, 1992). The strategy used by the Survey of Health, Ageing and Retirement in Europe to cope with these problems relies on the ex-post calibration procedure of Deville and Särndal (1992).

[35] However, the probability of upstream transfers decreases for those receiving publicly funded homecare after the reform, and increases slightly after the 2012 budgetary cuts.

Next, we perform a test of differences between treated and non-treated individuals during the pre-reform period. Focusing on the pre-reform period (2004-2006), we regress each outcome variable on the treatment variable, a binary variable corresponding to 2004, the interaction between the two, and region fixed effects. If a parallel trend holds, we expect the interaction coefficient to be statistically insignificant. The coefficient and standard deviation for each pre-trend regression are shown below each one of the graphs in Figure A1. None of the estimated coefficients is significant.

When a common trend assumption is satisfied, the two-way fixed effects estimator is a linear combination of treatment effects across the treatment group. However, such estimates can be biased when these effects change over time (Goodman-Bacon 2020). Effect heterogeneity calls for a series of alternative estimators (Callaway and Sant'Anna 2020; Sun and Abraham 2020). However, these estimators may have less statistical power than the pooled estimator, and Marcus and Sant'Anna, (2021) find that when dealing with a limited number of groups and time periods (as in our case), it may be reasonable to favour a "weaker" version of the parallel trend assumption.[36]

Stable Treatment. This assumption implies that the composition of both groups (treatment and control) remains stable before and after the SAAD reform (Rubin, 1977). In our case, given that SAAD benefits are linked to disability status (according to the application of the ranking scale) and that good health is a priority (Grossman, 1972); it is barely plausible to consider that (i) a "healthy" individual intentionally compromises their health to receive informal care, (ii) a person intentionally compromises the health of a third person to enable the latter to receive an allowance from the SAAD, increasing the subsequent downstream transfers.

[36] As the weights are proportional to the residuals from a regression of treatment on country and year fixed effects, we have checked that the residuals from a regression of the outcome variable on regions and year fixed effects are linearly related to the residuals from the corresponding regression and the slope of this linear relationship does not differ between the treatment and control groups (results available upon request).

No Anticipation. A further assumption is the absence of anticipation insofar as people's behaviour may change following the announcement of a reform. However, we do not expect the latter to have been the case, as Act 39/2006 was implemented as a last-minute political compromise requiring a broad majority. During the legislative process only a few months before, the reform was heavily amended in Parliament, making it nigh-on impossible to foresee a specific policy outcome. During the months in which the bill was being negotiated, the regions not governed by the socialist party raised serious doubts about its economic viability. Although the bill was reported in the mainstream media for several months, negotiations stalled for a long time. This is evidenced by the fact that three months before the reform, September 2006, a cross-party agreement had still not been reached over the inclusion of children under the age of three in the SAAD, nor the criteria for the distribution across regions.[37] Finally, the robustness checks report panel data estimates that test for the possibility that selection into or out of the treatment group has contaminated our pooled-data estimations.

3.2.2. IV estimation

One of the potential threats to the specification strategy is that we do not account for the potential endogeneity in the reform's implementation, that is, unobserved circumstances affecting both our dependent variables and our independent variables of interest, leading to biased estimated coefficients of equation (1). This potential endogeneity may arise because we do not observe the type of benefit (either an allowance or a support service) requested by the family. Given that the reform was the '*flagship social programme'* of a newly elected socialist

[37] The parliamentary process was as follows: (i) Deadline for amendments: 20th June. (ii) Parliament passed the draft bill on 5th October 2006. (iii) The draft bill was referred to the upper house, the Senate, on 18th October 2006. (iv) Deadline for amendments: 6th November 2006. Parliamentary groups moved three motions to reject the bill in its entirety and 260 amendments to modify specific aspects. (v) Parliament passed the Act on 30th November 2006, and (vi) it was published in the Official State Gazette (BOE) on 14th December 2006.

government, and that the regions were co-financing and implementing the reform, we use regional political information to instrumentalise the reform.

Regional governments involving the socialist party would have been more receptive to the implementation of SAAD. Considering that the SAAD was designed mainly to meet care needs through homecare support, and only exceptionally through allowances, regions with a socialist government would have the political incentive to develop a homecare network more promptly. Therefore, as a robustness check, we use a two-stage least squares (2SLS)[38] strategy using the following instruments: (i) whether the socialist party was involved in the regional government, as its electoral mandate included the development and implementation of new long-term care legislation[39]: Soc_{irt} is a dummy variable equal to 1 if the region is governed by the socialist party,[40] and zero otherwise (or the percentage of votes for the socialist party[41]); (ii) $HC_{p,04}^{Co}$ is the coverage index for publicly funded homecare in 2004,[42] that is, before the SAAD, to capture the effect of regional differences in the provision of formal care; (iii) $HC_{p,04}^{H}$ is the average number of homecare hours per month in 2004, and (iv) $HC_{p,04}^{Pr}$ is the public cost per hour.

[38] We have relied on 2SLS instead of 2SRI (two-stage residual inclusion) because according to Champan and Brooks (2016) 2SLS produces consistent estimates of local average treatment effects (LATE) across small changes in simulation scenarios, while 2SRI estimates are not consistent for either LATE or average treatment effects (ATE). Furthermore, Basu et al. (2017) have shown that 2SLS with binary IV (as is our case) produces consistent estimates of LATE, even if the outcome or treatment variables become scarce. In turn, 2SRI estimates of ATE were generally biased, and the size of the bias depended on the outcome scarcity and residual function.

[39] It would be expected to expedite the implementation of the reform, as some previous research has documented (Costa-Font, 2010).

[40] The Spanish Constitution guarantees the devolved powers of the regions, whereby their Statutes of Autonomy, the core legislation for each one of them, provide for the organisation of their institutions. The regional elections usually coincide with local elections except in four cases (Andalusia, Catalonia, Galicia, and the Basque Country) that have their own electoral law. This gives them the power to hold their own elections regulated through article 151 of the Constitution.

[41] See Table A6 in the Appendix for the percentage of votes for the socialist party. Reported results correspond to the estimation using as instrumental variable involving a dummy variable equal to 1 if the socialist party won the last regional elections (0 otherwise). Similar results can be obtained using the percentage of support for the socialist party in the last regional election instead.

[42] See Table A1 in the Appendix for a description of the homecare characteristics.

Given that we have four potential endogenous variables (END_{irt}), we instrumentalise them using the following equations:

$$END_{irt} = X'_{ict}\gamma_0 + \gamma_1 Soc_{rt} + \gamma_2 HC^{Co}_{p,04} + \gamma_3 HC^{H}_{p,04} + \gamma_4 HC^{Pr}_{p,04} + \gamma_5 D_{irt} + \gamma_6 E_{rt} + \Gamma_r + \Psi_t + \aleph_{ict} \quad (2)$$

$$END_{irt} = \{B\_Pre_t DA_{irt}, B\_Post_t SU_{irt}, B\_Pre_t HCB_{irt}, B\_Post_t HCA_{irt}\}$$

Next, we estimate the equation for the outcome variables considering the predicted estimations of the potential endogenous variables:

$$Y_{irt} = X'_{irt}\delta_0 + \delta_1 E_{rt} + \delta_2 \widehat{DA}_{irt} + \delta_3 \widehat{SU}_{irt} + \delta_4 \widehat{HCB}_{irt} + \delta_5 \widehat{HCA}_{irt} + \Gamma_r + \Psi_t + \xi_{irt} \quad (3)$$

$$Y_{irt} = \left\{IC_{irt}, TR^{UP}_{irt}. TR^{DOWN}_{irt}\right\}$$

Our strategy is consistent with Martínez-Pérez et al. (2020) who find that left-wing government regions after SAAD exhibit a higher spending on social services per capita, which in turn is consistent with Herwartz and Theilen (2017). Table A1 shows home care characteristics by region of residence. The rationale behind these variables is that regions with a higher coverage rate will be more likely to favour homecare support over allowances. The same is true for the number of hours per month. The higher the intensity of the service before the reform, the easier it would be to satisfy the SAAD's requirements. In relation to the average cost per hour, we may assume that there will be an incentive to favour allowances in those regions where the service is more expensive.

The introduction of the coverage index, the number of hours and the price per hour in 2004 is motivated because our instrument captures the political opportunity to develop the SAAD at the regional level, above and beyond each region's starting point. As we show in Table A1, in 2004 there was a large heterogeneity among the regions, regardless of the political affiliation of the regional incumbent. Hence, we exploit significant variation in the coverage

index, for instance the regions of Castilla-La Mancha (socialist) and Extremadura (socialist) show a coverage index of 7.41, more than twice the national average (3.14), which is compared to the lowest coverage indexes are achieved in the Basque Country (1.71) and Murcia (1.76). Similarly, although the average number of hours of care received, or hourly intensity, is 16.4 hours per month (about 4 hours per week), some regions such as Galicia and the Basque Country report an average of 29 and 25 hours of care per user per month, respectively. Finally, although the price of the Public Home Help Service averages 10.83 euros per hour of service, again, the variation across regions is considerable. Prices in some regions, such as the Canary Islands, Navarre and the Basque Country, range between 15 and 20 euros/hour, whilst in others such as Aragon (socialist), Cantabria, Extremadura (socialist) and the Canary Islands with a price range between 5 and 8 euros per hour.

Additionally, we perform the first-stage regressions with and without a fifth instrument: D_{irt}, which measured the effect of the number of daughters living in the household (who have not moved recently). Daughters have traditionally played the role of informal carers for dependent parents (Van Houtven and Norton, 2004). However, this variable also raises questions about its potential endogeneity. For instance, Horioka et al. (2018), analysing data from Japan, have found that sons are more likely to live with or near their parents if they expected to receive a downstream transfer (. We have therefore considered the number of co-resident daughters and the number of co-resident daughters who have not moved recently. We have performed the first-stage estimations with and without these instruments to compare the results.

Figure A2 shows the relationship between the percentage of the vote for the socialist party (by regions) and the percentage of subsidies over the total benefits awarded. For both years, 2011 and 2013, our findings suggest that, as expected, regions with more support for the socialist party are less prone to grant allowances. In turn, Figure A3 shows the relationship

between the percentage of socialist vote and the percentage of homecare in relation to total benefits. A positive trend is observed for both. Figure A4 displays the relationship between the percentage of the socialist vote and the outcome variables. It shows a decreasing trend for informal care and downstream transfers, but a positive trend for upstream transfers. Figure A5 shows the evolution of home care coverage index between 2007 and 2011, distinguishing between socialist and non-socialist regions. We show that the coverage index increases in all socialist regions (except for Asturias). However, it decreases in many non-socialist regions.

Table A2 shows the percentage of assessments and recipients over total applications and the percentages of allowances compared to beneficiaries of some SAAD benefits, differentiating between regions with a socialist government and those with another party in power. In 2011, the percentage of positive assessments (recipients) over applications was 12 pp (5 pp) higher in those regions governed by the socialist party.[43] In contrast, the percentage receiving allowances was 27 pp lower for regions governed by the socialist party. In 2013, the regions governed by the socialist party record smaller differences with non-socialist ones. It is worth mentioning that the above evidence is consistent with a report by Spain's Court of Auditors specifically suggesting that the SAAD's different speed of implementation was indeed politically motivated (Tribunal de Cuentas, 2011). That is, regions run by socialist governments were more prone to expedite the implementation of the SAAD.

To test our prior that there is selection in home care development among socialist regions, we use the method proposed by Oster (2019). This method helps to understand the degree of selection due to omitted variables, based on the assumption that the relationship between the observables and the treatment can be informative of the relationship between the unobservables and the treatment. The intuition is that omitted variable bias is proportional to

[43] Socialist regions in 2007 were Andalusia, Aragón, Cantabria, Community of La Mancha, and Extremadura.

coefficient movements once controls are considered, but only when such coefficient movements are scaled by the variation in the R-square of the model. In our case, the unobservables would need to be 0.12 as important as the observables to produce a treatment effect of zero.

Angrist and Krueger (2001) have shown that 2SLS estimates can be causally interpreted irrespectively of the nonlinearity of the binary variables, and more specifically, we find that that marginal effects from a probit model compared to the estimates from a linear probability model. In contrast, using a probit specification to generate first-stage predictions may lead to inconsistent estimations[44]. Cameron and Trivedi (2010) specifically note that using the 2SLS approach with an LPM provides consistent estimates, but that heteroscedasticity-robust standard errors must be used for inference. In our case, we obtain clustered estimates at regional level and block bootstrap with 1,000 replications.

Finally, although a potential threat for the identification could be selective outmigration (to benefit from more generous regulations regarding the provision of allowances and support) we believe this to be unlikely, due to both institutional factors (care recipients would have to re-apply as there is no automatic portability), and social deterrents to mobility (Spain has low contemporaneous internal mobility).[45]

4. Data

[44] That said, there are cases where the two models will provide different answers. In particular, if the mean of the dependent variable is close to zero or one, then the linear probability model may be unreliable. We have addressed this issue later in the paper.

[45] For example, in 2012, only 200 beneficiaries out of 764,969 moved from one region to another (Tribunal de Cuentas, 2011).

We use data from the Survey of Health, Ageing and Retirement in Europe corresponding to wave 1 (2004), wave 2 (2006/2007), wave 4 (2011), and wave 5 (2013).[46] This survey is the European equivalent of the Health and Retirement Survey, a panel dataset of interviewees born in 1960 or earlier and their partners covering Austria, Germany, Sweden, the Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, Israel, the Czech Republic, Poland, and Ireland. The Survey of Health, Ageing and Retirement in Europe is the most comprehensive dataset available across Europe for examining the effects of changes in long-term care benefits among senior citizens. While sample sizes vary between countries, the pooled dataset exceeds 100,000 individuals, from which only 20% have some form of dependency (defined as some personal o instrumental activities of daily living they cannot perform).

We have not excluded any age group or demographic characteristic from our sample. Individuals are divided into two categories: (i) those receiving an allowance or homecare support, or (ii) those not receiving any help. Our sample contains the Spanish subsamples for wave 1 (2,396 observations), wave 2 (259 in 2006 and 1,969 in 2007), wave 4 (3,691), and wave 5 (6,450). Given that some interviews in wave 2 were carried out in 2006, we can add some additional observations to expand the control group. We have then concentrated on comparing the pre-reform (2004 and 2006) and post-reform (2011 and 2013) periods, thus omitting 2007, and allowing each region time enough to have implemented the reform. In addition, we have also constructed a sample with panel data considering only those individuals that appear in at least two waves (selecting those receiving an allowance or homecare support, and those that have never received any type of benefit) (N = 6,115).

[46] Unfortunately, wave 3 could not be included as it is not comparable with the other waves.

The data contain information on the provision of informal care on the extensive margin and upstream and downstream transfers[47], as well as a long list of controls including parental characteristics, demographics (age, gender, marital status, and number of offspring), controls for health and dependency (rated by the Katz Index), personal monthly income, assets, time of the interviews, and sample weights (see Table A3 in the Appendix). We have enriched the list of controls with data from aggregate sources, including regional macroeconomic controls (regional unemployment and per capita GDP).

4. 1. Descriptive Evidence

Figure A6 in the Appendix shows the density function of the real income of individuals receiving care, upstream and downstream transfers, and allowances. Overall, we find that income distribution shifts to the left among caregivers after the SAAD, which suggests that the reform had a stronger impact on the lower quintiles of the income distribution, that is, we document an increase in informal care in the first and second quintiles, and a decrease in the third and fourth. Nevertheless, SAAD's effect on transfers is less noticeable. There is a reduction in upstream transfers among lower-income individuals.

[Insert Table 1 about here]

[47] *Informal care*. Please look at card 27. Thinking about the last twelve months has any family member from outside the household, any friend or neighbour given you [or your husband/wife/partner] personal care or practical household help?
Upstream transfers: Please think of the last twelve months. Not counting any shared housing or shared food, have you [or your husband/wife/partner] received any financial or material gift from anyone inside or outside this household amounting to [{--FL250--}] [{--FLCurr--}] or more? INSTRUCTION: BY FINANCIAL GIFT WE MEAN GIVING MONEY OR COVERING SPECIFIC TYPES OF COSTS SUCH AS THOSE FOR MEDICAL CARE OR INSURANCE, SCHOOLING, DOWN PAYMENT FOR A HOME. DO NOT INCLUDE LOANS OR INHERITANCES.
Downstream transfer. Now please think of the last twelve months. Not counting any shared housing or shared food, have you [or your husband/wife/partner] given any financial or material gift or support to any person inside or outside this household amounting to [{--FL250--}] [{--FLCurr--}] or more? INSTRUCTION: BY FINANCIAL GIFT WE MEAN GIVING MONEY OR COVERING SPECIFIC TYPES OF COSTS SUCH AS THOSE FOR MEDICAL CARE OR INSURANCE, SCHOOLING, DOWN PAYMENT FOR A HOME. DO NOT INCLUDE LOANS OR DONATIONS TO CHARITIES.

Table 1 reports the number of survey respondents that receive an allowance (subsidy) or homecare support, breaking it down according to different caregivers, which include 'co-residential caregiver' and 'non-residential caregiver', and then specifies whether it refers to the spouse or partner alongside an adult offspring. As co-residence was one of the main requirements (with exceptional circumstances)[48] for receiving an allowance in the SAAD, the percentage of non-resident caregivers substantially decreased in the post-reform period, even though the care received from adult offspring has decreased by only 2.14 pp. Similarly, the percentage of dependents receiving informal care together with homecare support is considerably lower than those receiving allowances. We do not observe any significant variations across the period analysed.[49]

Figure A7 illustrates the relationship between subsidies and the outcome variables, with a markedly positive relationship with informal care and downstream transfers, and slightly negative for upstream transfers. Figure A8 presents the relationship between home care supports and the outcome variables. The apparent relationship is negative with informal care and downstream transfers, but positive for upstream transfers.

4.2. Imputation of public homecare for wave 4

Spanish data contain records of individuals benefiting from caregiving allowances and publicly funded homecare support for waves 1 and 2. However, the subsequent wave, wave 4,[50] only contains data on caregiving allowances.[51] One way to address this limitation is to use individual-level information from previous waves and a multiple imputation procedure (Rubin, 1987). This technique allows predicting what the random missing values would have been

[48] For example, when the care recipient does not have a co-resident relative, the caregiving allowance could be awarded to a neighbour acting as an informal caregiver.
[49] In this case, informal caregivers do not receive allowances because economic and in-kind benefits are not compatible.
[50] Wave 3 is merely retrospective.
[51] Wave 4 does not contain information on homecare (SHARE_release_guide_1-0-0-w8.pdf (share-project.org).

using information from the whole dataset.[52] However, it needs to meet two main assumptions: (i) the data must be missing at random, which is clearly the case because observations for publicly funded homecare are missing for all the individuals in wave 4, and (ii) the reasons for the missing data must be captured by other variables that do not have missing values themselves. Given that missing variables are binary, a logistic imputation method has been chosen, and the following explanatory[53] variables have been introduced: age, gender, being married, having co-resident children, pathologies (stroke, mental illness, Parkinsonism, hip fracture), and a socialist regional government.[54] The sensitivity of our results has been tested by selecting five different random seed values, and adding five different imputations to our main dataset, all of which provide similar estimations.

The reliability of our imputations has been assessed by drawing upon official data published by Spain's Ministry of Health, Social Services and Equality.[55] Table A4 shows that the number of homecare benefits awarded in June 2011 amounted to 110,586. Two important caveats should be mentioned before comparing these figures with our imputations. First, there are no official data disaggregated by age and type of benefit. We only know that 85.78% of the beneficiaries are aged 46 and over,[56] but we are unaware of the number of beneficiaries aged 50 and over receiving publicly funded homecare. Second, official data published by the Ministry comes from reports drafted by the Departments of Social Services in each region, rather than standardised and centrally collected data. The imputation procedure assigns 180 homecare benefits in 2011 for the entire sample. Using the calibrated weights provided by the Survey of Health, Ageing and Retirement in Europe, we find that 103,732 individuals were

[52] Kalton (1986) and Lepkowski (1989) review methods for compensating for wave non-response and recommend cross-wave imputation if there are data from multiple waves.
[53] Approximately only 60% of individuals interviewed in one wave continue in the next one.
[54] Given that the SAAD was the 'flagship social programme' of the newly elected socialist government, and that the regions were co-financing and implementing the reform, political support for the incumbent party at regional level would be expected to make it easier for the regional government to implement the reform.
[55] http://www.dependencia.imserso.gob.es/dependencia_01/documentacion/estadisticas/est_inf/inf_gp/index.htm
[56] The age interval starts at 46 (and not at 50) because it was the only disaggregation available on the webpage.

receiving homecare benefits at population level. This constitutes a difference of 6,584 individuals fewer than the official data. Nonetheless, our imputations are reasonably reliable.

5. Results

5.1 OLS estimates

Table 2 reports the alternative econometric estimates of the effect of the SAAD reform on the provision of informal care and upstream/downstream transfers (pre-reform: 2004 and 2006; post-reform: 2011). The proposed specifications differ in the inclusion of alternative specific and macroeconomic controls given that Spain was exposed to an economic downturn at the time. All the columns report estimations using a linear probability model (OLS) [57] and IV (to check the consistency of OLS estimations, which will be commented later on).

With regard to OLS estimates, our results suggest that for dependent individuals with an allowance, the probability of receiving informal care after SAAD increased by 20 pp, and this increase appears robust to different specifications. This result shows that for some families, particularly those in the bottom quintiles of the income distribution, caregiving allowances are paying for a caregiver, which they would not have had access to in the absence of the reform. As expected, we find significant and negative income and assets effects (-2.4 pp and -1 pp, respectively).

[Insert Table 2 about here]

The picture that emerges for intergenerational transfers shows a 16 pp increase in downstream transfers (from care recipient to caregivers) among those individuals that benefit from SAAD allowances. Consistently, it shows an 8 pp decline in upstream transfers (from caregiver to care recipient). As expected, downstream transfers increase with income and

[57] We have checked that the mean marginal effects using a probit specification are of a similar magnitude.

assets, while upstream transfers decline with these covariates. The latter indicates that financial need typically motivates transfers.

When we examine the effect of publicly funded homecare support, we find that it does not affect either the probability of receiving informal care or the probability of downstream transfers. However, it decreases the probability of upstream transfers (-7.1 pp) This result mirrors the previous one and supports the evidence in favour of altruistic motivations behind upstream transfers.

5.2 IV estimates

One of the potential concerns of the empirical strategy lies in the heterogeneous exposure of the reform across regions. Hence, Table 2 presents, for the three outcomes of interest, the OLS and IV estimates with the main instruments being regional support for the socialist party, the characteristics of homecare in 2004 (coverage index, hours per month, cost borne by the user). We have also considered the number of daughters in the household and the number of coresident daughters who have not recently moved. The number of observations for IV estimations is smaller due to missing values for the place of residence.[58]

Table B1 shows the results of the first-stage regressions. We first examine whether the region has a socialist government and the characteristics of homecare in 2004 (coverage rate, number of hours per month, and cost per hour). We then add the number of daughters in the household and restrict the latter to those who have not moved recently. We show that our instruments are relevant (correlated with the suspected endogenous variable) and distributed independently of the error process. Table B1 provides evidence that firmly rejects the null

[58] There are 2,292 observations with missing values for the variable place of residence: 16 for 2004, 40 for 2006, 178 for 2011, and 1,896 for 2013.

hypothesis of under-identification, all F-statistics are above 10, and the Cragg-Donald and Kleibergen-Paap rk Wald F statistics (Kleibergen and Paap, 2006) reject the hypothesis of weak instruments. Finally, where the number of instruments is higher than the number of potential endogenous variables, we test for over-identification using the Hansen-Sargan test (Hansen, 1982), and we show that exogeneity is rejected at the 5% significance level.[59]

We find that the probability of receiving allowances in regions governed by the socialist party decreases by 3 pp, yet in contrast, the probability of receiving homecare support increases by 5 pp. Those regions whose homecare service in the pre-reform period was more developed also record an increase of 6 pp in the probability of receiving homecare support, but a decrease in the probability of receiving allowances. Along the same lines, the probability of receiving homecare support increases in those regions where the service provided more hours in the pre-reform period or in regions where the cost per hour was lower. These results are confirmed by the estimations that introduce the indicators for daughters in the household. Each daughter resident in the household increases the probability of receiving allowances by 1.47 pp, and this same probability increases by 1.81 pp for each daughter resident in the household who has not moved recently.

Testing whether the exclusion condition is satisfied or not is not possible, since the error term is unobservable, and must be conducted in a purely conjectural way, understanding the underlying economic of the question (Roberts and Whited, 2012). To assess the effect of violations to the exclusion restriction we use the approach of van Kippersluis and Rietveld (2018), who extend the 'plausibly exogenous' method developed by Conley et al. (2012) in providing guidance on which prior to use in sensitivity checks. As van Kippersluis and Rietveld (2018) note, if there exists a sub-group of the sample for whom the first stage is zero, then the

[59] All three instrument options have been validated. For tables 2, 3, 4 and 5, instrument specification (a) has been used as the simplest of all.

reduced form for this group can be used to back out a plausible estimate for the estimated coefficients of the instruments, instead of choosing arbitrary prior values. In our case, the sub-sample of individuals with Katz's Index equal to zero, who are neither caregivers nor care receivers, qualifies for estimating the direct effect of the instrumental variables on the dependent variable. Running the regression of the instrument, on the dependent variable, we find no evidence of a significant effect[60].

5.3 Comparison among OLS, IV and probit estimates

Figure 3 provides a comparison of the estimated coefficients and 95% confidence intervals when estimating by OLS and IV, as well as the marginal effects (at means and at values) in case of estimating the model by a probit. The similarity of the results strengthens the reliability of the conclusions obtained.

5.4 Heterogeneous effects on caregiver arrangements and socioeconomic status

Baseline results can be influenced by critical sources of heterogeneity, such as the type of caregiving arrangement and socioeconomic status. Table 3 also presents OLS and IV estimates for the effect of SAAD by type of informal care arrangement. As before, the magnitude of the estimated coefficients is similar, although standard errors for IV coefficients are much higher. Given the consistency of OLS, we refer to them in the following comments and consider them a lower and more conservative benchmark for these effects.

[60] Results available upon request.

SAAD's impact has been greater among both co-resident caregivers compared to non-resident ones (33% higher; 0.258 vs. 0.194) and among co-resident offspring compared to non-resident ones (118% higher; 0.260 vs. 0.119). These results are consistent with the requirement of co-residence for receiving an allowance and with a potential income substitution effect of SAAD allowances, alongside its intended effect, namely, reducing the caregiving burden for family caregivers. The latter explains the difference in the effect between co-resident and non-resident caregivers. In contrast, the effect of receiving homecare in the post-reform period does not have a significant effect for any informal caregiver profile. Therefore, there was no substitution between formal and informal care for co-resident or non-resident.

[Insert Table 3 about here]

Moving on, we examine the heterogeneous effects across socioeconomic status. Accordingly, Table 4 distinguishes the effect of allowances by the baseline income and assets quintile.[61]. Panel A estimates regressions using the whole sample for waves 1, 2, and 4. Our results suggest that even though SAAD is not a means-tested programme, the change in informal caregiving was concentrated in the two lowest income quintiles (13.1 pp and 9.1 pp) and among the two lowest assets quintiles (9.9 pp and 2.7 pp) but declined for higher income or assets quintiles. The probability of receiving informal care increases among those receiving

[61] The model introducing interactions with income (or assets) quintiles has the following expressions:

$$Y_{irt} = X'_{irt}\kappa_0 + \kappa_1 E_{rt} + B\_Pre_t \cdot (\kappa_2 DA_{irt} + \kappa_3 HCB_{irt}) + B\_Post_t \cdot (\kappa_4 SU_{irt} + \kappa_5 HCA_{irt}) + \sum_{j=1}^{5} \psi_j IQ_{ijct} + B\_Pre_t \cdot \left(\sum_{j=1}^{5} \theta_j IQ_{ijrt} \cdot DA_{irt} + \sum_{j=1}^{5} \varphi_j IQ_{ijrt} \cdot HCB_{irt} \right) + B\_Post_t \cdot \left(\sum_{j=1}^{5} \vartheta_j IQ_{ijrt} \cdot SU_{irt} + \sum_{j=1}^{5} \omega_j IQ_{ijrt} \cdot HCA_{irt} + \right) + C_r + T_t + \iota_{irt}$$

$$Y_{ir} = \{IC_{irt}, TR^{UP}_{irt}. TR^{DOWN}_{irt}\}$$

IQ_{ijrt} denotes income quintiles (omitted category: 5th quintile, which correspond to the highest one). X_{irt} refers to a vector of control variables including the respondent's sociodemographic characteristics (age, gender, marital status, level of education, degree of dependency, assets approximated by the Katz's index). Similar regressions have been estimated substituting income quintiles (IQ_{ijrt}) by assets quintiles (WQ_{ijrt}). In this case, X_{irt} includes income but does not include assets.

a subsidy in the post-reform period for all income (or assets) quintiles, although the effect is larger for the two lowest income (or asset) quintiles. The net effect is 0.337 and 0.306 for the lowest income and asset quintile, and 0.297 and 0.269 for the 2nd income or asset quintile. This result may be due to the co-payments made by users. These co-payments are not fully progressive. As detailed in Vilaplana-Prieto (2011), co-payments consider the beneficiary's economic capacity (sum of income and assets), excluding beneficiaries with lower economic capacity from co-payments. Co-payments are very fast for intermediate levels of economic capacity but are capped for the highest economic capacity. Consequently, some families at intermediate income levels may consider that the receipt of the allowance (net of the co-payment) does not compensate for the provision of informal care.

As for upstream transfers, we find that for those receiving a subsidy in the post-reform period, the effect is almost zero for the lowest income (or asset) quintile, but negative for the other categories. Specifically, we find a strong reduction for the third and fourth income (or asset) quintiles. The net effect is -0.190 and -0.173 for the 3rd income or asset quintile and -0.207 and -0.189 for the 4th income (or asset) quintile. However, home care in the post-reform period is associated with a strong reduction in upstream transfers in the lowest income or asset quintile (-0.171 and -0.172, respectively)".

We identify the reverse effect on downstream transfers, whereby, the probability increases for the highest income (or asset) quintile (0.164 and 0.148, respectively) and increases even more for the 3rd and 4th income (or asset) quintiles. The net effect is 0.251 and 0.227 for the 3rd income (or asset) quintile and 0.264 and 0.239 for the 4th income (or asset) quintile.

Summarizing the effect on the three dependent variables: (i) informal care increases for all quintiles; (ii) upstream transfers decrease for all quintiles (except for the lowest); (iii)

downstream transfers increase for all quintiles, with greater effect on the third and fourth quintiles. Thus, the lowest income quintiles experience the largest increase in informal care, but the smallest effect on intergenerational transfers. In contrast, the third and fourth quintiles exhibit the smallest effects on informal care, and the greatest variation in intergenerational transfers.

One possible interpretation for the lower probability of receiving informal care among dependents in households belonging to households in the third- and fourth-income quintiles (as compared to the lowest income quintiles) is that their relatives may be more reluctant to give up part of their salary because it represents a higher opportunity cost compared to lower-income households (Carmichael and Charles, 2003). Thus, subsidies may have encouraged the provision of informal care in low-income households, while among middle- and high-income households they may have been used for other purposes, for example, to hire household employees who replace the caregiver (Díaz Gorfinkiel and Martínez Buján, 2018).

Panel B restricts our sample to exclude individuals receiving a disability allowance at baseline level, finding results of similar magnitude and interpretation.

[Insert Table 4 about here]

5.5. The effect of the 2012/13 budget cuts on behaviour

One of the unique features of the implementation of SAAD is that it encompassed a counter experiment entailing a reduction in the allowance due to the immediate austerity budget cuts imposed by the implicit bailout of the Spanish economy (OECD, 2014). This reduction provides a complementary quasi-experiment that allows testing the extent to which there is a reversal of the effects of the SAAD reform, which we have documented in the previous

sections. We report both OLS and IV estimations for comparative purposes, but we use the former for the comments.

As expected, Table 5 reveals that the reform's effect is partially reversed. Specifically, we find an 8.8 pp reduction in the probability of informal care, as well as a reduction in downstream transfers by 5.4 pp and an increase in the probability of upstream transfers by 3.7 pp. Note that the table suggests that the effect on caregiving is driven by a reduction in the probability of IC of partner (-14.1pp) and co-resident child (-8.5pp).

The interpretation of the decrease in downstream transfers is more complicated. It could be identified as a decline in the intensity of exchange motivation (i.e., monetary compensation for the informal care received), but together with the decrease in informal care it could also evidence some misuse of caregiving allowances for paying other expenses (e.g., a subcontracting agreement with a household employee or payment of other household expenditures). This outsourcing channel is more plausible in cases where the informal carer is non-resident, which also corresponds to the highest decrease in the probability of informal care.

The analysis thus far suggests that for the entire period 2007-2013, SAAD allowances effectively increased the probability of informal caregiving by about 11.5 pp, together with an increase in downstream transfers by 11.7 pp and a 4.8 pp reduction in upstream transfers.

The effect of homecare after the budgetary cuts continues to be insignificant for the probability of receiving informal care and the probability of downstream transfers. However, the decrease in the provision of homecare hours encourages upstream transfers, which increase by 4.5 pp. Consequently, the net effect for the period 2007-2013 points to a decrease of 3.5 pp in upstream transfers among those receiving homecare.

We also conclude that neither the SAAD nor the cost-cutting measures gave rise to substitution between formal and informal care.

[Insert Table 5 about here]

5.6 Pooling long-term care benefits

Finally, the model has been estimated for both periods (2004-2006-2011) and (2004-2006-2011-2013), with a treatment variable measuring the receipt of a long-term care benefit (allowance or homecare support). Instead of differentiating between allowances and homecare supports, we merely consider the receipt of a long-term care benefit in the post-reform period. The effects of the introduction of SAAD and the subsequent cutbacks are consistent with those shown in Tables 2 and 5, although the magnitude is smaller.

The upper panel in Table 6 presents the estimates for the period 2004-2006-2011. Receiving a long-term care benefit with the SAAD increases the probability of receiving informal care by 8.9 pp and downstream transfers by 8.6 pp, but reduces the probability of upstream transfers by 7.8 pp.

The lower panel shows the results for the period 2004-2006-2011-2013. The measures introduced in 2012 reduced the probability of receiving informal care by 7.6 pp and outflow transfers by 4.8 pp. In contrast, the probability of inflow transfers increased by 4.3 pp.

[Insert Table 6 about here]

6. Extensions and robustness checks

6.1 Panel Data estimates

Table 7 presents both the OLS and IV regression estimates using the panel data (PD). The sample size is significantly smaller for the panel subsample.[62] Given the significant

[62] Bergman et al. (2017) report lower retention rates in the first waves of the Survey of Health, Ageing and Retirement in Europe.

reduction in the number of observations, there are concerns over attrition bias. To investigate this issue further, we have estimated a series of attrition probit specifications (Fitzgerald et al., 1998) and performed pooling tests for the equality of coefficients from the initial sample with and without attritors, using the Becketti-Gould-Lillard-Welch test (Becketti et al., 1988). We began by regressing the outcome variables from the first wave on individual characteristics on an attrition dummy, which interacted with the other explanatory variables. We have then tested the joint significance of the interaction variables and the attrition dummy to determine whether the coefficients from the explanatory variables differ between individuals that disappear from or remain in the panel. Hence, the estimates suggest attrition does not occur randomly. Additionally, the small pseudo-R-squared from the attrition probits, which is typically interpreted as the proportion of the attrition that is not random, reinforces our previous results (Outes-Leon and Dercon, 2008).

Consistently, when estimates are compared to those retrieved using pooled data, we do not find any major qualitative change in coefficients. For all the regressions, the Hausman test indicates that the fixed effects estimations are significantly different to the random effects estimation, confirming that individual effects are correlated with some of the explanatory variables and that the IV model with fixed effects is preferred to the random effects model.

Cutbacks in allowances reduced the probability of receiving informal care by 9.3 pp and of receiving downstream transfers by 6.4 pp. In contrast, the probability of receiving upstream transfers increased (+3.6 pp). This implies that in the period 2007-2013, the SAAD increased the probability of informal care and downstream transfers (+13.7 pp and +12.5 pp, respectively), but decreased the probability of upstream transfers (-4.5 pp). Looking at the profile of caregivers, the cutbacks affected mainly the probability of receiving informal care from non-resident caregivers (-11.2 pp) and partners (-15.3 pp). For the period 2007-2013 as a

whole, SAAD allowances boosted the provision of informal care by coresident caregivers (+20.7 pp) and non-resident offspring (+23.3 pp).

Elsewhere, the reduction in the number of hours of homecare had no significant impact on the probability of receiving informal care or making downstream transfers, but it significantly increased the probability of receiving upstream transfers (+4.2 pp). Therefore, the net effect of homecare on upstream transfers over the period 2007-2013 was a 3 pp reduction.

[Insert Table 7 about here]

6.2 Economic Costs of SAAD

In this final section, we estimate the economic costs of subsidising informal care. We draw our estimates from three sources: (i) the coefficients previously estimated in Table 5; (ii) the number of recipients of allowances after the reform, obtained by multiplying the sample of beneficiaries in each year by the corresponding calibrated weight; and (iii) the average amount of the allowance. The latter is computed using the information on the expenditure on allowances corresponding to each degree of dependency in 2011 and 2013 (see Table A7 for the distribution of beneficiaries by degree of dependency).

Table 8 reports estimates of the recipients of allowances and population estimates using calibrated weights. Our estimations indicate that the costs of care allowances for the period 2007-2011 amounted to 19.5% of total SAAD expenditure. In per capita terms, the extra cost incurred by the implementation of SAAD is estimated at €7.44/year in 2011. However, spending cuts in 2012 reduced SAAD expenditure by 10.71% in 2013 (€1.92/year in per capita terms).

[Insert Table 8 about here]

7. Conclusions

This paper has studied the effect of the introduction of caregiving subsidies (an unconditional caregiving allowance) and supports (the provision of publicly funded homecare support) on the supply of informal care and intergenerational transfers using a unique quasi-natural experiment from Spain. We exploit the exogenous variation resulting from the introduction of the 2007 Promotion of Personal Autonomy and Care for Dependent Persons, which we refer to as SAAD (using the Spanish acronym), a reform that universalised the entitlement (previously means-tested) to caregiving subsidies and supports solely dependent on a needs test (disability falling within a certain scale, regardless of age or other demographic characteristics). In addition, we examine the effect of the subsequent 25% reduction in the allowance and the reduction in monthly homecare support (between 14% and 25%) due to austerity spending cuts in 2012.

Our results provide evidence of a rise in informal care at the extensive margin, and a net increase (decrease) in downstream (upstream) transfers after the reception of the allowance, yet no effect is found when homecare is expanded. More specifically, we find that upon receiving an caregiving allowance, the probability of informal caregiving increased by 20 pp, with a subsequent 16 pp increase in the probability of downstream intergenerational transfers. Additionally, we find an 8pp reduction in the probability of upstream transfers (reducing pre-existing transfers from offspring before the introduction of the allowance). However, the effect on informal caregiving is concentrated among low-income households, even though the allowance is not means-tested. In contrast, the expansion of monthly hours of subsidised homecare had no impact on the probability of receiving informal care or on the probability of downstream transfers, although it decreased upstream transfers by 7 pp. These results can be

interpreted alongside previous evidence indicating that SAAD decreased hospital admissions (Costa-Font et al., 2008), especially among individuals receiving caregiving allowances that might be used to arrange additional care.

The reduction of the allowance in 2012 had a counter effect on informal caregiving and intergenerational transfers, thereby providing an additional robustness check of our results. Our second experiment shows that the 25% reduction in the caregiving allowance in 2012 led to an 8.8 pp reduction in the probability of informal care, alongside an increase in the probability of upstream transfers of 3.7 pp and a 5.4 pp reduction in downstream transfers. In the same vein, the decrease in homecare hours increased the probability of upstream transfers by 4.5 pp but did not affect the other two outcomes. Further analysis indicates that the introduction of SAAD incentivised co-resident caregiving by 20.7 pp in the period 2007-2011 (e.g., individuals that became informal caregivers), and consistently, a reduction in the allowance in 2012 discouraged non-resident caregiving by 11.2 pp.

The distributional effect of public transfers is contentious. We find that a caregiving allowance had a more intense effect on downstream transfers than on upstream ones, which is consistent with an exchange motivation for transfers among care recipients, as well an altruistic motivation among caregivers. However, had cash allowances compensated solely for the supply of informal care, one would observe a larger effect over upstream transfers. Hence, this result prompts a range of explanations as potential drivers of the effect, including the outsourcing of caregiving duties to household employees, as well as the allocation of part of the allowance to other household expenses. That said, given that families self-select into subsidies and supports by stating their preferences, the individual effects of allowances vs. public care supports although suggestive might not be fully identified insofar, as the last decision is made by public workers, these preferences are likely to correlate with the final assignment.

Finally, this paper provides four main policy lessons. First, unconditional caregiving (cash) allowances effectively incentivise informal caregiving, especially among lower-income households. Second, and in contrast to the first lesson, the extension of homecare support does not have the same effects as a cash allowance. Third, intergenerational transfers, which operate as an informal credit instrument, appear to be sensitive to caregiving allowances. Finally, our estimates for the insurance role are consistent with those resulting from the reduction in the allowance, which exert a counter (albeit slightly smaller) effect on both caregiving and transfer decisions.

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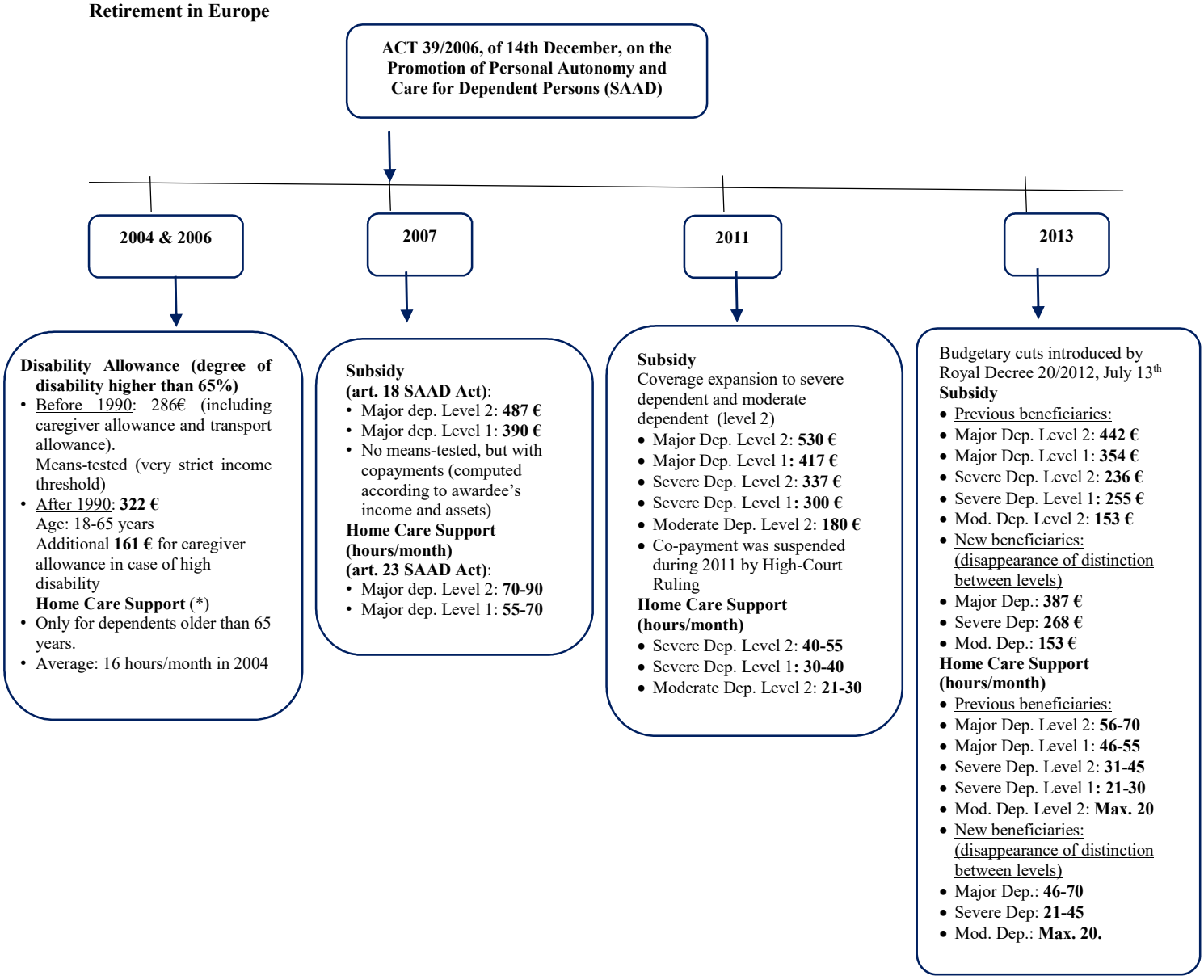
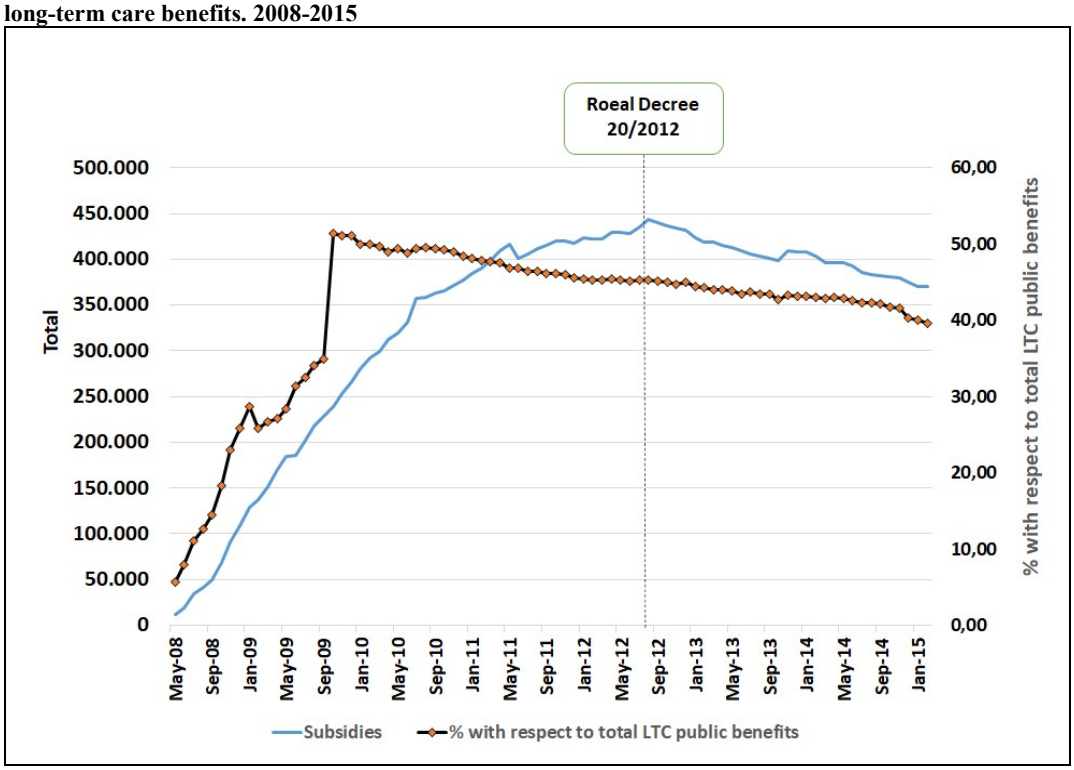
Tables and Figures

Figure 1. Disability and caregiver allowance entitlements by Spain per wave of the Survey of Health, Ageing and Retirement in Europe



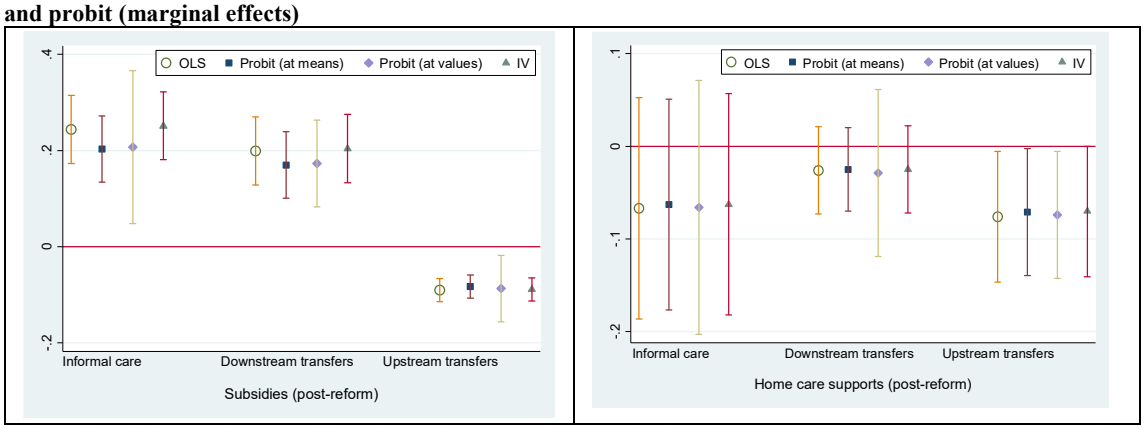
Wave field time overview: Wave 1: April-December 2004; Wave 2: October-December 2006 and January-October 2007; Wave 4: January-November 2011; Wave 5: February-October 2013.
For a better understanding of the amount of caregiver allowance and disability allowance, they can be compared with minimum wage: 460.50 €/month (2004), 540.90 €/month (2006), 570.60 €/month (2007), 641.40 €/month (2011), 645.30 €/month (2013) (nominal euros).
(*) Las personas mayores en España. IMSERSO (2004).

Figure 2. Evolution of total number of subsidies and percentage of take up of the cash subsidy with respect to total long-term care benefits. 2008-2015



Source: Own work using data from the Ministry of Health, Social Issues and Equality.
http://www.dependencia.imserso.es/dependencia_01/index.htm
Straight line shows the number of subsidies awarded since the onset of the SAAD. Dotted line shows the percentage of subsidies with respect to total benefits awarded by the SAAD (telecare, home care supports, day centres, residential homes and subsidies)

Figure 3. Effect of post-reform subsidies and post-reform home care on outcome variables. Comparison of OLS, IV and probit (marginal effects)



Estimated coefficients and 95% confidence intervals corresponding to estimations by OLS, Probit (marginal effects at mean) and IV, using as explanatory variables demographics, Katz Index, marital status, education, unemployment, regional GDP and regional dummies.

Table 1. Co-residence situation and kindship between caregiver and carereceiver conditioned on subsidy or conditioned on home care support

	Carereceiver receives home care support			Carereceiver receives subsidy (disability allowances before 2007)		
	2004-2006	2011	2013	2004-2006	2011	2013
Kindship caregiver with respect to carereceiver:						
Co-resident caregiver	7.32	8.24	7.30	64.86	75.00	77.92
Not co-resident caregiver	4.00	4.39	4.03	43.24	27.78	27.27
Partner/spouse	6.10	6.15	6.74	37.84	59.72	58.44
Adult child	3.20	3.51	3.92	18.92	16.67	16.88
N	163	180	292	143	238	293

Note: These estimates have been computed form the Survey of Health, Ageing and Retirement in Europe data (waves 1, 2, 4 and 5). In this table, we exclude 2007 to observe more clearly the difference between the pre and post-reform. The sum of percentage of dependents receiving care from co-resident and not co-resident caregivers exceeds one hundred because the carereceiver may receive care from more than one caregiver. Subsidies and public home care supports are incompatible. Therefore, dependant individuals with public home care support are not awarded with a subsidy.

Table 2. Comparison OLS and IV estimates. (pre-reform: 2004 and 2006; post-reform: 2011)

	Informal care			Downstream transfers from carereceiver to caregiver			Upstream transfers from caregiver to carereceiver		
	OLS-1	OLS-2	IV	OLS-1	OLS-2	IV	OLS-1	OLS-2	IV
Disability Allowance ·B_Pre	-0.033*	-0.041**	-0.043*	0.028**	0.031*	0.033**	0.051***	0.051***	0.054**
	(0.012)	(0.012)	(0.023)	(0.012)	(0.012)	(0.015)	(0.010)	(0.012)	(0.020)
Subsidy ·B_Post	0.206***	0.203***	0.207**	0.164***	0.170***	0.173**	-0.082***	-0.083***	-0.087**
	(0.035)	(0.035)	(0.081)	(0.035)	(0.035)	(0.046)	(0.012)	(0.012)	(0.035)
Home Support ·B_Pre	-0.023	-0.026	-0.030	-0.009	-0.010	-0.011	-0.006	-0.006	-0.008
	(0.058)	(0.058)	(0.070)	(0.012)	(0.012)	(0.023)	(0.058)	(0.058)	(0.081)
Home Support ·B_Post	-0.057	-0.063	-0.066	-0.023	-0.025	-0.029	-0.064*	-0.071**	-0.074**
	(0.058)	(0.058)	(0.070)	(0.023)	(0.023)	(0.046)	(0.035)	(0.035)	(0.035)
Year=2006	0.052**	0.050**	0.051***	0.010	-0.010	-0.001	-0.005	-0.018	-0.021
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.021)	(0.012)	(0.012)	(0.012)
Year=2011	-0.089***	-0.080***	-0.083***	-0.138***	-0.139***	-0.144***	0.016***	0.018***	0.017**
	(0.012)	(0.012)	(0.012)	(0.035)	(0.035)	(0.046)	(0.000)	(0.000)	(0.006)
Real income million € 2011	-	-0.024***	-0.025***	-	0.119**	0.117**	-	-0.051***	-0.049**
		(0.000)	(0.000)		(0.035)	(0.046)		(0.012)	(0.023)
Real wealth million € 2011	-	-0.010***	-0.011***	-	0.024***	0.027***	-	-0.014***	-0.013***
		(0.000)	(0.000)		(0.012)	(0.012)		(0.000)	(0.000)
Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Katz Index	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marital status	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unemployment	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Regional GDP	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.112***	-0.058**	-0.090***	0.237***	0.230***	0.177***	0.089***	0.082***	0.047***
	(0.035)	(0.035)	(0.023)	(0.046)	(0.046)	(0.035)	(0.012)	(0.023)	(0.012)
Mean of th dependent variable	0.1271			0.0725			0.0234		
N	6,346	6,346	5,950	6,346	6,346	5,950	6,346	6,346	5,950
R^2	0.294	0.344	0.355	0.126	0.129	0.140	0.148	0.146	0.153
F-statistic	569.29	1247.41	2403.11	825.45	850.87	521.06	568.70	623.25	350.39
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: This table reports the results of the OLS and IV regressions for the probability of providing informal care, upstream transfers and downstream transfers. Omitted variables: Year=2004, women, no elementary education, widow, Katz index equal to zero. Standard errors between parentheses. Clustered estimates at regional level and block bootstrap with 1,000 replications. IV regressions employ support to socialist party, home care characteristics in 2004 (coverage index, hours per month, cost per hour) as instruments. First-stage estimations are reported in Table B1. The number of observations in IV estimations is smaller than OLS estimation because province of residence is missing for 396 individuals, and consequently, we cannot assign home care characteristics in 2004.

Table 3. OLS and IV regressions for the probability of receiving informal care according to different profiles of caregivers. (pre-reform: 2004 and 2006; post-reform: 2011)

The person who provides informal care is…. with respect to the care receiver.	Co-resident		Not co-resident		Partner		Co-resident child		Not co-resident child	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Disability Allowance ·B_Pre	-0.036***	-0.038	-0.042***	-0.045**	-0.034***	-0.030	-0.024**	-0.028	-0.043***	-0.048
	(0.016)	(0.024)	(0.012)	(0.023)	(0.012)	(0.018)	(0.013)	(0.023)	(0.014)	(0.023)
Subsidy ·B_Post	0.258***	0.265***	0.194***	0.201***	0.232***	0.242**	0.260***	0.270***	0.119***	0.124***
	(0.016)	(0.057)	(0.028)	(0.067)	(0.093)	(0.125)	(0.070)	(0.126)	(0.014)	(0.047)
Home Support ·B_Pre	-0.040	-0.040	-0.119	-0.121	-0.053	-0.056	-0.045	-0.047	-0.038	-0.040
	(0.092)	(0.115)	(0.075)	(0.102)	(0.066)	(0.100)	(0.080)	(0.111)	(0.054)	(0.088)
Home Support ·B_Post	-0.046	-0.046	-0.009	-0.011	-0.143	-0.143	-0.149	-0.149	-0.217	-0.217
	(0.291)	(0.335)	(0.020)	(0.029)	(0.243)	(0.263)	(0.253)	(0.276)	(0.193)	(0.218)
Year=2006	0.046***	0.047***	0.047***	0.047***	0.050***	0.052***	0.044***	0.045***	0.045***	0.046***
	(0.014)	(0.015)	(0.014)	(0.018)	(0.013)	(0.015)	(0.014)	(0.016)	(0.014)	(0.015)
Year=2011	-0.066***	-0.067***	-0.078***	-0.076***	-0.081***	-0.083***	-0.078***	-0.079***	-0.072***	-0.074***
	(0.002)	(0.002)	(0.007)	(0.009)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)
Real income million € 2011	-0.025***	-0.025***	-0.038***	-0.040***	-0.017*	-0.020*	-0.032***	-0.031***	-0.040***	-0.039***
	(0.012)	(0.013)	(0.016)	(0.017)	(0.012)	(0.014)	(0.012)	(0.014)	(0.013)	(0.015)
Real wealth million € 2011	-0.011***	-0.013*	-0.016***	-0.016***	-0.006***	-0.007***	-0.015***	-0.016***	-0.020***	-0.021***
	(0.005)	(0.008)	(0.003)	(0.006)	(0.002)	(0.003)	(0.003)	(0.006)	(0.005)	(0.008)
Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Katz index	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marital status	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unemployment rate	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional GDP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.127***	-0.194***	0.060***	0.094***	-0.058***	-0.091***	-0.013	-0.020*	0.031***	0.049***
	(0.012)	(0.023)	(0.023)	(0.023)	(0.012)	(0.023)	(0.012)	(0.012)	(0.012)	(0.012)
Mean of the dependent variable	0.7510		0.3389		0.5379		0.2917		0.1009	
N	6,346	5,950	6,346	5,950	6,346	5,950	6,346	5,950	6,346	5,950
R^2	0.373	0.396	0.386	0.393	0.446	0.452	0.421	0.432	0.423	0.435
F-statistic	411.77	267.18	933.91	72048	150.14	128.83	197.33	183.24	632.71	538.72
p-value	0.000	0.000	0.000	0.0.00	0.000	0.000	0.000	0.000	0.000	0.000

Note: This table compares the results from the OLS and IV estimation for the probability of receiving informal care from different care providers (co-resident, not co-resident, partner, co-resident adult child and not-co-resident adult child). Omitted variables: Year=2004, women, no elementary education, widow, Katz index equal to zero. Standard errors between parentheses. Clustered estimates at regional level and block bootstrap with 1,000 replications. IV regressions employ support to socialist party, home care characteristics in 2004 (coverage index, hours per month, cost per hour) as instruments. First-stage estimations are reported in Table B1. The number of observations in IV estimations is smaller than OLS estimation because province of residence is missing for 396 individuals, and consequently, we cannot assign home care characteristics in 2004.

Table 4. OLS and IV regressions for the probability of receiving informal care and intergenerational transfers by income quintile and wealth quintile (pre-reform: 2004 and 2006; post-reform: 2011)

	Informal care		Downstream transfers		Upstream transfers	
	OLS	IV	OLS	IV	OLS	IV
Panel A: Using all sample						
INCOME QUINTILES						
Subsidy ·B_Post	0.206***	0.212***	0.164***	0.168***	-0.080***	-0.082***
	(0.036)	(0.075)	(0.023)	(0.052)	(0.025)	(0.054)
Interaction Subsidy ·B_Post						
1st quintile income (lowest)	0.131***	0.134***	-0.002**	-0.004***	0.101***	0.106***
	(0.047)	(0.058)	(0.000)	(0.002)	(0.037)	(0.049)
2nd quintile income	0.091***	0.095***	0.017	0.020	0.053***	0.056***
	(0.015)	(0.029)	(0.013)	(0.028)	(0.012)	(0.025)
3rd quintile income	-0.040***	-0.042	0.087***	0.091***	-0.110***	-0.114
	(0.015)	(0.030)	(0.012)	(0.030)	(0.035)	(0.071)
4th quintile income	-0.097***	-0.099***	0.100***	0.102***	-0.127***	-0.130***
	(0.014)	(0.029)	(0.014)	(0.031)	(0.013)	(0.028)
Home Support ·B_Post	-0.063	-0.066	-0.025	-0.029	-0.071***	-0.074***
	(0.059)	(0.072)	(0.037)	(0.049)	(0.025)	(0.038)
Interaction Home Support ·B_Post						
1st quintile income (lowest)	-0.323	-0.326	-0.132	-0.129	-0.100***	-0.102***
	(0.226)	(0.248)	(0.091)	(0.099)	(0.031)	(0.036)
2nd quintile income	-0.538	-0.548	-0.513	-0.522	-0.637	-0.649
	(0.760)	(0.773)	(0.755)	(0.776)	(0.842)	(0.876)
3rd quintile income	-0.170	-0.170	-0.405	-0.413	-0.520	-0.526
	(0.535)	(0.549)	(0.408)	(0.423)	(0.553)	(0.570)
4th quintile income	-0.030	-0.032	-0.011	-0.014	-0.096	-0.101
	(0.029)	(0.036)	(0.014)	(0.020)	(0.864)	(0.879)
WEALTH QUINTILES						
Subsidy ·B_Post	0.205***	0.209**	0.165***	0.170***	-0.081***	-0.084**
	(0.049)	(0.105)	(0.024)	(0.059)	(0.023)	(0.047)
Interaction Subsidy ·B_Post						
1st quintile income (lowest)	0.098***	0.101**	-0.026**	-0.030***	0.032***	0.038***
	(0.025)	(0.051)	(0.013)	(0.016)	(0.013)	(0.015)
2nd quintile income	0.027***	0.030***	-0.017***	-0.021***	0.013***	0.015***
	(0.000)	(0.002)	(0.001)	(0.002)	(0.005)	(0.009)
3rd quintile income	-0.016***	-0.018***	0.027***	0.030***	-0.026***	-0.029
	(0.000)	(0.002)	(0.001)	(0.003)	(0.012)	(0.027)
4th quintile income	-0.089***	-0.092***	0.051***	0.056	-0.034***	-0.038
	(0.013)	(0.028)	(0.014)	(0.033)	(0.013)	(0.028)
Home Support ·B_Post	-0.063	-0.066	-0.025	-0.029	-0.071***	-0.074**
	(0.059)	(0.072)	(0.037)	(0.049)	(0.025)	(0.038)
Interaction Home Support ·B_Post						
1st quintile wealth (lowest)	-0.040	-0.045	-0.638	-0.646	-0.135***	-0.141***
	(0.190)	(0.200)	(0.639)	(0.650)	(0.031)	(0.027)
2nd quintile wealth	-0.041	-0.046	-0.578	-0.587	-0.811	-0.818
	(0.232)	(0.242)	(0.603)	(0.735)	(1.366)	(1.385)
3rd quintile wealth	-0.200	-0.205	-0.079	-0.083	-0.349	-0.359
	(0.127)	(0.133)	(0.279)	(0.286)	(0.601)	(0.600)
4th quintile wealth	-0.114	-0.122	-0.037	-0.045	-0.334	-0.339
	(0.085)	(0.093)	(0.447)	(0.462)	(0.571)	(0.584)
N	6,346	5,950	6,346	5,950	6,346	5,950
Panel B: Excluding those receiving disability allowance or home care at baseline						
INCOME QUINTILES						
Subsidy ·B_Post	0.187***	0.194***	0.148***	0.152***	-0.073***	-0.076**
	(0.025)	(0.028)	(0.024)	(0.054)	(0.023)	(0.037)
Interaction Subsidy ·B_Post						
1st quintile income (lowest)	0.119***	0.124**	-0.002***	-0.003**	0.092***	0.095***
	(0.049)	(0.063)	(0.000)	(0.001)	(0.024)	(0.044)
2nd quintile income	0.082***	0.086***	0.016	0.020	0.049***	0.052***
	(0.012)	(0.025)	(0.012)	(0.022)	(0.013)	(0.024)
3rd quintile income	-0.037***	-0.043**	0.079***	0.084***	-0.100***	-0.106***
	(0.013)	(0.027)	(0.016)	(0.029)	(0.025)	(0.047)
4th quintile income	-0.088***	-0.092***	0.091***	0.094***	-0.116***	-0.121***
	(0.013)	(0.028)	(0.016)	(0.033)	(0.016)	(0.037)
Home Support ·B_Post	-0.068	-0.072	-0.029	-0.033	-0.073***	-0.081***
	(0.060)	(0.095)	(0.024)	(0.046)	(0.024)	(0.035)
Interaction Home Support ·B_Post						
1st quintile income (lowest)	-0.429	-0.433	-0.132	-0.129	-0.099***	-0.103***
	(0.350)	(0.371)	(0.092)	(0.113)	(0.043)	(0.047)
2nd quintile income	-0.732	-0.742	-0.513	-0.534	-0.637	-0.650
	(0.761)	(0.788)	(0.756)	(0.789)	(0.843)	(0.877)
3rd quintile income	-0.192	-0.200	-0.507	-0.516	-0.531	-0.536
	(0.535)	(0.575)	(0.535)	(0.578)	(0.579)	(0.570)
4th quintile income	-0.041	-0.045	-0.011	-0.015	-0.107	-0.112
	(0.032)	(0.038)	(0.015)	(0.020)	(0.104)	(0.105)
WEALTH QUINTILES						
Subsidy ·B_Post	0.185***	0.182**	0.150***	0.152***	-0.074***	-0.076***
	(0.046)	(0.095)	(0.025)	(0.054)	(0.024)	(0.054)
Interaction Subsidy ·B_Post						
1st quintile income (lowest)	0.088***	0.095***	-0.024**	-0.028	0.018***	0.022*
	(0.023)	(0.041)	(0.012)	(0.024)	(0.008)	(0.013)
2nd quintile income	0.024***	0.028***	-0.016***	-0.018***	0.012***	0.014***
	(0.001)	(0.008)	(0.000)	(0.003)	(0.000)	(0.002)
3rd quintile income	-0.015***	-0.030***	0.024***	0.029***	-0.024**	-0.026
	(0.001)	(0.010)	(0.001)	(0.003)	(0.012)	(0.024)
4th quintile income	-0.081***	-0.088***	0.046***	0.050**	-0.031***	-0.034
	(0.013)	(0.023)	(0.013)	(0.025)	(0.013)	(0.022)

Home Support ·B_Post	-0.065	-0.068	-0.029	-0.033	-0.072***	-0.080
	(0.060)	(0.095)	(0.024)	(0.046)	(0.024)	(0.035)
Interaction Home Support ·B_Post						
1st quintile wealth (lowest)	-0.041	-0.045	-0.639	-0.646	-0.132***	-0.143***
	(0.191)	(0.200)	(0.652)	(0.663)	(0.031)	(0.027)
2nd quintile wealth	-0.041	-0.057	-0.685	-0.694	-0.811	-0.818
	(0.232)	(0.243)	(0.603)	(0.611)	(1.382)	(1.401)
3rd quintile wealth	-0.201	-0.216	-0.079	-0.083	-0.349	-0.369
	(0.127)	(0.138)	(0.403)	(0.422)	(0.719)	(0.731)
4th quintile wealth	-0.114	-0.124	-0.038	-0.045	-0.335	-0.339
	(0.085)	(0.105)	(0.447)	(0.475)	(0.703)	(0.716)
N	6,196	5,800	6,196	5,800	6,196	5,800

Note: This table compares the OLS and IV regressions for the probability of receiving informal care, upstream and downstream intergenerational transfers considering the effect of income and wealth by quintiles. Panel A considers the whole sample for the period 2004, 2006 and 2011. All regressions include the following explanatory variables: receiving a disability allowance (DA), receiving public home care before SAAD, income (or wealth) quintiles (5th quintile of income or wealth is the omitted category), demographic characteristics, dependency level approximated by the Katz's index, level of education, unemployment rate, regional GDP per capita, time and regional dummies.
Panel B excludes those individuals who received a disability allowance (or home care) at baseline. Explanatory variables are the same as in Panel A. Omitted variables: Year=2004, women, no elementary education, widow, Katz index equal to zero. Standard errors between parenthesis. Clustered estimates at regional level and block bootstrap with 1,000 replications. IV regressions employ support to socialist party, home care characteristics in 2004 (coverage index, hours per month, cost per hour) as instruments. First-stage estimations are reported in Table B1. The number of observations in IV estimations is smaller than OLS estimation because province of residence is missing for 396 individuals, and consequently, we cannot assign home care characteristics in 2004.

Table 5. Effect of austerity reforms. (pre-reform: 2004 and 2006; post-reform: 2011 and 2013)

	Informal care	Down-stream transfers	Upstream transfers	IC Co-resident	IC Not co-resident	IC Partner	IC Co-resident child	IC Not co-resident child
OLS Estimates								
Disability Allowance ·B_Pre	-0.046***	0.033***	0.053***	-0.045***	-0.037***	-0.031***	-0.033***	-0.028***
	(0.013)	(0.014)	(0.012)	(0.014)	(0.012)	(0.012)	(0.012)	(0.012)
Subsidy ·B_Post(2011)	0.205***	0.171***	-0.085***	0.259***	0.196***	0.169***	0.234***	0.261***
	(0.039)	(0.032)	(0.016)	(0.044)	(0.038)	(0.040)	(0.040)	(0.040)
Subsidy · B_Post(2013)	-0.088***	-0.054***	0.037***	-0.071***	-0.105***	-0.141***	-0.085***	-0.049***
	(0.028)	(0.035)	(0.015)	(0.020)	(0.025)	(0.017)	(0.002)	(0.007)
Home Support ·B_Pre	-0.031	-0.011	-0.007	-0.126	-0.045	-0.058	-0.048	-0.042
	(0.060)	(0.014)	(0.061)	(0.102)	(0.113)	(0.100)	(0.111)	(0.088)
Home Support · B_Post(2011)	-0.065	-0.026	-0.070***	-0.011	-0.046	-0.143	-0.149	-0.217
	(0.075)	(0.047)	(0.035)	(0.029)	(0.335)	(0.263)	(0.276)	(0.218)
Home Support · B_Post(2013)	-0.379	-0.070	0.045***	-0.561	-0.083	-1.055	0.677	-0.705
	(0.377)	(0.169)	(0.014)	(0.475)	(0.172)	(1.040)	(0.571)	(0.566)
N	12,796	12,796	12,796	12,796	12,796	12,796	12,796	12,796
IV Estimates								
Disability Allowance ·B_Pre	-0.054*	0.038	0.061**	-0.047*	-0.039*	-0.034	-0.037	-0.036
	(0.028)	(0.027)	(0.025)	(0.028)	(0.025)	(0.023)	(0.025)	(0.025)
Subsidy ·B_Post(2011)	0.222***	0.184**	-0.096**	0.265***	0.201***	0.176***	0.242***	0.281***
	(0.075)	(0.079)	(0.039)	(0.111)	(0.091)	(0.079)	(0.099)	(0.119)
Subsidy · B_Post(2013)	-0.094**	-0.063**	0.041*	-0.075*	-0.101*	-0.152*	-0.091***	-0.046**
	(0.047)	(0.059)	(0.028)	(0.045)	(0.057)	(0.091)	(0.038)	(0.024)
Home Support ·B_Pre	-0.033	-0.014	-0.009	-0.134	-0.049	-0.065	-0.056	-0.048
	(0.067)	(0.017)	(0.065)	(0.108)	(0.115)	(0.106)	(0.115)	(0.091)
Home Support · B_Post(2011)	-0.070	-0.029	-0.076**	-0.015	-0.050	-0.146	-0.153	-0.222
	(0.088)	(0.057)	(0.038)	(0.033)	(0.346)	(0.272)	(0.286)	(0.232)
Home Support · B_Post(2013)	-0.382	-0.074	0.049***	-0.566	-0.087	-1.059	0.682	-0.708
	(0.382)	(0.173)	(0.018)	(0.481)	(0.177)	(1.047)	(0.576)	(0.571)
N	10,504	10,504	10,504	10,504	10,504	10,504	10,504	10,504
Mean of the dependent variable	0.1535	0.0883	0.0172	0.78.24	0.3545	0.5951	0.3317	0.0719
Income and wealth	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dependency	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marital status	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unemployment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional GDP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note : This table reports the results of the OLS and IV regressions for the probability of receiving informal care, upstream transfers, downstream transfers and informal care from different providers (co-resident caregiver, not co-resident caregiver, partner, co-resident adult child and not co-resident adult child). Omitted variables: Year=2004, women, no elementary education, widow, Katz index equal to zero. Standard errors between parenthesis. Clustered estimates at regional level and block bootstrap with 1,000 replications. IV regressions employ support to socialist party, home care characteristics in 2004 (coverage index, hours per month, cost per hour) as instruments. First-stage estimations are reported in Table B1. The number of observations in IV estimations is smaller than OLS estimation because province of residence is missing for 2,292 individuals, and consequently, we cannot assign home care characteristics in 2004.

Table 6. Comparison OLS and IV estimates: 2004-2006-2011 and 2004-2006-2011-2013. Receiving any long-term care benefit (disability allowance or home care in the pre-reform period; caregiving allowance or home care in the post-reform period)

	Informal care		Outflow transfers		Inflow transfers	
	OLS-2	IV	OLS-2	IV	OLS-2	IV
2004-2006-2011						
(Disability Allowance or Home Support) ·B_Pre	-0.033	-0.036	0.022	0.023	0.021	0.021
	(0.025)	(0.028)	(0.014)	(0.017)	(0.015)	(0.018)
(Subsidy or Home Support) ·B_Post	0.089***	0.090***	0.086***	0.086***	-0.078***	-0.081***
	(0.035)	(0.066)	(0.020)	(0.036)	(0.012)	(0.025)
N	6,346	5,950	6,346	5,950	6,346	5,950
R^2	0.280	0.297	0.290	0.295	0.335	0.339
F-statistic	308.828	200.385	700.433	540.360	112.605	196.623
p-value	0.000	0.000	0.000	0.000	0.000	0.000
2004-2006-2011-2013						
(Disability Allowance or Home Support) ·B_Pre	-0.031	-0.034	0.021	0.022	0.040***	0.042**
	(0.025)	(0.027)	(0.017)	(0.020)	(0.018)	(0.020)
(Subsidy or Home Support) ·B_Post (2011)	0.189***	0.196***	0.146***	0.152***	-0.074**	-0.079**
	(0.034)	(0.061)	(0.018)	(0.050)	(0.029)	(0.034)
(Subsidy or Home Support) ·B_Post (2013)	-0.076***	-0.081***	-0.048**	-0.051**	0.043***	0.045***
	(0.021)	(0.027)	(0.020)	(0.025)	(0.003)	(0.005)
N	12,796	10,504	12,796	10,504	12,796	10,504
R^2	0.261	0.277	0.270	0.275	0.312	0.316
F-statistic	288.239	187.026	653.737	504.336	105.098	190.181
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Demographics. income and wealth	Yes	Yes	Yes	Yes	Yes	Yes
Katz Index	Yes	Yes	Yes	Yes	Yes	Yes
Marital status	Yes	Yes	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes	Yes	Yes
Unemployment	Yes	Yes	Yes	Yes	Yes	Yes
Regional GDP	Yes	Yes	Yes	Yes	Yes	Yes
Year and regional dummies	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the results of the OLS and IV regressions for the probability of providing informal care. inflow transfers and outflow transfers. Omitted variables: Year=2004. women. no elementary education. widow. Katz index equal to zero. Standard errors between parentheses. Clustered estimates at regional level and block bootstrap with 1,000 replications. IV regressions employ support to socialist party. home care characteristics in 2004 (coverage index. hours per month. cost per hour) as instruments. Instrument first stages are reported in Appendix B. The number of observations in IV estimations is smaller than OLS estimation because region of residence is missing for 396 individuals. and consequently. we cannot assign the value corresponding to the instrument "region with socialist government".

Table 7. Panel Data Estimates (OLS with fixed effects). Effect of the implementation of SAAD and the subsequent austerity reforms. (pre-reform: 2004 and 2006; post-reform: 2011 and 2013)

	Informal care	Downstream transfers	Upstream transfers	IC Co-resident	IC Not co-resident	IC Partner	IC Co-resident child	IC Not co-resident child
Disability Allowance ·B_Pre	-0.071***	0.040***	0.060***	-0.050***	-0.042***	-0.038***	-0.041***	-0.033***
	(0.012)	(0.012)	(0.010)	(0.013)	(0.010)	(0.009)	(0.010)	(0.010)
Subsidy ·B_Post(2011)	0.230***	0.189***	-0.081***	0.281***	0.220***	0.187***	0.266***	0.283***
	(0.037)	(0.030)	(0.015)	(0.040)	(0.037)	(0.038)	(0.039)	(0.039)
Subsidy · B_Post(2013)	-0.093***	-0.064***	0.036***	-0.074***	-0.112***	-0.153***	-0.089***	-0.050***
	(0.025)	(0.031)	(0.014)	(0.018)	(0.024)	(0.017)	(0.002)	(0.007)
Home Support ·B_Pre	-0.034	-0.014	-0.009	-0.129	-0.047	-0.061	-0.050	-0.045
	(0.059)	(0.016)	(0.064)	(0.104)	(0.114)	(0.104)	(0.113)	(0.092)
Home Support · B_Post(2011)	-0.063	-0.030	-0.072***	-0.015	-0.049	-0.146	-0.153	-0.214
	(0.079)	(0.050)	(0.036)	(0.033)	(0.342)	(0.268)	(0.281)	(0.212)
Home Support · B_Post(2013)	-0.382	-0.072	0.042***	-0.563	-0.085	-1.053	0.671	-0.708
	(0.372)	(0.166)	(0.013)	(0.469)	(0.169)	(1.033)	(0.565)	(0.562)
Income and wealth	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dependency	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marital status	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unemployment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional GDP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	6,115	6,115	6,115	6,115	6,115	6,115	6,115	6,115
Test individual fixed effects=0	1.733	1.702	1.779	1.551	1.432	1.641	1.447	1.506
p-value	0.000	0.000	0.000	0.000	0.027	0.000	0.001	0.001
Hausman test:χ^2	45.194	53.103	24.569	50.109	40.646	36.490	64.109	41.151
p-value	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000

Note: This table reports the results of the OLS regressions for the probability of receiving informal care, upstream transfers, downstream transfers and informal care from different providers (co-resident caregiver, not co-resident caregiver, partner, co-resident adult child and not co-resident adult child). Omitted variables: Year=2004, women, no elementary education, widow, Katz index equal to zero. Standard errors between parenthesis. Clustered estimates at regional level and block bootstrap with 1,000 replications.

Table 8. Monthly estimate of the economic impact of SAAD

A. Monthly Estimate of SAAD	(1)	(2) Beneficiaries	(3)	Product (1)*(2)*(3) (€/month)	(4) % with respect to SAAD expenditure	(5) Per capita expenditure (€/year)
2011	0.205	400,086	357,34	29.308.180	19.51%	7.44
2013	-0.088	408,296	299,78	-10.771.110	-10.71%	2.76

Note: Estimated value of subsidies awarded since the implementation of the SAAD with respect to total expenditure of SAAD and with respect to total Spanish population.

(1) Coefficient of the interaction Subsidy & year dummy (Table 5)

(2) Population beneficiaries using calibrated weights. For comparison purposes, total number of registered beneficiaries of the SAAD was: 401,176 (June 2011), 409,435 (June 2013).

(3) Average subsidy (multiplying average monthly benefit for each dependency degree by the distribution of beneficiaries by dependency degree; Table A7)

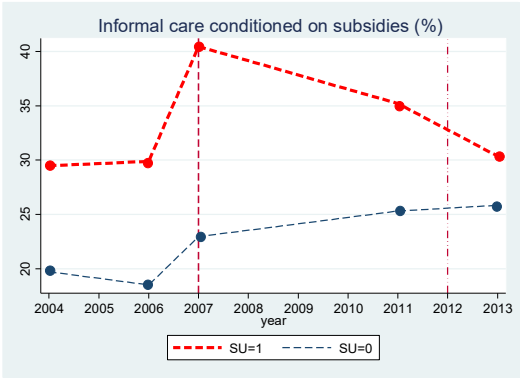
(4) To obtain the percentage with respect to total expenditure of SAAD, we have multiplied the monthly estimation by 12 and divided by annual expenditure corresponding to that year. Total expenditure in the SAAD: 1,802,975,359€ (2011); 1,206,789,133€ (2013)

(5) Per capita expenditure is obtained multiplying monthly estimation (1)*(2)*(3) by 12 and dividing by total population. Total population: 47,265,312 (2011), 46,771,341 (2013). Source: National Institute of Statistics. http://www.ine.es/

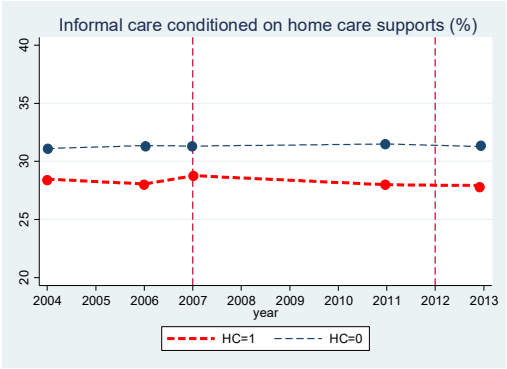
Appendix for online publication only

Appendix A

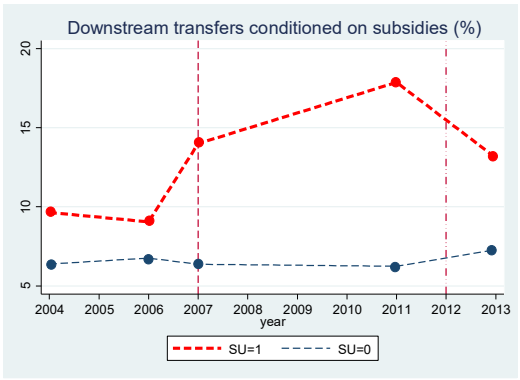
Figure A1. Trends of caregiving and intergenerational transfers conditioned on subsidies (SU) and home care supports (HC). Results of regressions for testing parallel trend assumption.



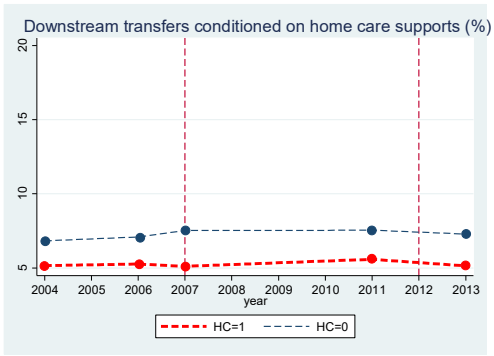
Red thick line corresponds to the percentage of individuals providing informal care conditioned on care recipient receiving a subsidy (SU=1). Blue thin line corresponds to the individuals providing informal care conditioned on care recipient not receiving a subsidy (SU=0).
Coefficient SU*Year(2006) in pre-reform regression: 0.0017 (0.1262)



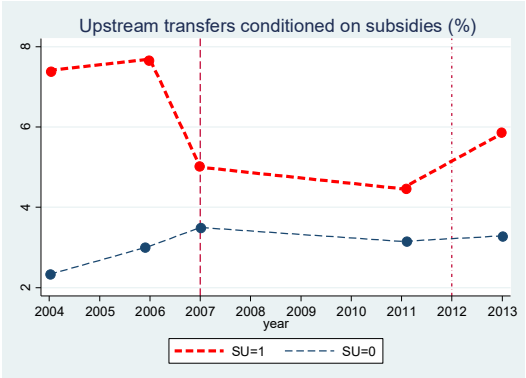
Red thick line corresponds to the percentage of individuals providing informal care conditioned on care recipient receiving public home care (HC=1). Blue thin line corresponds to the individuals providing informal care conditioned on care recipient not receiving public home care (HC=0).
Coefficient HC*Year(2006) in pre-reform regression: 0.0318 (0.1269)



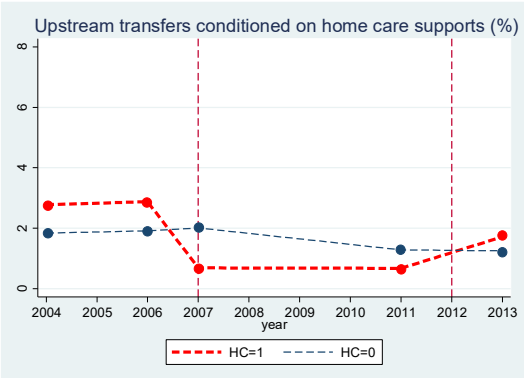
Red thick line corresponds to the percentage of care recipients with a subsidy (SU=1) who provide financial transfers to the informal caregiver. Blue thin line corresponds to percentage of care recipients without a subsidy (SU=0) who provide financial transfers to the informal caregiver.
Coefficient SU*Year(2006) in pre-reform regression: 0.040 (0.0558)



Red thick line corresponds to the percentage of care recipients with public home care (HC=1) who provide financial transfers to the informal caregiver. Blue thin line corresponds to percentage of care recipients without public home care (HC=0) who provide financial transfers to the informal caregiver.
Coefficient HC*Year(2006) in pre-reform regression: 0.0335 (0.0554)



Red thick corresponds to the percentage of care recipients with a subsidy (SU=1) who receive financial transfers from the informal caregiver. Blue thin line corresponds to percentage of care recipients without a subsidy (SU=0) who receive financial transfers from the informal caregiver.
Coefficient SU*Year(2006) in pre-reform regression: 0.1489 (0.0992)

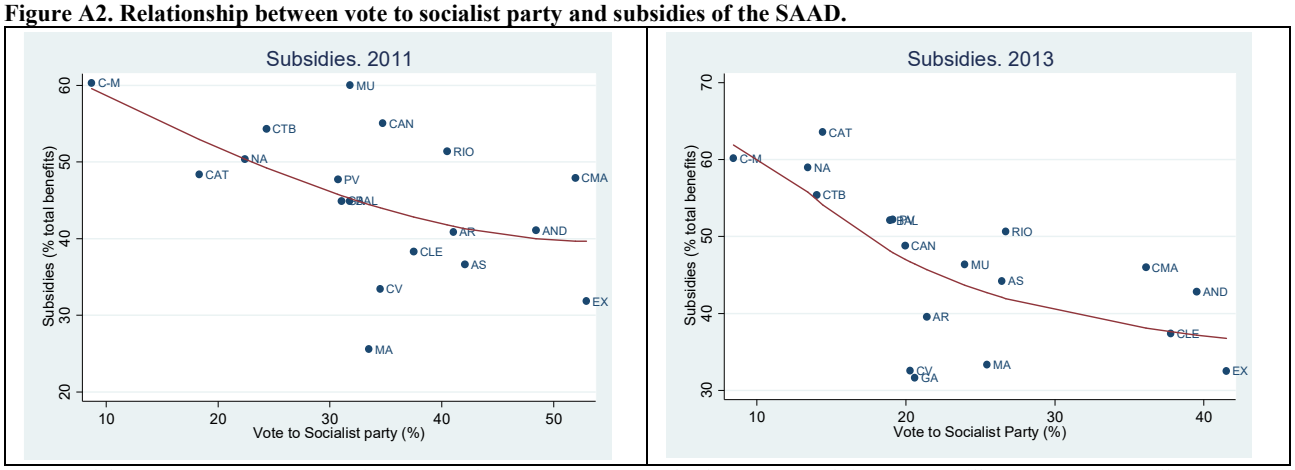


Red thick corresponds to the percentage of care recipients with public home care (HC=1) who receive financial transfers from the informal caregiver. Blue thin line corresponds to percentage of care recipients without public home care (HC=0) who receive financial transfers from the informal caregiver.
Coefficient HC*Year(2006) in pre-reform regression:0.095 (0.1202)

Red dashed lines refer to the implementation of the SAAD (Act 39/2006 of 14th December) and the budgetary cuts (Royal Decree 201/2012, July 13th)

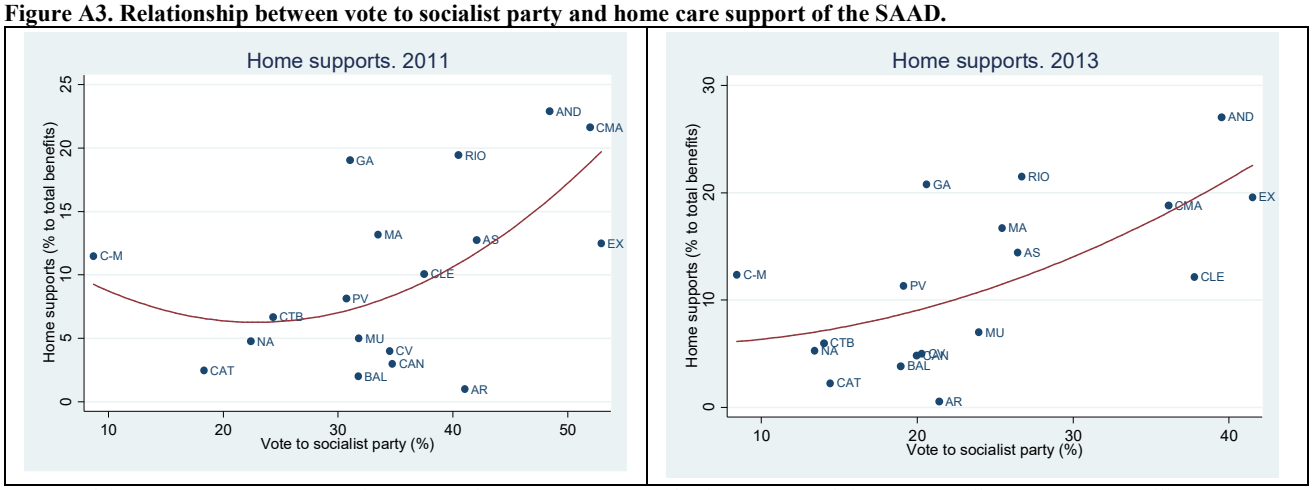
Regressions for testing parallel trend assumption: regression of each one of the outcome variables on the treatment variable, year 2006, interaction between them and region fixed effects. Regression restricted to period 2004-2006.

Figure A2. Relationship between vote to socialist party and subsidies of the SAAD.



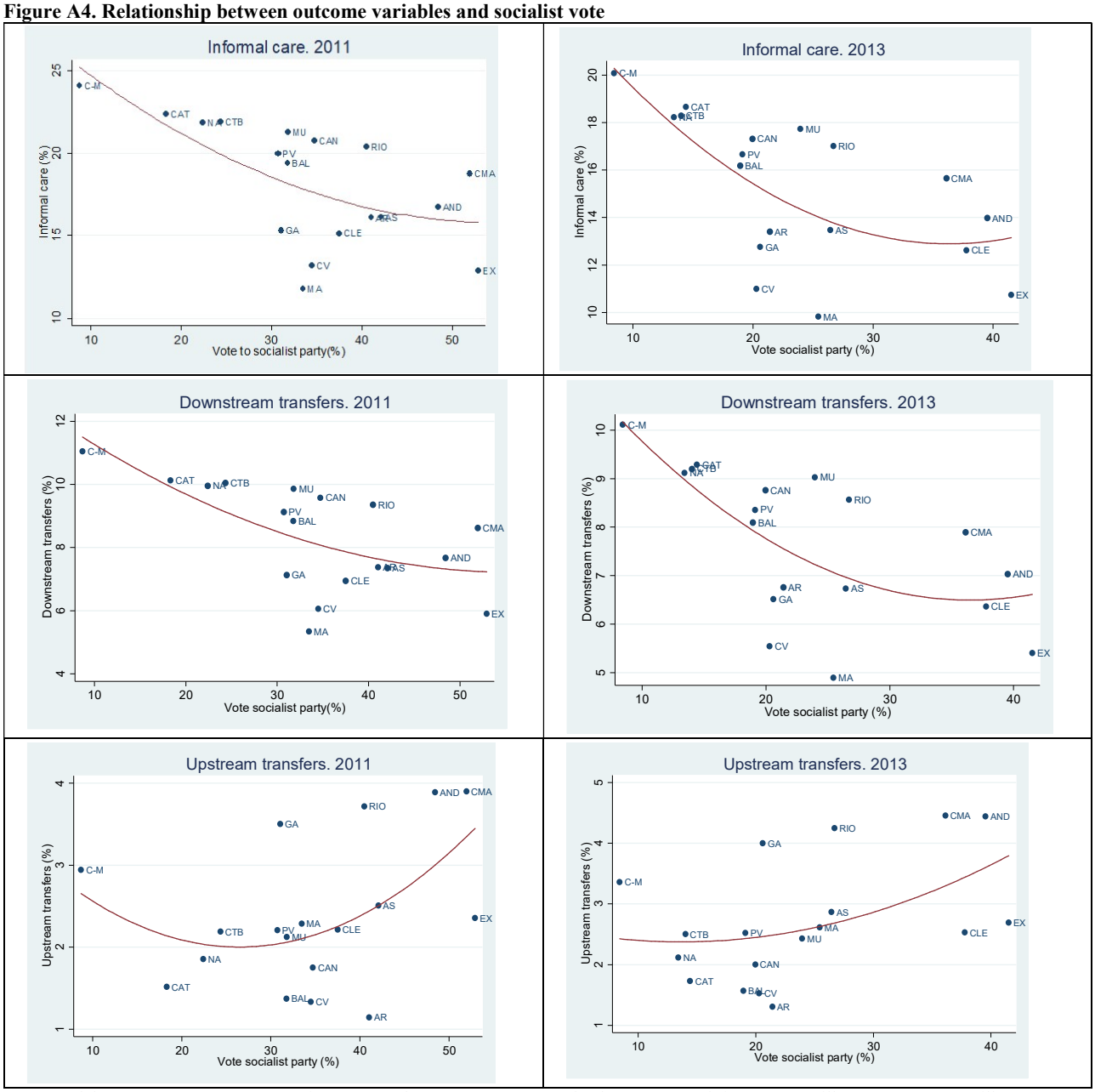
AND: Andalucía; AR: Aragón; AS: Asturias; BAL: Baleares; CAN: Canary Islands; CTB: Cantabria; CLE: Castilla-León; CMA: Castilla La Mancha; CAT: Cataluña; CV: Comunidad Valenciana; EX: Extremadura; GA: Galicia; MA: Madrid; MU: Murcia; NA: Navarra; PV: País Vasco; RIO: La Rioja; C-M: Ceuta-Melilla. The line corresponds to the prediction for subsidies (% of total benefits) from a fractional polynomial of socialist vote.
Source: own work using data from http://www.dependencia.imserso.gob.es/dependencia_01/index.htm

Figure A3. Relationship between vote to socialist party and home care support of the SAAD.



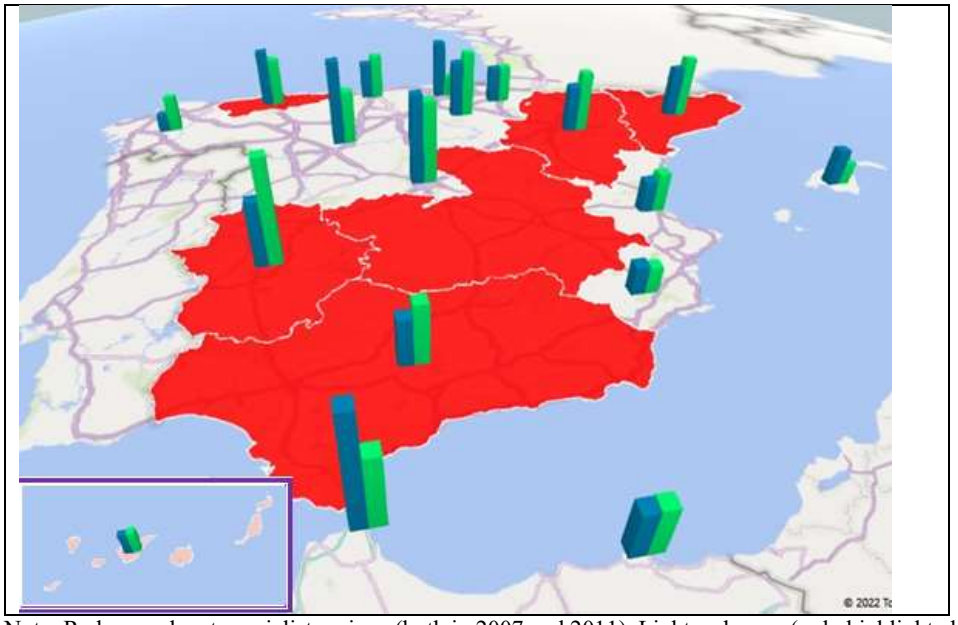
AND: Andalucía; AR: Aragón; AS: Asturias; BAL: Baleares; CAN: Canary Islands; CTB: Cantabria; CLE: Castilla-León; CMA: Castilla La Mancha; CAT: Cataluña; CV: Comunidad Valenciana; EX: Extremadura; GA: Galicia; MA: Madrid; MU: Murcia; NA: Navarra; PV: País Vasco; RIO: La Rioja; C-M: Ceuta-Melilla. The line corresponds to the prediction for subsidies (% of total benefits) from a fractional polynomial of socialist vote.
Source: own work using data from http://www.dependencia.imserso.gob.es/dependencia_01/index.htm

Figure A4. Relationship between outcome variables and socialist vote



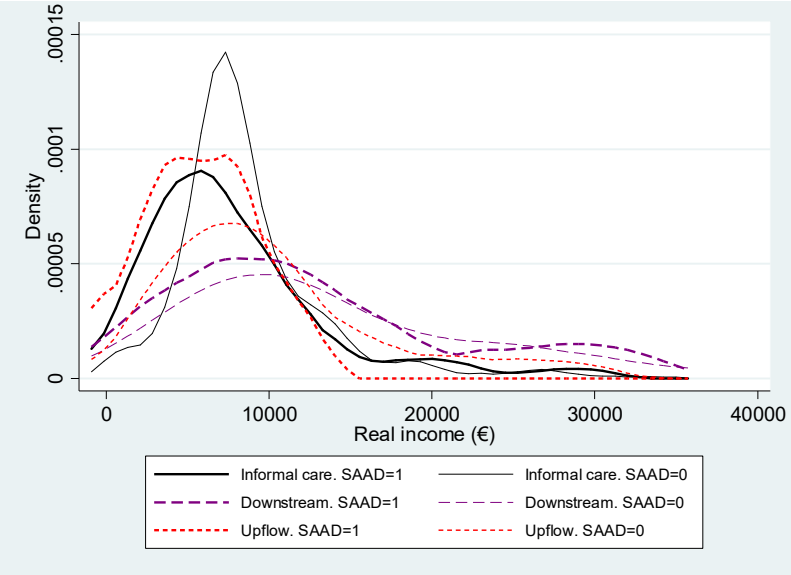
AND: Andalucía; AR: Aragón; AS: Asturias; BAL: Baleares; CAN: Canary Islands; CTB: Cantabria; CLE: Castilla-León; CMA: Castilla La Mancha; CAT: Cataluña; CV: Comunidad Valenciana; EX: Extremadura; GA: Galicia; MA: Madrid; MU: Murcia; NA: Navarra; PV: País Vasco; RIO: La Rioja; C-M: Ceuta-Melilla.

Figure A5. Evolution of home care coverage index between 2007 and 2011 distinguishing by socialist and non-socialist regions.



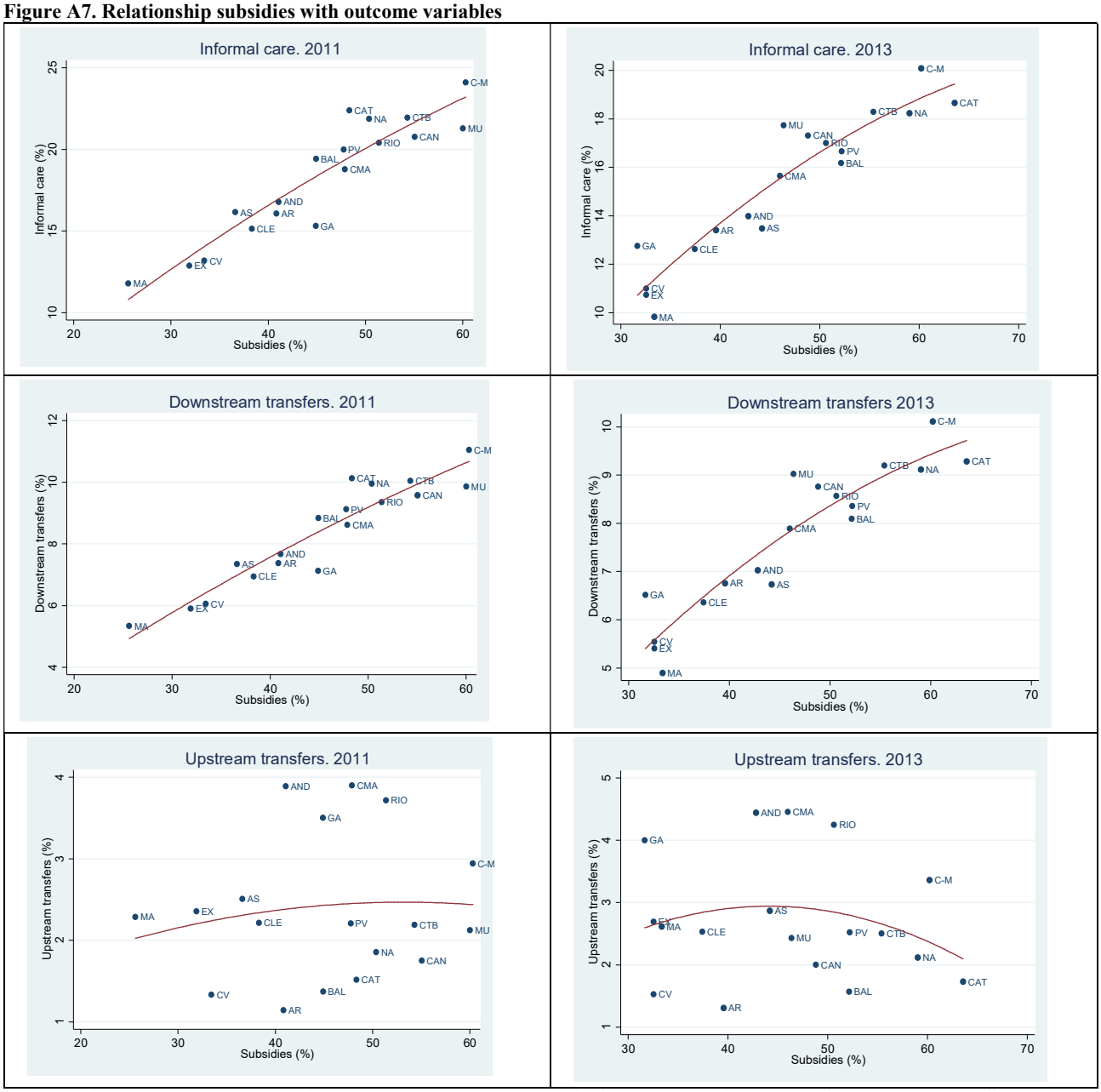
Note: Red areas denote socialist regions (both in 2007 and 2011). Light-red areas (only highlighted in Canary Islands) denote socialist region in 2007, but not in 2011. Blue bricks denote home care coverage index in 2007. Green bricks denote home care coverage index in 2011. Coverage index is defined as the number of people aged 65 and older receiving home care divided by total number of people aged 65 and older.
Source: own work using data from Las Personas Mayores en España (2008, 2012).

Figure A6. Density function of real income conditioned on informal care, upstream transfers and downstream transfers together with subsidies (SAAD) for the period 2007-2013.



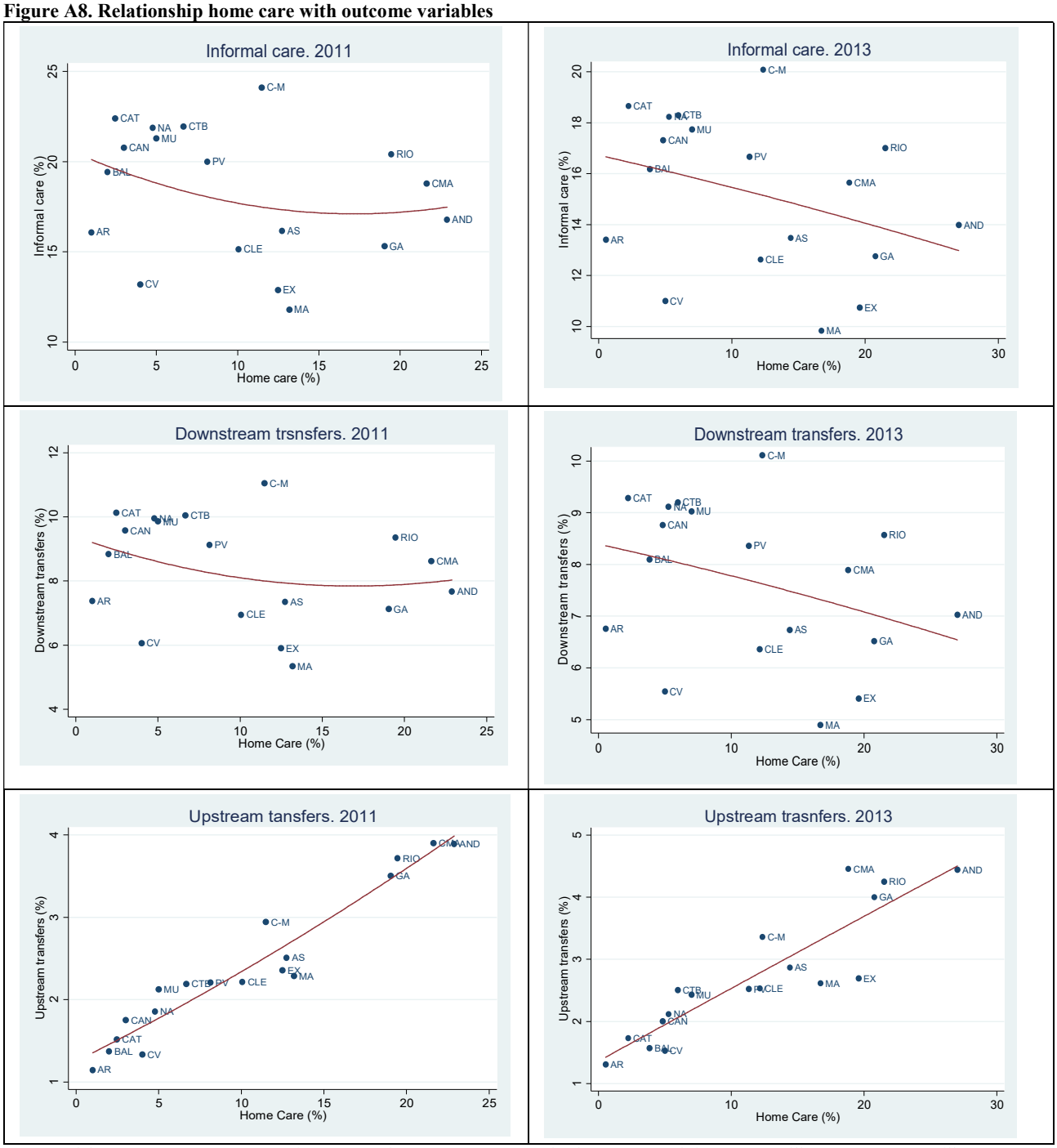
Note: SAAD=0 refers to the period before the reform (2004 and 2006). SAAD=1 refers to the period after the reform (2007, 2011 and 2013).
Density function for real income. Straight lines refer to individuals providing informal care (fine line before the SAAD reform and bold line afterwards). Dashed blue line refers to individuals who give financial support to his/her informal caregiver (downstream transfers): fine line before the SAAD reform and bold line after the reform. Dashed red line refers to individuals who receive financial support from his/her informal caregiver (upstream transfers): fine line before the SAAD reform and bold line afterwards.

Figure A7. Relationship subsidies with outcome variables



AND: Andalucía; AR: Aragón; AS: Asturias; BAL: Baleares; CAN: Canary Islands; CTB: Cantabria; CLE: Castilla-León; CMA: Castilla La Mancha; CAT: Cataluña; CV: Comunidad Valenciana; EX: Extremadura; GA: Galicia; MA: Madrid; MU: Murcia; NA: Navarra; PV: País Vasco; RIO: La Rioja; C-M: Ceuta-Melilla.

Figure A8. Relationship home care with outcome variables



AND: Andalucía; AR: Aragón; AS: Asturias; BAL: Baleares; CAN: Canary Islands; CTB: Cantabria; CLE: Castilla-León; CMA: Castilla La Mancha; CAT: Cataluña; CV: Comunidad Valenciana; EX: Extremadura; GA: Galicia; MA: Madrid; MU: Murcia; NA: Navarra; PV: País Vasco; RIO: La Rioja; C-M: Ceuta-Melilla.

Table A1. Characteristics of home care (2004)

	Coverage index	Hours/month (by user)	Public price (€/hour)
Andalusia	3.48	8	11
Aragón	3.07	10	8
Asturias	3.26	13	10.4
Balearic Islands	2.09	12.8	8.4
Canary Islands	2.69	10	16
Cantabria	1.92	20.5	7.3
Community of León	3.12	19	10.7
Community of La Mancha	4.87	19.2	8.7
Catalonia	3.87	14	10.4
Community of Valencia	1.67	10.8	10
Extremadura	7.41	22	5.5
Galicia	1.91	29	7.6
Madrid	3.37	16.9	11
Murcia	1.76	17	8.3
Navarra	3.56	8.7	20.4
P. Vasco	1.77	25	15
Rioja	3.41	13	9.4
Ceuta	3.44	22	9.2
Melilla	3.15	21.2	18.1

Coverage index: ratio of number of home care beneficiaries divided by population aged 65 and older and multiplied by 100.
The table shows the average for each autonomous community, data by province of residence has been introduced in the regressions.
Source: "Las personas mayores en España" (IMSERSO, 2004).

Table A2. Working of SAAD according to the main political affiliation of the regional government (%)

	$\frac{Assessments}{Applications}$	$\frac{Awardees}{Applications}$	$\frac{Subsidies}{Receiving\ any\ benefit}$
2011			
Socialist	91.35	66.67	35.14
Non- socialist	68.95	56.01	63.06
Total	81.05	61.77	46.27
2013			
Socialist	91.05	65.24	59.29
Non- socialist	95.18	69.38	55.38
Total	93.50	67.70	56.92

Note: Socialist regional government: 2011 (Andalusia, Aragón, Asturias, Community of La Mancha, Catalonia, Extremadura).
Socialist regional government 2013 (Andalusia, Aragón, Asturias, Community of La Mancha, Extremadura).
Application: total number of applications received.
Assessments: official valuation of applicant's long-term care needs using the Ranking Scale of the SAAD (it includes positives and negatives valuations).
Awardees: favorable evaluations that recognize the entitlement to publicly funding long-term care (but does not imply the reception of any benefit).
Receiving: beneficiaries who are actually receiving some SAAD benefit.
Source: own work using data from http://www.dependencia.imserso.gob.es/dependencia_01/index.htm

Table A3. Descriptive statistics

	Informal care		Downstream transfers		Upstream transfers	
	Yes	No	Yes	No	Yes	No
Disability allowance (pre-reform)	11.15	1.89	4.44	4.62	6.18	4.46
Subsidy (post-reform)	33.85	24.91	15.61	7.42	5.96	3.11
Home care support	28.79	31.97	4.98	6.96	1.75	1.78
Men	37.37	43.26	48.01	41.94	44.00	42.37
Age	76.05	66.96	66.05	68.58	66.44	68.42
	(11.37)	(10.59)	(9.80)	11.30	12.33	(11.18)
Dependency degree(♣)						
Katz_1	20.12	3.82	9.48	5.92	11.29	6.09
Katz_2	11.68	0.93	1.52	2.58	2.86	2.49
Katz_3	15.69	1.16	0.72	3.49	3.57	3.27
Marital status						
Married/cohabiting	52.87	77.85	74.20	73.97	68.14	74.32
Separated/divorced	2.73	2.12	5.97	2.17	3.48	2.31
Single	8.63	4.07	1.86	6.58	6.89	5.33
Widow	34.54	13.23	14.47	16.15	16.86	15.66
Level of education						
College	3.39	5.73	12.92	4.77	5.71	5.38
Secondary	19.84	34.36	38.46	31.74	32.86	32.23
Elementary	41.66	34.12	24.86	36.06	45.29	35.02
Not elementary	60.41	53.27	53.33	54.39	43.57	54.52
Has daughters	34.19	18.75	32.88	20.26	37.41	20.80
Number of daughters at home	1.85	1.71	1.60	1.76	1.87	1.74
	(1.13)	(0.96)	(0.88)	(1.02)	(1.08)	(1.00)
Have not recently moved	1.54	1.32	1.16	1.40	1.58	1.36
	(0.88)	(0.81)	(0.75)	(0.87)	(0.82)	(0.75)
Income	17,430	41,257	39,194	43,320	33,006	43,320
(real € 2011)	(70,458)	(65,275)	(62,011)	68,539)	(52,220)	(68,539)
Wealth	433,248	458,268	412,441	467,433	343,701	481,181
(real € 2011)	(198,425)	(327,879)	(295,091)	(334,437)	(245,909)	(344,273)
N	2,267	12,498	1,008	13,757	254	14,511

Note: This table displays the descriptive statistics (mean and standard deviation) of the Spanish population in the sample that received and did not receive informal care support during the years of the sample 2004-2006-2011-2013. Missing values for income and wealth have been imputed following De Luca et al. (2015). The final variables with imputations included in the file gv_imputations, which can be downloaded from the Survey of Health, Ageing and Retirement in Europe website.
Source: Own work using the Survey of Health, Ageing and Retirement in Europe (waves 1, 2, 4 and 5). Standard errors between parentheses.
(♣): results from the Katz's Index (Katz, 1983) has been grouped in the following categories: Katz_1 for levels 0, 1 and 2: Katz_1 for levels 3 and 4, Katz_3 for levels 5 and 6.
Disability allowance (DA) for 2004 and 2006; subsidy for 2007 onwards

Table A4. Comparison between imputed data for public home care benefit with official data

	Comparison between imputed data for public home care benefit with official data				Home Care beneficiaries in Wave 2 who continue in Wave 4			
	Official data Home Care June 2011		Imputations Home Care		Distribution of Wave 2 beneficiaries that continue in wave 4		How many have been identified with the imputation process	
	N	%	N	%	N	%	N	%
Andalusia	47,941	43.35	41,514	40.02	11,995	54.04	11395	54.60
Aragón	0	0.00	2,292	2.21	376	1.69	341	1.63
Asturias	1,822	1.65	1,504	1.45	247	1.11	220	1.05
Balearic Isles	0	0.00	695	0.67	114	0.51	101	0.48
Canary Islands	0	0.00	1,504	1.45	247	1.11	213	1.02
Cantabria	763	0.69	571	0.55	94	0.42	70	0.34
Community of León	6,955	6.29	6,203	5.98	1,017	4.58	957	4.59
Community of La Mancha	6,228	5.63	5197	5.01	852	3.84	803	3.85
Catalonia	13,428	12.14	10,508	10.13	1,723	7.76	1658	7.94
Community of Valencia	0	0.00	1,390	1.34	228	1.03	199	0.95
Extremadura	689	0.62	446	0.43	73	0.33	55	0.26
Galicia	5,841	5.28	5612	5.41	920	4.15	845	4.05
Madrid	19,510	17.64	17,334	16.71	2,842	12.80	2712	13.00
Murcia	0	0.00	1,162	1.12	190	0.86	165	0.79
Navarre	409	0.37	633	0.61	104	0.47	75	0.36
Basque Country	4,589	4.15	5238	5.05	859	3.87	799	3.83
Rioja	2,072	1.87	1,712	1.65	281	1.26	240	1.15
Ceuta	339	0.31	218	0.21	36	0.16	21	0.10
Total	110,586	100	103,732	100	22,195	100	20,869	100
Survey sample			180		158		160	

Note: Official data of home care benefits from the Ministry of Health, Social Services and Equality corresponding to June 2011 and own imputations of public home care benefits for wave 4.

Table A5. Preference of informal caregivers by Autonomous Community (2004)

	Public Administrations should		In case of needing care in the future, would prefer	
	Develop home care services	Reward informal care with a monthly wage	Care from family	Care from public home care
Andalusia	34.86	40.54	66.49	5.68
Aragón	44.83	10.34	58.62	5.17
Asturias	23.68	34.21	78.95	2.63
Balearic Islands	54.55	18.18	63.64	36.36
Canary Islands	68.52	14.81	72.22	5.56
Cantabria	44.44	38.89	77.78	5.56
Community of León	52.78	23.61	68.06	2.78
Community of La Mancha	46.15	23.08	65.38	13.46
Catalonia	32.89	42.76	62.50	9.87
Community of Valencia	40.39	32.55	65.88	14.51
Extremadura	42.55	29.79	59.57	2.13
Galicia	36.50	32.85	71.53	8.03
Madrid	35.58	13.46	63.46	11.54
Murcia	19.15	31.91	63.83	2.13
Navarra	81.82	32.15	45.45	18.18
P. Vasco	28.21	30.77	52.56	20.51

Test of equality of means between socialist regions and non-socialist regions

	t-statistic	p-value
H0: Preference: Public Administration should develop home care services	t_{14}= 0.0591	0.9537
H0: Preference: Public Administration should reward informal care with a monthly wage	t_{14}= 0.5293	0.6049
H0: In case of need in the future: receive care from family	t_{14}= 0.2530	0.8039
H0: In case of need in the future: receive care from home care	t_{14}= 1.1662	0.2630

Source: own work using Informal Support Survey (IMSERSO, 2004).
Socialist regions in 2004: Andalusia, Aragón, Cantabria, Community of La Mancha and Extremadura.

Table A6. Voting percentages to the socialist party in regional elections.

	Wave 1	Wave 2		Wave 4	Wave 5
	2004	2006	2007	2011	2013
Andalusia	51.07	51.07	51.07	48.41	39.52
Aragón	37.91	37.91	41.03	41.03	21.41
Asturias	40.30	40.30	42.04	42.04	26.45
Balearic Islands	24.60	24.60	31.75	31.75	18.94
Canary Islands	25.50	25.50	34.72	34.72	19.96
Cantabria	29.91	29.91	24.33	24.33	14.01
Community of León	36.74	36.74	37.49	37.49	37.77
Community of La Mancha	57.81	57.81	51.92	51.92	36.11
Catalonia	31.16	31.16	27.38	18.32	14.43
Community of Valencia	46.92	46.92	34.49	34.49	20.30
Extremadura	51.62	51.62	52.90	52.90	41.50
Galicia	22.20	33.64	33.64	31.02	20.61
Madrid	33.46	33.46	33.47	33.47	25.44
Murcia	34.03	34.03	31.81	31.81	23.96
Navarra	21.14	21.14	22.40	22.40	13.43
P. Vasco	17.90	22.68	22.68	30.70	19.14
Rioja	38.29	38.29	40.47	40.47	26.70
Ceuta	8.76	8.76	8.71	8.71	11.70
Melilla	11.92	11.92	18.49	18.49	8.44

Source: own work using http://www.congreso.es/consti/elecciones/autonomicas/
Aragón, Asturias, Balearic Islands, Canary Islands, Cantabria, Community of León, Community of La Mancha, Community of Valencia, Extremadura, Madrid, Murcia, Navarra, La Rioja, Ceuta and Melilla:

- Results from regional elections May 25th 2003 have been applied to waves 1 and 2.
- Results from regional elections May 27th 2007 have been applied to wave 4.
- Results from regional elections May 22th 2011 have been applied to wave 5.

Andalusia:

- Results from regional elections March 14th 2004 have been applied to waves 1 and 2.
- Results from regional elections March 9th 2008 have been applied to wave 4.
- Results from regional election March 25th 2012 have been applied to wave 5.

Catalonia

- Results from regional elections November 16th 2003 have been applied to wave 1 and wave 2 (only 2006).
- Results from regional elections November 1st 2006 have been applied to wave 2 (only 2007).
- Results from regional elections November 28th 2010 have been applied to wave 1
- Results from regional elections November 25th 2012 have been applied to wave 5.

Basque Country

- Results from May 13th 2001 have been applied to wave 1.
- Results from regional elections April 17th 2005 have been applied to wave 2.
- Results from regional elections March 1st 2009 have been applied to wave 4.
- Results from regional elections October 21st 2012 have been applied to wave 5.

Galicia

- Results from October 21st 2001 have been applied to wave 1.
- Results from regional elections June 19th 2005 have been applied to wave 2.
- Results from regional elections March 1st 2009 have been applied to wave 4.
- Results from regional elections October 21st 2012 have been applied to wave 5.

Table A7. Average subsidy and number of beneficiaries

	2007		2011		2013	
	Subsidy (€/month)	Beneficiaries (%)	Subsidy (€/month)	Beneficiaries (%)	Subsidy (€/month)	Beneficiaries (%)
High dependency. Level 2	487	88.98	520.69	17.54	442.59	13.95
High dependency. Level 2	390	11.02	416.98	25.40	354.43	22.63
Severe dependency. Level 2			337.25	17.66	286.66	17.14
Severe dependency. Level 2			300.90	24.50	255.77	26.05
Moderate dep. Level 2			180.00	14.90	153.00	13.61
High dependency(*)					387.64	2.91
Severe dependency(*)					268.79	3.71
Average Careg. Allow.	476.31		357.34		299.78	

Source: Real Decreto 727/2007, June 8th; Real Decreto 570/2011, April 20th; and, Real Decreto-Ley 20/2012, July 13th.
(*) The reform implemented in 2012 unified levels inside the same degree of dependency. Therefore, new beneficiaries were only qualified as high dependents, severe dependents or moderate dependents.
The distribution of beneficiaries by dependency degree corresponds to May 2008 (the most recent data available at the System of Information of the SAAD), June 2011 and June 2013 (to gather an average perspective of the distribution at mid-year).
http://www.dependencia.imserso.gob.es/dependencia_01/index.htm

Appendix B. First stage estimates

Table B1. First Stage Estimates. Three different specifications of instrumental variables proposed. Option a) is used for estimations reported on Tables 2, 3 4 and 5.

	Disability allowance	Subsidy	Home care support before SAAD	Home care support after SAAD
Option a) : instruments used are support to socialist party and home care characteristics in 2004				
Support to socialist party	-0.0069***	-0.0321**	0.0015***	0.0551***
	(0.0014)	(0.0007)	(0.0003)	(0.0017)
Home care coverage index (2004)	-0.0023***	-0.0088***	0.0377***	0.0684***
	(0.0007)	(0.0025)	(0.0107)	(0.0149)
Home care hours per month (2004)	-0.0010**	-0.0029***	0.0014**	0.0098***
	(0.0005)	(0.0009)	(0.0003)	(0.0029)
Home care cost per hour (2004)	0.0016***	0.0013**	-0.0167**	-0.0196***
	(0.0004)	(0.0005)	(0.0063)	(0.0054)
Constant	0.4145***	0.2458***	0.7118***	0.4676**
	(0.1075)	(0.0442)	(0.1066)	(0.1093)
N	10,504	10,504	10,504	10,504
F	21.301	54.951	32.287	34.504
p-value	0.0747	0.0002	0.0133	0.0085
Kleibergen-Paap rk LM statistic	9.734	10.823	9.520	9.561
F-test of excluded instruments	17.985	17.233	18.128	19.089
Partial R2	0.345	0.401	0.378	0.328
Partial R2	0.345	0.401	0.378	0.328
Cragg-Donald statistic	21.435	19.874	20.390	17.389
Kleibergen–Paap rk Wald F statistic	17.451	18.348	19.419	17.181
Option b) : instruments used are a) instruments and number of coresident daughters				
Support to socialist party	-0.0077***	-0.0327***	0.0017***	0.0549***
	(0.0014)	(0.0008)	(0.0003)	(0.0003)
Home care coverage index (2004)	0.0017***	-0.0087***	0.0382***	0.0761***
	(0.0007)	(0.0019)	(0.0110)	(0.0186)
Home care hours per month (2004)	-0.0013**	-0.0023***	0.0014***	-0.0090***
	(0.0004)	(0.0004)	(0.0003)	(0.0018)
Home care cost per hour (2004)	0.0011***	0.0017***	-0.0161**	-0.0177***
	(0.0003)	(0.0003)	(0.0060)	(0.0052)
Number of coresident daughters	0.0216***	0.0147***	-0.0019**	-0.0078***
	(0.0039)	(0.0027)	(0.006)	(0.0019)
Constant	0.3990***	0.2349***	0.7123**	0.6934***
	(0.1068)	(0.0525)	(0.3075)	(0.2287)
N	10,504	10,504	10,504	10,504
F	80.129	86.550	25.743	48.169
p-value	0.0000	0.0000	0.0274	0.0003
Kleibergen-Paap rk LM statistic	10.167	10.894	9.541	8.098
F-test of excluded instruments	18.240	17.863	18.727	19.415
Partial R2	0.356	0.422	0.384	0.345
Cragg-Donald statistic	21.234	19.912	20.311	18.783
Sargan Jansen J statistic	1.678	1.341	2.091	0.987
Kleibergen–Paap rk Wald F statistic	17.715	18.659	20.013	17.581
Sargan Jansen J statistic	1.513	1.217	1.891	1.003
Option c) : instruments are a) instruments and coresident daughters who have not recently moved				
Support to socialist party	-0.0086***	-0.0322***	0.0057***	0.0515***
	(0.0025)	(0.0006)	(0.0017)	(0.0003)
Home care coverage index (2004)	-0.0021***	-0.0086***	0.0408***	0.0751***
	(0.0008)	(0.0021)	(0.0137)	(0.0200)
Home care hours per month (2004)	-0.0020***	-0.0025***	0.0013***	0.0092***
	(0.0003)	(0.0006)	(0.0003)	(0.0019)
Home care cost per hour (2004)	-0.0013***	-0.0017***	0.0165***	0.0195***
	(0.0003)	(0.0003)	(0.0063)	(0.0044)
Coresident daughters who have not recently moved	0.0242**	0.0181***	-0.0035***	-0.0098**
	(0.0049)	(0.0072)	(0.0009)	(0.0024)
Constant	0.4676***	0.1948***	0.7548***	0.4731***
	(0.1113)	(0.0367)	(0.2042)	(0.1086)
N	10,504	10,504	10,504	10,504
F	35.427	69.779	34.988	37.803

p-value	0.0034	0.0000	0.0046	0.0022
Kleibergen-Paap rk LM statistic	10.823	11.564	9.109	8.723
F-test of excluded instruments	18.378	17.902	18.918	19.727
Partial R2	0.351	0.412	0.384	0.333
Cragg-Donald Wald statistic	21.781	20.212	20.898	18.914
Kleibergen–Paap rk Wald F statistic	17.771	18.904	20.005	18.413
Sargan Jansen J statistic	1.678	1.341	2.091	0.987

Stock–Yogo critical values for partial F statistics are 6.46 for 10% and 4.36 for 15% maximal relative bias. Stock–Yogo critical values for weak identification tests (used for Cragg–Donald Wald and are Kleibergen-Paap rk Wald F statistics) are 5.44 for 10% and 3.81 for 15% maximal relative bias.