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National Care System in Uruguay

Who benefits and who pays?

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Abstract: In this paper, we analyse two specific policies that make up the National Care System, a social policy being implemented in Uruguay. Through the calibration of a static tax benefit model, we estimate the distributive impact of the expansion of childcare services and home-based care for dependent elderly, both financed through a progressive direct tax on income. We discuss the importance of identifying who benefits from these services, and show that, in the Uruguayan case, the redistributive impact is very limited. Even if the benefits are significant for individual households, the overall impact is weak because the number of beneficiaries is small.

Keywords: childcare, elderly care, redistribution, microsimulation
JEL classification: D31, I38, J13

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1 Introduction

Social protection systems in developed countries have made important efforts to extend childcare and elderly care services, based on different rationales for these initiatives. In the case of childcare services, there may be different arguments for their provision. On the one hand, there is abundant evidence on the importance of early years of life in terms of individual health and cognitive, social, and emotional development. On the other hand, childcare services may be seen as an instrument to activate labour markets and pursue gender equality, through the rise in participation rates of female labour force. In the case of elderly care, the increase in life expectancy implies higher probabilities of older people needing help in order to lead satisfactory lives. The rationale for this policy, however, is based not only in the objective of improving living standards of elderly people but also aims at relieving their relatives from the burden of permanent care in advanced stages of life.

The importance that this kind of intervention has acquired in developed countries has led some authors to identify a shift from a social welfare state to a social investment state, and from passive protection to activation. The idea is that these new interventions try to cope with new social risks, associated with new groups such as the young, the low skilled, and women, as opposed to traditional risks as old age or unemployment, associated with the protection of male breadwinners (Cantillon 2011; Morel et al. 2012). There is an ongoing discussion about the rationale for these interventions and the need to complement it with more traditional forms of social protection to guarantee the protection of vulnerable groups (Cantillon and Van Lancker 2013; Esping-Andersen et al. 2002). Although social investment interventions do not necessarily mean a crowding out from spending on traditional risks, this apparent shift raises the question about the redistributive impact of these new interventions, or even more puzzling, how to evaluate the effects of these policies on redistributive terms (Vaalavuo 2013; Van Kersbergen and Hemerijck 2012).[1]

Experiences of this kind of policies in developing countries are scarce, even more the analysis and the accumulation about their role in developing contexts. In recent years, the turn towards the social investment state—instead of social welfare—has promoted an incipient corpus of research directed to evaluating the income distribution impact of the new wave of programmes. This type of analysis raises a range of methodological issues related to how to value public services and how to allocate this value among households. Despite these limitations, they provide useful information about the effects of public services. On that note, the extension of childcare services has been found to reduce income inequality (among others, see Hufkens et al. 2015; Matsaganis and Verbist 2009; Vaalavuo 2013). However, these results depend heavily on who uses the services and the tariff structure (Van Lancker and Ghysels 2012). In every case, the impact is relatively small compared with traditional welfare state spending, though it may be more equal or pro-poor (Vaalavuo 2013). Less research has been carried out for elderly care services, although scarce existing results seem to be in the same line as the ones for childcare (see Vaalavuo 2011, 2013).

Previous research on the subject for Uruguay has shown the important gender gaps in the provision of care (e.g. Aguirre 2009; Salvador 2007) as well as its importance regarding employment (Aguirre 2013) and economic value in terms of gross domestic product (GDP)

[1] It has even been argued that the growing interest of European economies in social interventions in the fields of childcare, education, and elderly care with a view to enhancing people's ability to work and balance work and family life has meant a step back in more traditional policies like the direct provision of economic maintenance, and that this has had consequences in terms of poverty and inequality indicators (Cantillon 2011).

(Salvador 2009). Several other studies have analysed the potential effects of these kinds of policies on the female labour force, on assistance to childcare, and on education services and equity (Araya et al. 2011; Mullin and Vairo 2015; Nollenberger and Perazzo 2016; Tenenbaum 2011; Vairo 2014).[2]

In this paper, we consider the potential impacts of a policy in the process of implementation in Uruguay, known as the National Care System (NCS). It includes childcare and elderly care for dependents. The policy also includes care services for people with disabilities, but the analysis we present in this paper does not cover this population. We mainly aim at discussing the distributional impact of this policy, through the calibration of a static tax benefit model. Specifically, we estimate the impact of two alternative scenarios that reflect different allocation alternatives of childcare and preschool beneficiaries. The analysis we present is a first approximation in that it considers only the first round of effects, excluding long-term redistributive effects that may arise from increases in labour supply and, consequently, household income. A crucial point of our analysis and results, and conceptually a crucial point in the design of the policy, refers to which households, intentionally or not, benefit by the policy. Another important aspect refers to the discussion and evaluation of the benefits of this kind of intervention. To our knowledge, this is the first study to consider the distributional impact of the programmes to be implemented and to analyse the joint impact of the initiatives for children and the elderly.

The paper is organized as follows: Section 2 presents the main characteristics of the NCS; Section 3 presents our methodology and the policy scenarios; Section 4 presents our main results and a discussion is elaborated in the concluding Section 5.

2 The NCS and the baseline situation

The NCS has been signalled as the main social policy of the new administration that took office in Uruguay in 2015. Its objective is to expand available care services for the dependent population, including children, people with disabilities, and the elderly, and to create new services. Here, we first describe the main characteristic of the intervention, and then the situation in terms of coverage of the eligible population considered in this paper (children and dependent elderly). Care services for people with disabilities are not considered in our distributional analysis because of the lack of suitable statistical information.

2.1 NCS

Immediately after taking office in March 2015, the new President of Uruguay Tabaré Vázquez announced the implementation of the NCS as his flagship policy. This announcement was the outcome of a process that began during the previous government of the same political party (Frente Amplio, a centre-left coalition). In effect, during 2010 several political and social actors committed to the idea of including care within the boundaries of social policies formed a group that worked on this issue during five years.[3] As a result of this intense work, many reports and

[2] In the region, the effects of expansions on childcare centres on female labour force participation have been studied for the Chilean case, although no significant effects for low-income women were found (Encina and Martínez 2009; Medrano 2009). Berlinski and Galiani (2007) found a positive and significant effect of pre-primary school expansion on mother's labour supply for Argentina.

[3] This group was composed of the directors of several government agencies, mainly from the Ministry of Social Development, including the minister, as well as political women from the executive and legislative powers. The group

papers contributed to delineate the possible design of NCS. The consideration of the tension between increasing female labour force participation and care responsibilities—primarily taken by women—was an important argument during discussions. The promotion of social co-responsibility in care giving was at the basis of the initiative, which also aimed at reducing gender inequalities in the burden of care. A synthesis of this discussion can be found in MIDES (2014) and the current policy design can be found in Junta Nacional de Cuidados (2015) and in the preamble to the 2015 Budget Law (see MEF 2015).

For the NCS, dependent population consists of children aged 0–12 years—prioritizing those aged 0–3 years—and people with disabilities and the elderly who are not autonomous in their daily lives. In this sense, Uruguay aims at merging two major libraries (dependency and care) in one single policy. The initiative is not only innovative but also ambitious, especially for a developing country like Uruguay that, despite belonging to the group of high-income countries,[4] still faces many financial constraints. For younger children, the policy basically consists of the expansion of childcare services, whereas for the dependent disabled and elderly, the service consists of the provision of home-based paid care.

The NCS pretends to emerge as a new sector in the Uruguayan social protection matrix, jointly with education, health, and social security. In that sense, it is based on the notion that care is a universal right that the public sector should recognize and safeguard. This intervention can be seen as part of what many authors have called a new social policy approach, which focuses on policies in the fields of childcare, education, and elderly care with a view to enhancing people's ability to work and balance work and family life. In a way, it is an 'activating', 'enabling', or 'developmental' welfare state that focuses on investment rather than on direct provision of economic maintenance (see Cantillon 2011; Morel et al. 2012).

The guiding principles of the NCS include a universal approach, quality of services, and gender equity (see MIDES 2014). The system involves the creation and expansion of services for the dependent population, regulation improvements, and the development of a specific training strategy for current and future personnel. The new policy has a universal claim but foresees a gradual implementation. In this first stage (until 2020), the aim is to install and develop diverse programmes directed towards the dependent population but targeting the benefits to a reduced group based on their needs.

The 2015 Budget Law sent to congress covers up to the year 2017 and sets additional resources for the NCS and coverage goals. However, it does not include any new tax revenue to finance the proposed expansion of the NCS. Instead, the law bases the funding of the new programmes on the product of economic growth. The estimated annual additional resources approved for 2017 are USD 67 million (prices of January 2015); more than a third of it is allocated for early childhood (Table 1).

worked in close relation with academics specialized in gender studies, as well as civil society representatives, mostly from the feminist movement. This experience has been analysed by Aguirre and Ferrari (2014).

[4] For current country classification by income, see World Bank (2016).

Table 1: Additional National Care System (NCS) resources by demographic dependent group

	Additional resources for 2017 (USD millions)	Percentage
Early childhood	24	36
Elderly	20	29
People with disabilities	15	22
Management	8	12
Total	67	100

Source: MEF (2015).

The ongoing process of ageing in Uruguay sets a constraint in the long term: not only the number of potential beneficiaries will increase, but also labour force participation will decrease.[5] This sets a challenge to the funding of the policy. Different approaches to face these challenges are discussed in MIDES (2014): increases in payroll taxes, higher income, and value added taxes, and the creation of a mandatory insurance are discussed and balanced, although their redistributive implications are not analysed. Another issue, not considered in this paper, is the availability of qualified human resources needed for the implementation of the programmes, not only in the long term but also for the first stage.

2.2 Childcare services and the elderly dependent population

In Uruguay, childcare and education are separate policy areas, both depending on the national government. Pre-primary education starts at 3 years of age, but is compulsory from 4 years. Primary school starts at 6 years. For children aged between 1 and 3 years, childcare is available through a wide variety of public and private services. The main public service is Plan CAIF, a programme that emerged in the late 1980s with a clear target of serving vulnerable children. Public preschool and childcare are free of charge and state funded, although childcare is privately organized. The accreditation and supervision of private services is a competence of the education department depending on the central government.

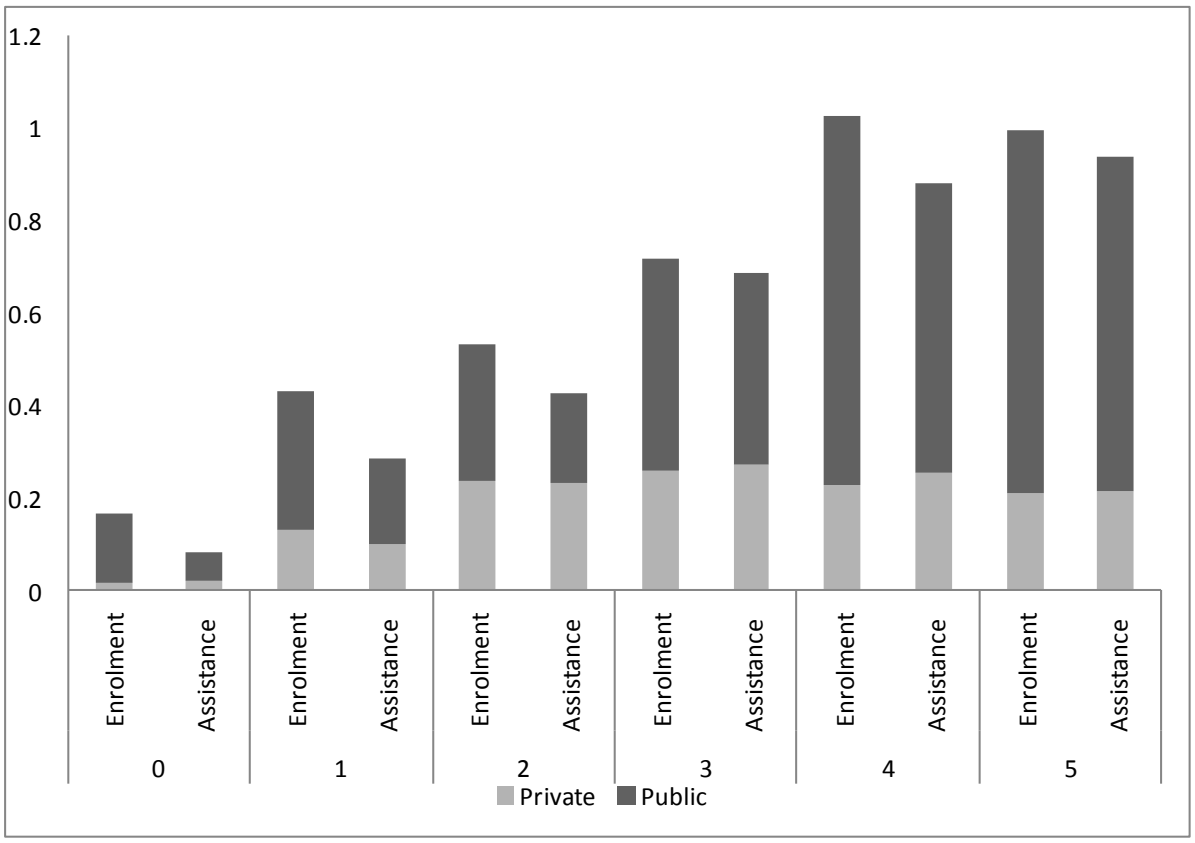
Public childcare services at Plan CAIF offer day care for children aged between 2 and 3 years, and an incipient service is proposed for 1 year olds. They also provide weekly childrearing and child development guidelines' workshops for families with babies and toddlers (below 2 years of age). Originally, the daily services covered 4 hours a day and are now expanding to cover 6 and 8 hours per day. Public preschool started to expand in the 1990s to cover children aged 4 and 5 years and is currently committed to universal coverage for 3 year olds.

Figure 1 shows the enrolment and assistance rates by age for day care and preschool at public and private services. For 3 year olds, both types of service (day care and preschool) overlap, so the rates refer to the global coverage. The rates increase with age, as well as the weight of public provision; 42 per cent of children aged between 1 and 3 years use childcare or preschool centres on a daily basis, with relevant differences by age (13 per cent of 1 year olds, 42 per cent of 2 year olds, and 69 per cent of 3 year olds). The difference between enrolment and assistance is only significant in the public sector, and decreases as the global coverage rises with age. For 1 year olds the assistance rate represents only 51 per cent of the enrolment rate for public provision, whereas this figure is 89 per cent for 3 year olds. In other words, the relationship between assistance and enrolment converges as children are older, and the original divergence is only present in the public sector. This has to do with the nature of both variables, but it is also related to the organization of the sector. Enrolment reflects decisions taken by families at the beginning of the year regarding

[5] Amarante and Colacce (2015) show that—*ceteris paribus*—the labour force participation rate will decrease by 4 points by 2050 as a result of demographic changes.

their intentions to send the child to the service, whereas assistance reflects the actual behaviour of families regarding the child's actual attendance to the service. Although in the private sector enrolment is subject to a payment, this is not the case in the public sector, and so parents may reserve a place even if they do not end up using it. On the other hand, by enrolling a child Plan CAIF's centres get an amount of resources from the government, and actual assistance is not controlled. This is a relevant point for this research, as the objectives in terms of coverage expansion are different if they are set considering the baseline scenario in terms of assistance or enrolment.

Figure 1: Enrolment and assistance rates, by age and type of provision (2014)



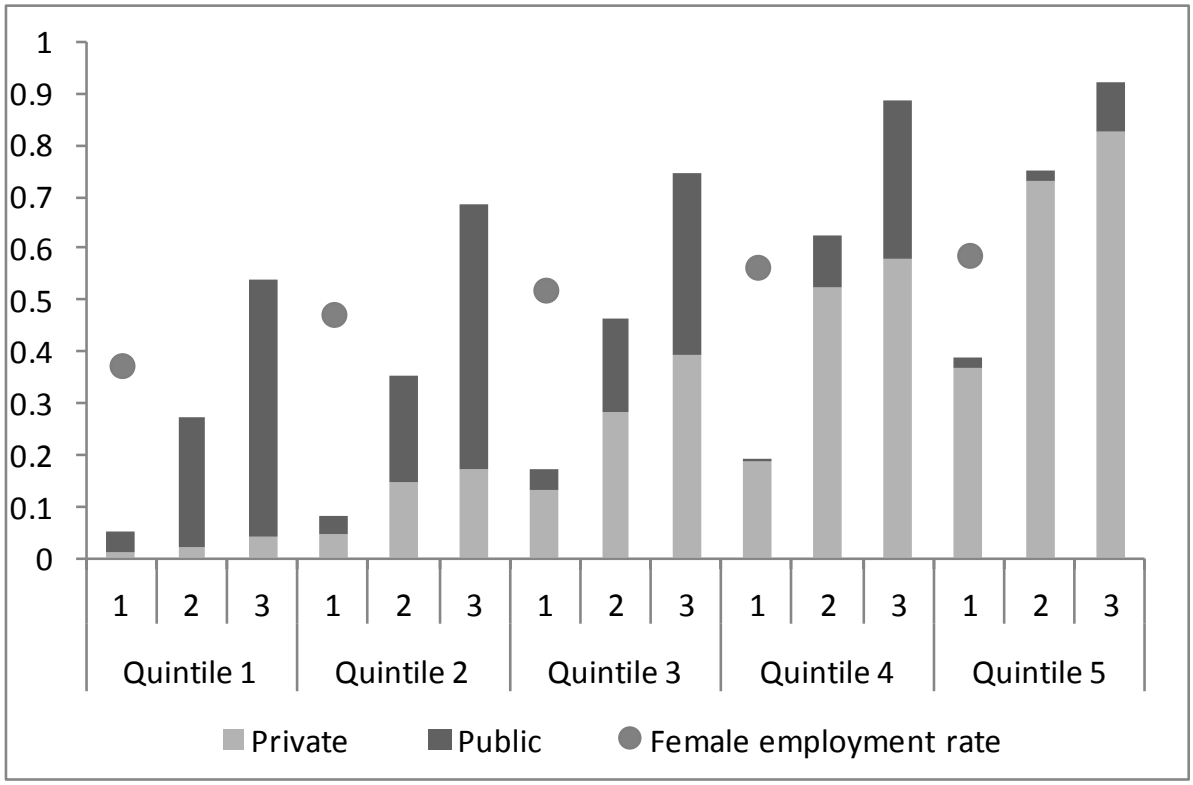
Note: Both rates include CAIF's family workshops for 0 and 1.

Source: Enrolment rates based on MEC (2015) and assistance rates are authors' calculations based on the Continuous Household Survey (INE 2014).

As expected, assistance rates hide important differences between income groups (see Figure 2). Considering only those households with children aged between 1 and 3 years, these rates are significantly higher among the better-off households, which concentrate their use in the private sector, whereas in the lowest quintiles the rates are lower and the public sector is predominant. At the same time, female employment increases with income, presenting an important socioeconomic stratification. The correlation between female employment and childcare has been a debated issue in economic studies (e.g. see Baker et al. 2008; Cascio 2009; Del Boca et al. 2009). In effect, the obvious correlation between female employment and child assistance rate may suggest that publicly provided or subsidized childcare may induce increases in female employment, but it is also possible that these policies may crowd out other forms of care, resulting in smaller increases in employment than expected (see Havnes and Mogstad 2011). In Uruguay, an impact evaluation of an expansion of public preschool places for children aged 4 and 5 years during the 1990s indicates that it crowded out the attendance to private schools, particularly among children of high-skilled mothers. Among children of low-skilled mothers, attendance increased, but the policy did not have

any effect on mother's labour market outcomes (Nollenberger and Perazzo 2016). These results are important for the discussion about the potential impacts of NCS in terms of female employment.

Figure 2: Age-specific assistance rates and female employment rate by per-capita income quintile (2014)



Note: Assistance rates do not include CAIF's family workshops for 1.

Source: Authors' calculation based on the Continuous Household Survey (INE 2014).

Turning to the elderly, public care services are a very recent development. Besides some examples of institutional elderly care, the first programme intended to address care of dependent elderly—Programme 'Asistentes Personales'—was implemented in 2014, and it had a very small coverage. On the contrary, the pension system and the health system have almost universal coverage in Uruguay and the quality is beyond reasonable for the region. In Uruguay, people aged over 64 years have better incomes than the average, and this age group exhibits the lowest poverty rates (INE 2016).

The NCS has distinguished four levels of dependency based on the capacity of the person to perform certain daily life activities without help: non-dependent, mild dependency, moderate dependency, and severe dependency. Following the objectives of the NCS in this first stage, this paper focuses on severe dependency.

Severe dependency is not a massive issue: it affects 3.1 per cent of people aged 65 years and above (Table 2). The incidence is significantly higher among those aged 85 years or more, which poses a threat for the future of social policies in an ageing context. Population projections forecast a rapid increase in the proportion of the elderly, but the most salient feature is the increase in the higher age group. This implies that, even if the dependency rate does not change, the importance of the severely dependent in the population may be significant by 2050.

Table 2: Severe dependency rate and share by age group (2013)

Age groups (years)	Severe dependency rate (%)	Distribution of severely dependent (%)
65–69	1.3	12
70–74	2.3	18
75–79	3.2	20
80–84	3.7	18
85 and above	7.8	32
Total	3.1	100

Source: Authors' calculations based on the Longitudinal Social Protection Survey (BPS and IDB 2013).

Owing to imputation procedures detailed in Section 3.2, the income distribution of the severely dependent follows that of the elderly. This implies that about one third of them belong to households of the richer quintile and only 5 per cent to those of the poorer one. It drives from this procedure that the incidence of severe dependency is similar among all the income groups, which may introduce some bias to our results. The relationship between income and dependency is not clear, but previous research indicates higher rates of disability in poorer households (Bagnato et al. 2011). This may not stand so clearly for the elderly, as life expectancy is lower for people who belong to vulnerable households whereas old-age dependency is highly age-related.[6]

3 Methodology

In this section, we describe the main elements of the methodology used to assess the distributional impact of the NCS. We first describe the general features of our tax benefit model. Then we turn to the selection of the beneficiaries of the programme and the valuation of benefits. Finally, we discuss the changes needed in tax liabilities to fund the implementation of the NCS. Both the benefits and the taxes respond to the incremental changes in the policies implemented.

3.1 Tax benefit model

Given that our objective is to analyse the impact of specific programmes of the NCS on the budget of affected households, we calibrate a static tax benefit model. It consists of applying a set of rules that define the social programmes involved and its funding to a representative sample of micro units or households. By doing so, we can consider the impact of the policy on outcome variables along the income strata, as well as identify winners and losers from this intervention.

Vaalavuo (2013) outlines the main concerns regarding the link between public services and redistribution. First, redistribution is not always the rationale of the public services, at least not vertical redistribution. When turning to the estimation, the identification of who benefits may be difficult to determine primarily because of externalities and different impacts in time and place. Following the literature, we will treat public services as cash transfers: this basically consists of giving them a monetary value and assigning this value to the person who uses the service.

[6] The only source of information that may unveil some clues about this relationship is the Longitudinal Social Protection Survey, a recent survey showing that the severe dependency rate has little variation by income group (defined in Decree No. 117.016; see Government of Uruguay 2016), although it is higher for the lower- and the higher-income groups (see BPS and IDB 2013). However, there are some doubts about the quality of the income information of this survey as it presents significant differences compared with the validated information from the household survey.

Building a static tax benefit model implies different steps. In our case, as available datasets collect information on net income (after social contributions and taxes), the first step consists of calculating gross income by applying the rules of social contributions and taxes to net incomes. This type of exercise has already been done for the analysis of different policies in Uruguay (e.g. see Amarante et al. 2007, 2012a, 2014).

The second step consists of identifying potential beneficiaries from the NCS and estimating the benefits in order to move from disposable income to a household's extended income, which includes the value of in-kind and cash transfers. These two issues—identification of beneficiaries and valuation of in-kind transfers—are the basis of the imputation method. We discuss here the conceptual elements of these decisions, turning to the details of the application in Section 3.2.

Regarding the valuation, we use the cost of production of the service, a usual option in the literature (e.g. see Hufkens et al. 2015; Marical et al. 2008; Vaalavuo 2009, 2011, 2013). Another alternative is the price the individual is willing to pay for the service—utility value—or its market value (Smeeding 1977). Smeeding and Moon (1980) test these alternatives and conclude the best alternative is to use the utility value, although the empirical results show little differences between the three methods. The use of the cost of production may overestimate the impact on well-being as some households prefer to receive a smaller cash transfer instead of the access to a free public service. Moreover, all the inefficiencies involved in the provision of the public service are considered a benefit for the users. An important assumption of this method is that the value is the same for every household. Poorer households may have a lower value for a service because they prefer receiving the monetary benefit (Smeeding 1977). This implies that equity effects of the public service may be exaggerated when using uniform valuations. Finally, public expenditure does not reveal the real quantity and quality of the services provided. Within countries this leads to a pro-rich bias, due to territorial segregation of the quality of services (Hufkens et al. 2015). Despite the criticisms, the cost of production is the most extended way to value the benefits; it is the standard way of dealing with in-kind transfers and in our case it is the only available option.

Our analysis is incremental, meaning that we do not take into account the previous state of the individual, adding the valuation of the benefit to the gross income of the beneficiary's household, regardless of their current provision of the service. This is especially relevant for the case of infants, as there is an important coverage of public childcare and the in-kind transfer is not considered to be income in the baseline situation.

We identify as NCS beneficiaries those people who actually used the system in the reference year, not those who can make use of it at some point in their life. In this sense, we are considering a static and dichotomous point of view for the identification of beneficiaries, especially when we consider winners and losers. For example, consider a young couple. They will not be identified as beneficiaries as long as they have no kids, but it is most likely that they will eventually become users of the system, and benefit from childcare services when they have a child. In a life cycle perspective, it is highly probable that everyone will get to use the NCS at one point in life, as a direct beneficiary or as a parent, son, or daughter of one. In any case, the approach chosen presents a lower bound for the winners. Vaalavuo (2009: 16) states that the period of analysis may be an especially important issue in public services 'since most individuals benefit from the services in some phase of their lives'.

The final step consists of deducting the payments that each household has to comply with in order to finance the NCS, via increases in income tax (see Section 3.3 for a detail of the funding strategy).

The comparison of this final income vector with the original income at the baseline situation allows us to carry on our distributional analysis, as well as identifying winners and losers.[7]

Simulations are based on data for 2014. This is important in an ageing scenario, because the demographic trends will probably put pressure on the NCS with an important increase in the elderly and a reduction in the work force, as discussed before.

Data used for the analysis are taken from the Uruguayan Continuous Household Survey, a reference survey for income, living conditions, labour market, and education (see INE 2014). This is a national survey conducted every year by the National Statistical Institute, widely used and tested. As of 2014, it contains information on about 132,000 people in 49,000 households, and it is nationally representative. It provides information on the use of childcare and preschool services and accurate income data. Unfortunately, no information is available on dependency. We take this information from the Longitudinal Social Protection Survey (LSPS), combining both datasets as described in the following section (see BPS and IDB 2013). Additional data on costs of provision of the services are derived from the 2015 Budget Law.

3.2 Identification of beneficiaries and valuation of benefits

Individual identification of the beneficiaries is necessary in order to estimate the distributional impact of the NCS. We consider NCS programmes whose potential beneficiaries can be identified using the data available: childcare services (expansion of CAIF for children aged between 1 and 2 years), pre-primary expansion for 3 year olds, and home-based care for the dependent elderly. As mentioned, this implies leaving aside dependent people with disabilities, as the available information does not allow identifying the beneficiary population and simulating the policies directed towards them. According to the preamble to the 2015 Budget Law, the programmes that we are including in our analysis make up 53 per cent of the 2017 budget, with 68 per cent for children and 75 per cent for the elderly.

The specific expansion and coverage goals of the programmes for 2016 and 2017, as well as the global incremental costs of each programme, are described in the preamble to the 2015 Budget Law. More general and imprecise goals are established for 2020. Based on this information and further documentation of each programme—the organizational structure of CAIF (Plan CAIF 2015) and Decree No. 117.016 (Government of Uruguay 2016)—we construct the expansion simulation scenarios for 2020. Table 3 shows the number of beneficiaries, and the unitary and incremental costs, according to the goals established for 2020.

In the case of children, age-specific incremental coverage rates are proposed for 2020 in the 2015 Budget Law. To perform the simulation, we assume that all the expansion will be publicly provided and that all the places offered will be taken. This implies that the coverage expansion translates directly to public assistance rates. These assumptions might be very optimistic. On the one hand, the present coverage rates presented in the preamble to the 2015 Budget Law consider both private and public care provision. This suggests that the expansion goal might also take into account the private provision. On the other hand, enrolment and assistance rates nowadays differ substantially for these services, as discussed before (see Figure 1). The relevant in-kind transfer for distributional impact is related to assistance, not to enrolment. This means that not every new publicly provided

[7] In 2017, several changes in the income tax will be implemented. These changes are simulated on the base income in order to make the comparison more accurate.

place will be covered, diminishing the number of beneficiaries.[8] Table 4 shows the assistance rates before and after the simulation. The variation mimics the one in the preamble of the 2015 Budget Law (shown in the last column), except for 1 year olds, where the law includes the coverage corresponding to family workshops that are not considered in this paper.

Table 3: Number of beneficiaries, unitary costs, and annual incremental costs of each simulated programme, by age and income group

	Beneficiaries	Monthly unitary costs (USD)	Annual incremental costs (USD millions)
Early childhood education and care services			
Childcare services (CAIF)			
1 year	5886	462	33
2 years	7886	241	23
Preschool (ANEP)			
3 years	8408	175	18
Total	22,161	—	73
Elderly care			
Home-based care (personal assistants)			
Under 3 BPC	400	540	3
Between 3 and 6 BPC	3256	362	14
Between 6 and 11 BPC	3027	178	6
Over 11 BPC	1942	0	0
Total	8625		23
Grand total	30,786	—	96

Note: CAIF, Centros de Atención a la Infancia y la Familia; ANEP, Administración Nacional de Educación Pública; BPC, Base de Contribuciones y Pensiones.

Source: Authors' calculation based on the Continuous Household Survey (INE 2014) and official information.

Table 4: Assistance rate before and after simulation

Age (years)	Assistance rate before (%)	Assistance rate after (%)	Percentage point variation of simulation	Percentage point variation in Budget Law
1	13	25	13	17
2	42	58	17	17
3	69	87	18	18
Total	42	58	16	—

Source: Continuous Household Survey (INE 2014).

Once the number of beneficiaries has been defined, their allocation in the income distribution must be determined. The distributional impact is strongly dependent on the beneficiaries' income strata. However, the official information does not specify definite criteria to assign the new beneficiaries. The allocation of beneficiaries determines the scope of the intervention and the ambitions of universality, as discussed later. As stated in the literature, given that childcare acts as a precondition for maternal employment, it is reasonable to expect that the demand for these services will be higher among employed parents. The European experience shows that children from low-income families use childcare to a much lesser extent than children from high-income families, and the same holds for children having a low-skilled mother compared with children having a high-skilled mother (Cantillon 2011; Cantillon and Van Lancker 2013). Therefore, the identification of the beneficiaries of childcare services is a crucial point of our analysis, both in instrumental and in conceptual terms.

[8] If we consider that the distribution between public and private provision remains unchanged, the beneficiaries will be 58 per cent of the ones considered for the simulation. Alternatively, considering the current relationship between enrolment and assistance will imply 77 per cent of the beneficiaries.

For instrumental purposes, in order to estimate reasonable bounds for the impact, we rehearse two alternative allocations. The first one consists of assuming that beneficiaries will be selected based on their demand for childcare. To approximate this, we estimate a probit model for childcare assistance (public and private) and order the non-assistant children by the predicted probability of assistance.[9] The ones with higher probability (and not attending) are identified as beneficiaries until the number of beneficiaries by age is met. This model reflects the actual use of the available services, which implies higher probabilities for higher incomes. If universal provision is a desirable horizon, it is likely that the ones who are more willing to use care services will be the first in line when expansion is provided. As mentioned, a recent evaluation of preschool expansion during the 1990s showed a high rate of private to public switching, which implied a very low variation of the global assistance rate (Nollenberger and Perazzo 2016).

The second alternative assumes that selection will be defined upon vulnerability criteria, selecting the poorer children of each age. This is coherent with the traditional resource allocation in childcare, historically directed towards the worst-off households. However, the naïve implementation of this alternative, selecting the poorer children until the objective is met, is unrealistic because of geographical constraints. To make it operational, we use the territorial dimension of the childcare programmes, using the 'optimal selection' of the locations of the new care centres in order to meet income focalization. Botto and Detomasi (2015a) define the location of the new CAIF centres considering that the potential assistants live in a 1-kilometre radius and that at least 60 per cent of them belong to households eligible for the conditional cash transfer programme (Asignaciones Familiares-Plan de Equidad, AFAM-PE). For the expansion of preschool, a territorial view is also proposed by Botto and Detomasi (2015b), defining where the expansion should focus for better results, considering that it takes place in locations with enough 3-year-old children. Based on their work, we scale the total places offered by the new centres proposed to match the number of total beneficiaries defined in Table 3. Then, we select them randomly from the locations where the centres will be placed, considering the proportion of beneficiaries by age and the proportion of AFAM-PE that the theoretical beneficiaries had in each location.[10]

In both scenarios, we assume that all available places are taken by households with children willing to use the service. Nevertheless, the evidence from European countries shows that the cost and availability of childcare are not the only factors that facilitate the use of childcare services: cultural factors may also play a role (Del Bocca 2015). Previous research for Uruguay has suggested that the existence of strong family ties may prevent the use of childcare services for very young children (see Batthyány et al. 2013), although these aspects are not taken into account in this exercise.

Regarding the elderly, the preamble to the 2015 Budget Law proposes to achieve 60 per cent coverage of the severely dependent by 2020. The complexity at this stage relies on the identification of dependent people among the elderly, as dependency is not enquired in the household survey. Not every person above 64 years needs help to perform daily life activities such as bathing, eating, or shopping for groceries. To identify the possible beneficiaries, we turn to a recent survey (LSPS) that includes information about these issues. Considering a group of variables similar to the ones used by the programme to determine dependency ('Dependency baremo'), we construct a four-category index for people above 64 years: non-dependent, mild dependency, moderate

[9] The estimated model is presented in Appendix Table A1.

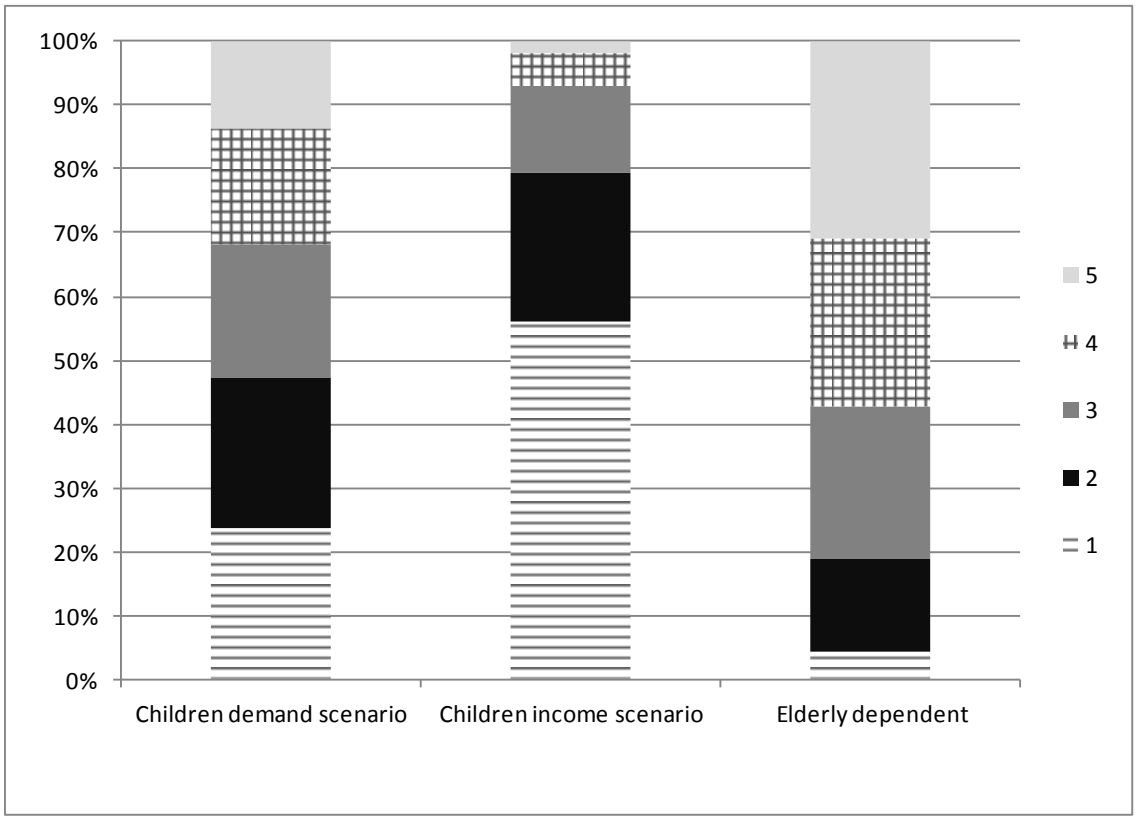
[10] For CAIF we use the census segment and for pre-primary we use the census segments selected in each department or the total department population if we cannot meet the total beneficiaries needed or the AFAM-PE proportion.

dependency, and severe dependency.[11] We apply the age group's severe dependency rate observed in LSPS to the household survey in order to identify the eligible population.

The selection of beneficiaries among the dependent is based on demographic and income criteria. We select 60 per cent of the dependent population assuming that the age and income group distribution is the same as for the total population of 65 years and above. The income groups are based on the thresholds that the programme establishes for the subsidy. The age and income distribution of the beneficiaries is presented in Appendix Table A2.

Figure 3 illustrates the distribution of the beneficiaries by quintile for children in both allocation alternatives and for the elderly. The impact on the programme on income distribution will depend directly on this allocation. The best potential distributive effects come from children, in both allocations, as their distribution is far more progressive than the one for the elderly. As a result of the generous pension system, the elderly tend to accumulate in the upper part of the distribution, whereas children are concentrated in the lower income strata. Relevant differences are found between the alternative scenarios of identification of childcare beneficiaries. As expected, in the demand alternative the distribution among income groups is almost uniform, whereas the vulnerability alternative prioritizes the poorer households (almost 60 per cent of the beneficiaries belong to the poorer 40 per cent).

Figure 3: Distribution of beneficiaries by income quintiles



Source: Authors' calculation based on the Continuous Household Survey (INE 2014).

[11] The original syntax for the construction of the index was provided by MIDES. MIDES (2015) evaluates the accuracy of this index using several data sources. They conclude that the estimation based on the ELPS is reasonably accurate for the identification of severe dependency.

Turning to the valuation of public services (childcare and preschool services), we follow the standard approach in the literature of transferring to the beneficiaries the average production costs of the service. As discussed before, this is a strong assumption, as it does not take into account the provision's quality and efficiency. Another relevant drawback is that we do not consider the intensity of use (number of hours), turning instead to average costs. The services are available for 4, 6, or 8 hours a day, but we do not have information about how many of the new places will be available in each modality.

We take the incremental budget and beneficiaries for each programme from the preamble to the 2015 Budget Law and calculate the unitary costs. This process is straightforward for preschool as it only refers to children aged 3 years. However, for childcare (1 and 2 year olds) we must take into account that the unitary costs for each age are different, as well as consider that for children aged 1 year the programme includes two modalities, daily care and a once-a-week workshop, but only the former is of interest for our paper. Considering the staff distribution of the programme between ages and the number of incremental beneficiaries in each age, we construct an age-specific unitary cost.[12] We deflate the costs using an appropriate index for each programme.[13]

The personal assistant programme is a cash transfer destined to hire an assistant. The subsidy is income dependent: there are four per-capita household income groups and the amount of subsidy decreases with income. Hence, we transfer to the beneficiaries the correspondent monetary subsidy. The complete subsidy is set at 4.6 monthly BPC.[14] The lower-income group receives the complete subsidy, the next group receives 67 per cent, the following receives 33 per cent, and no subsidy is assigned to the higher-income group.[15]

3.3 Funding strategy

We propose a funding strategy that meets the financial incremental requirements, which consists of increasing the income tax (i.e. individual income tax: Impuesto a la Renta de las Personas Físicas, IRPF; and social security and assistance tax: Impuesto a la Asistencia y Seguridad Social, IASS). To understand the scope of this strategy, we first briefly describe direct taxes in Uruguay.

Uruguay has a direct tax consisting of a dual personal income tax (i.e. IRPF) that combines a progressive tax schedule for labour income with a low flat tax rate on capital income. The labour income component of IRPF consists of seven marginal income tax rates ranging from 0 in the first bracket to 30 per cent in the upper one, with deductions. Pensions are taxed by a similar tax (i.e. IASS). Capital income is taxed at differential rates (from 3 to 12 per cent depending on the source). We propose an increase of 5 per cent in all the marginal rates of personal income tax to finance the incremental costs of the expansion of NCS.[16] Table 5 presents the total financial requirements and expected revenue from the change. Both are sized against GDP and against the

[12] We use as reference CAIF type D. Complete information about the structure and costs of each type can be found in Plan CAIF (2015). Further information about this construction is available from the authors upon request.

[13] For CAIF, we use the variation of UR between January 2015 and the average of 2014 and for preschool the variation of the public preschool and schoolteachers' salary taken from the household survey.

[14] Base de Contribuciones y Pensiones (BPC, base of pensions and contributions) is a monetary index that defines taxation and social benefits. We use the 2014 value, about USD 120 in 2014.

[15] The per-capita income defined for the first group is less than USD 358, the second group is between USD 358 and USD 716, the third between USD 716 and USD 1312, and the fourth more than USD 1312.

[16] Details on the IRPF can be found in Appendix Table A3.

main conditional cash transfer directed towards children in Uruguay (AFAM-PE). It is important to note that the programmes that we are simulating are equivalent to 0.2 per cent of GDP in 2014, and imply around half of the budget of AFAM-PE, a conditional cash transfer that has been proved to reduce inequality by 1 point of the Gini index in Uruguay (Amarante et al. 2012b).

Table 5: Scenarios for the analysis of NCS

	Tax variation	Tax revenue (USD millions)
Funding streams for income tax	5% increase in rates	91.7
Total financial requirements	96.3	
Total financial requirements % GDP	0.2	
Total financial requirements % of main CCT programme (AFAM-PE)	48	

Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

4 Results

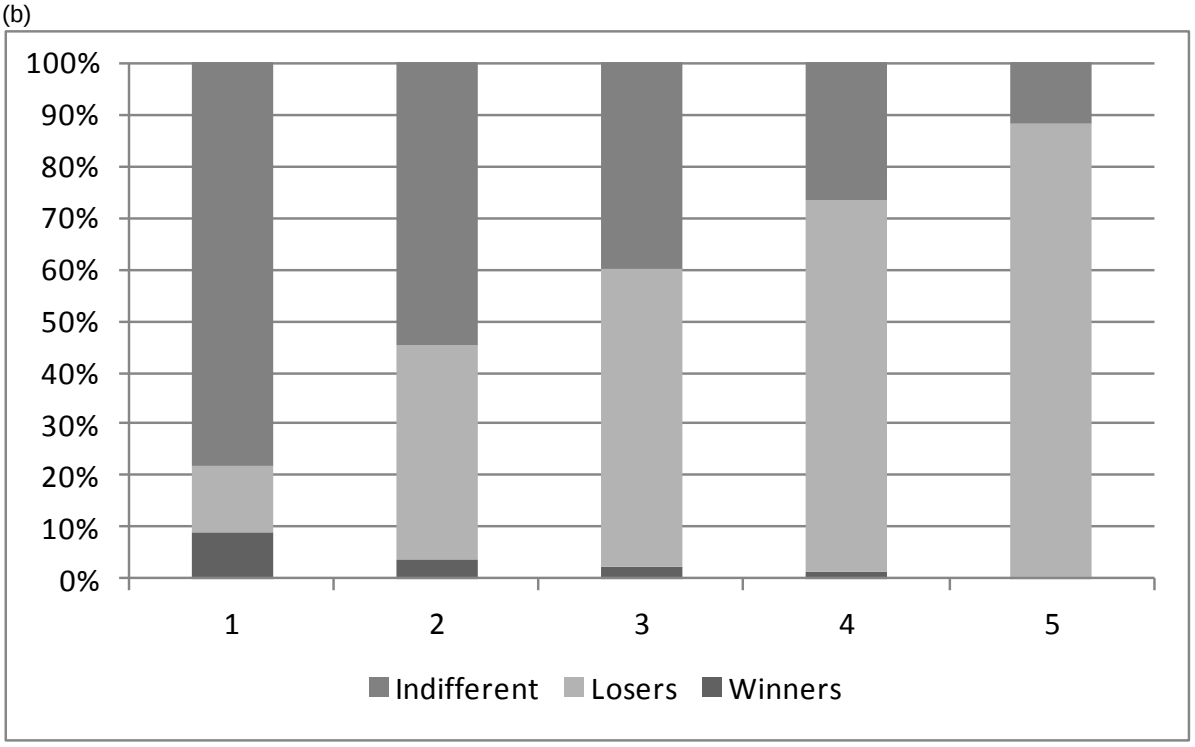
4.1 Winners and losers

The distribution of beneficiaries and contributors by income group defines a structure of winners and losers of the programmes simulated. Figure 4 shows the percentage of winners and losers (persons) by per-capita income quintiles for each alternative of beneficiaries' allocation (demand and vulnerability). In both cases, the winners are a very small part of the population (3 per cent), even considering both children and the elderly, whereas the losers represent the majority of the population (54 per cent). This is a documented characteristic of care programmes: they benefit a small, even marginal, proportion of the population, but the levels of spending per person are high (Vaalavuo 2009; Verbist et al. 2012), and they may be financed by the whole population or at least by a very relevant proportion.

Figure 4: Percentage of winners and losers by quintiles for income tax financing scenario: Demand (a) and vulnerability (b) alternatives

(a)

(b)



Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

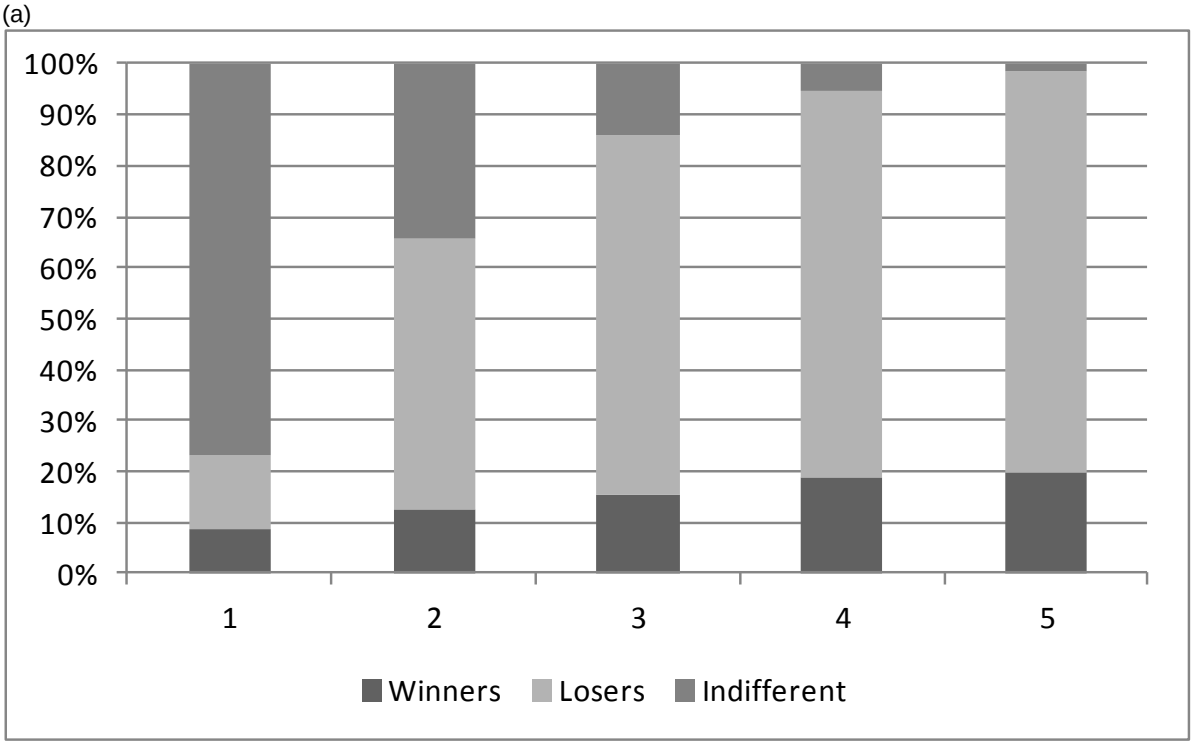
The percentage of losers increases with income in both allocation alternatives, following the progressive design of income tax used to finance the service in this exercise: about 13 per cent of individuals from quintile 1 end up as net losers, whereas this group represents 88 per cent in the top quintile. These results suggest that financing can contribute to the progressivity of the policy.

The distribution of winners depends basically on the allocation of childcare and preschool beneficiaries, although they represent 3 per cent of the total population in every case. For the demand alternative, the winners represent roughly the same percentage in every income group: 3 per cent for quintiles 1–4 and 2 per cent for quintile 5. When allocation is based on vulnerability, the percentage of winners decreases with the income group, from 9 per cent in the poorest to 0.4 per cent in the richest. The differences in distributional impact of these two alternatives are straightforward.

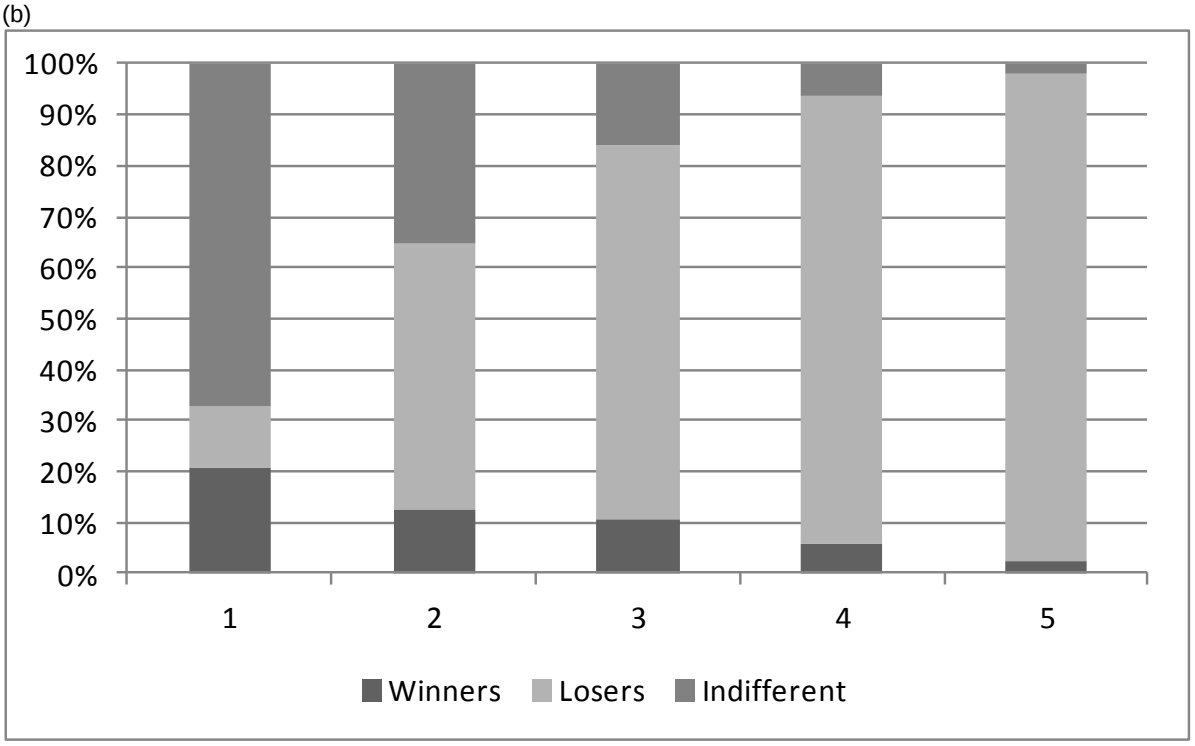
The proportion of winners rises to 13 per cent when we restrict the analysis to households with children aged below 4 years (Figure 5). In this case, winners represent about 20 per cent of the last quintile of individuals in households with young children in the demand allocation scenario, and the same percentage of the first quintile for the vulnerability alternative. The poorer households have more and younger members so the identification of the household as a winner implies more winners in terms of people. When considering households, the percentage of winners increases with income in the demand allocation alternative, whereas the opposite happens in the vulnerability one. On the other hand, considering households with elderly members reveals the limited coverage of this programme (Figure 6). Note that in the last quintile the elderly may benefit from the programme but if they belong to the programme's last income group they do not receive any money. This means they will be identified as losers if they pay or as indifferent if they do not. However, Figure 6 shows the progressivity and limited incidence of income tax on the elderly.

Figure 5: Distribution of winners and losers in households with children aged below 4 years: Demand (a) and vulnerability (b) alternatives

(a)

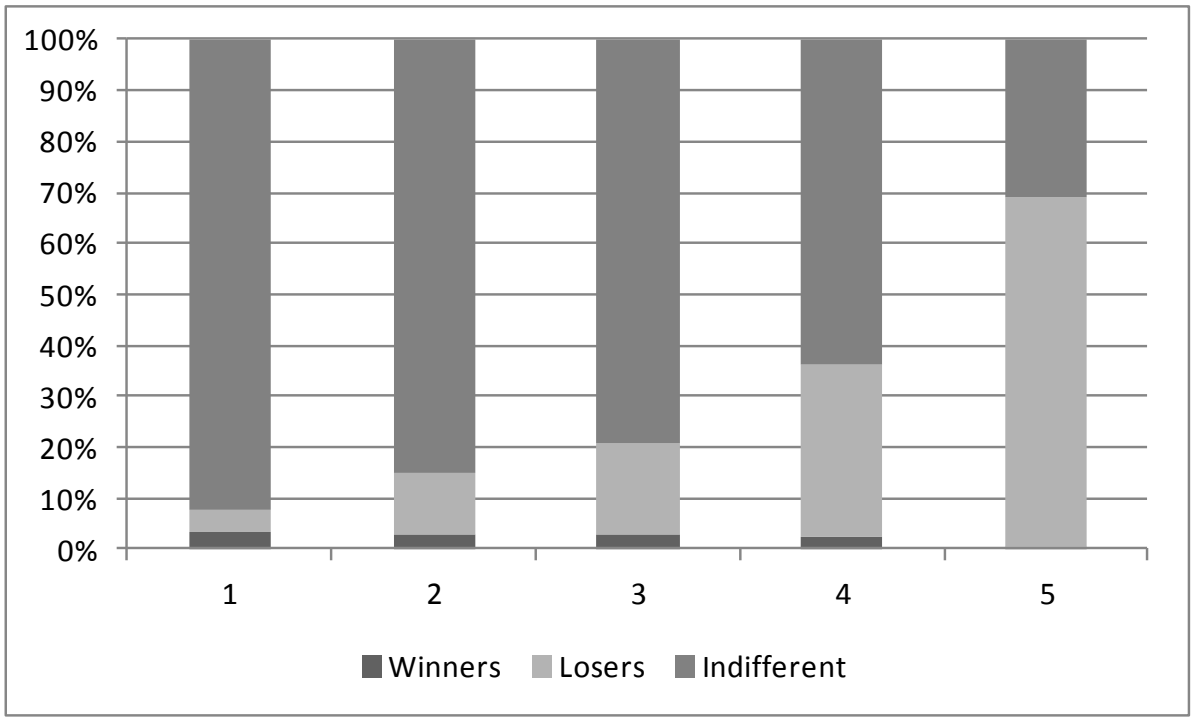


(b)



Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

Figure 6: Distribution of winners and losers in households with people aged above 64 years



Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

To visualize how different household types benefit from these programmes, Table 6 shows the distribution of winners and losers for each allocation alternative by household type. As losers depend almost entirely on the tax variation, there is virtually no difference between both allocation alternatives. However, the distribution of winners by household is differential in the two alternatives. In particular, the differences concentrate in two-parent households and extended ones. As extended (and to a lesser extent composite) households tend to be poorer than the rest, a higher number of beneficiaries concentrate in this type of household in the vulnerability alternative. This may also reveal different external-care demand behaviours across household types that depend on the number of adults available to care and the labour participation of their members. Nevertheless, the composition of households may be strongly linked to both income and care. In this sense, further analysis is needed in order to disentangle the multiple channels through which these relationships may express.

Table 6: Percentage of winners and losers by household types

Household type	Demand alternative		Vulnerability alternative	
	Winners (%)	Losers (%)	Winners (%)	Losers (%)
Single parent	7	8	8	8
Two parents	61	54	50	55
Composite	4	2	6	2
Extended	22	17	31	17
Other	6	18	5	18
Total	100	100	100	100

Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

4.2 Household and income variation

As mentioned before, care programmes tend to have large per-user spending, although the coverage is relatively small. This implies that, although the proportion of winners may be irrelevant, the income variation for those who benefit from the programme may be very important. On the

contrary, the tax structure's change that is proposed is small, which suggests that the loss of households that do not benefit from the programme but are compelled to pay should be small. However, they represent a large proportion of total households.

These results are presented in Table 7, and place some doubts on the political economy regarding the implementation of this kind of policy. In effect, those who win get a significant net benefit (16 or 22 per cent on average, depending on the scenario), whereas those who lose end up with a net benefit of −0.3 per cent on average. It may be unlikely that citizens approve on the implementation of a policy that makes almost everyone pay, but benefits only a marginal part of society. However, the characteristics of dependency imply that it is most likely that every individual will use the services at some point of their life, as a direct beneficiary or as a parent, spouse, son, or daughter of one. In the case of need, the amount of money a household will have to spend may be impoverishing. In this sense, the payment may be understood as an insurance against dependency, and the position of individuals towards the programme may depend on the risks they perceive of having to use the services.

Table 7: Gains and losses as share of household income in each quintile by scenario

	Winners		Losers
	Income tax and demand alternative (%)	Income tax and vulnerability alternative (%)	Income tax (%)
Q1	24	28	–0.2
Q2	17	18	–0.2
Q3	15	15	–0.3
Q4	11	10	–0.3
Q5	7	7	–0.5
Total	16	22	–0.3

Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

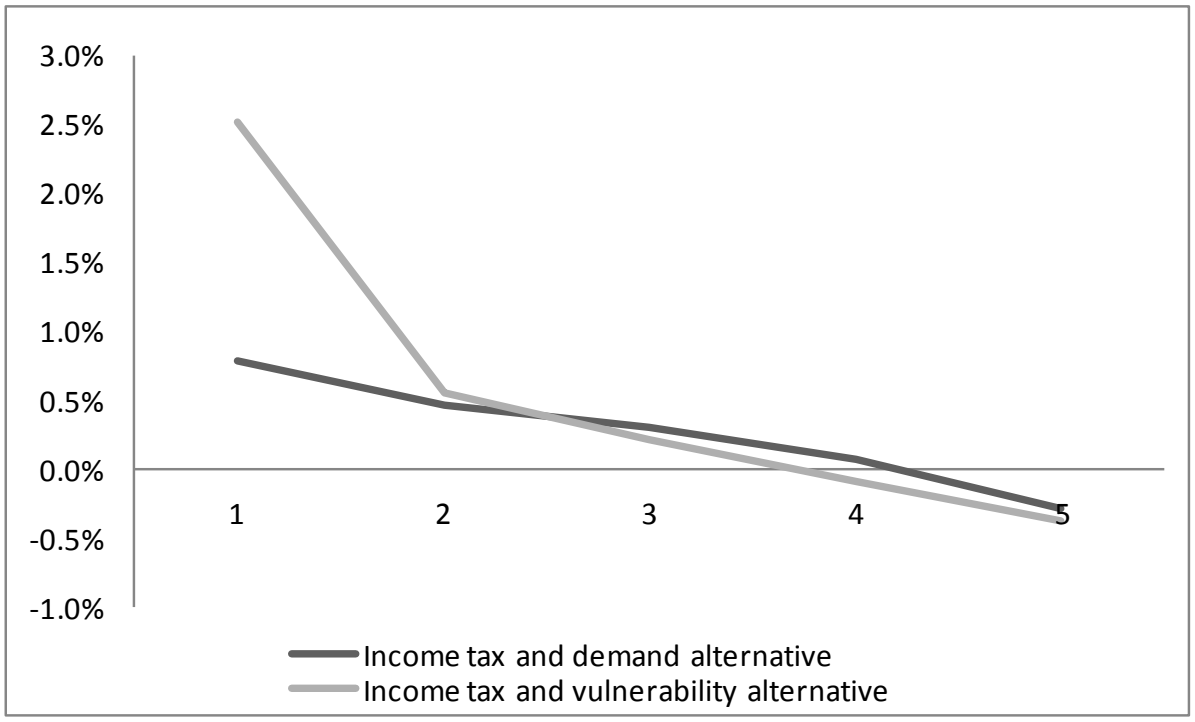
Regarding net benefits distribution, Table 7 shows that both allocation alternatives are progressive in a strict sense. The contribution of the benefits to income is highest in proportional terms in the bottom quintiles and it decreases monotonously as income increases. Matsaganis and Verbist (2009) report similar results for childcare subsidies in several European countries. The results are slightly more progressive for the vulnerability alternative, although differences are not that important.

Turning to losses, the progressivity is not that clear, although it still stands in a broad sense. The bottom quintile pays a smaller proportion of their income than the top one. However, there is little or no variation in the intermediate quintiles.

The progressivity is also present when considering all households (Figure 7). In both scenarios, the income variation is positive and larger for the first quintile, and decreases systematically for further income groups. It is worth noting that the richer quintiles experience a net average loss.

As expected, the percentage of mean household income variation differs between allocation alternatives, driven mostly by the difference in the number of beneficiaries in each quintile. Whereas in the demand alternative it is 0.7 per cent, in the income alternative it reaches 2.4 per cent. In the rest of the distribution, there are no significant changes between scenarios.

Figure 7: Percentage of mean household income variation by quintiles for the four scenarios



Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

4.3 Income distribution

As discussed, NCS may affect income distribution across the population. We estimate the Gini index before and after the implementation of the policy to evaluate this variation. The effect of the expansion of NCS proposed towards 2020 will have little impact on global income distribution (Table 8), though it reduces inequality in both scenarios. The limited impact is associated with the low coverage of its programmes. Notice that we only estimate the impact of the expansion proposed by the NCS, leaving unconsidered the current state of the programmes involved. In the case of childcare and preschool, the coverage of existing programmes is relevant, especially for those aged between 2 and 3 years (see Section 2.1).

Table 8: Inequality indicators for transfers and tax

	Gini	Variation (percentage points)
Baseline income	37.47	
Only services: demand alternative	37.39	–0.08
Only services: vulnerability alternative	37.27	–0.20
Only income variation	37.40	–0.08
Complete scenario: demand alternative	37.31	–0.16
Complete scenario: vulnerability alternative	37.18	–0.29

Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

All the policies involved improve the income distribution when considered on its own: the income tax variation and both benefits alternatives. The best results come from the vulnerability alternative, as expected, as it gives more importance to the lower part of the distribution. When taken together, the simulations are consistent with the individual policy exercises, showing better results when the allocation is based on vulnerability. In both cases, the income tax variation contributes to the improvement of income distribution.

These results are similar, in sign and magnitude, to the ones found by several studies for childcare in European countries (Matsaganis and Verbist 2009; Verbist et al. 2012), even though they consider all the services and not an expansion. On the other hand, Vaalavuo (2009) finds no change or a slight increase in Gini index for the Nordic countries. The results regarding elderly care are stronger in Nordic countries, the Netherlands, and the United Kingdom, following the demographic structure of income distribution in these countries, a slight difference in beneficiary's identification, and the focalization of the programmes in low income elderly (Vaalavuo 2009; Verbist et al. 2012).

We consider other inequality indicators for a better understanding of the changes in the extremes of the distribution. The ratio between the top and bottom quintile is a good indicator of the movements on the extremes. As shown in Table 9, in both allocation alternatives, NCS spending benefits the bottom quintile more than the top quintile (shares below 1). However, the differences between both are very important. In the demand alternative, quintiles 1–4 receive a similar proportion of the benefits, with a minor reduction for the richest quintile. In the vulnerability scenario, more than half the benefits go to the worst-off, whereas the top quintile receives only 2 per cent. This is reflected in the share ratios: in the demand allocation the top quintile receives 70 per cent of the amount received by the bottom quintile, whereas this figure is 3 per cent for the vulnerability allocation.

Table 9: Distribution of care spending across income quintiles

	Demand alternative (%)	Vulnerability alternative (%)
Q1	20	55
Q2	23	23
Q3	23	14
Q4	20	6
Q5	14	2
Total	100	100
Quintile share ratio (Q5/Q1)	0.706	0.028

Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

Vaalavuo (2013) presents this same ratio for new social spending—including childcare, education, and elderly care—revealing shares below 1 for the six European countries analysed. Our demand alternative shows similar shares as France, Slovenia, Spain, and United Kingdom, whereas the vulnerability alternative is much more pro-poor. Van Lancker and Ghysels (2012) report the same quintile ratios for childcare services in Sweden and Flanders with opposite results: 0.4 for Sweden and 2.1 in Flanders.

Finally, we consider the distribution of care spending across household types (Table 10). In both scenarios, the two-parent households are the ones that gain the most, although there are important differences between the alternatives. They receive almost two thirds of the total spending if the allocation is demand driven, whereas they get about one half in the vulnerability scheme. The other major difference is between the extended households, which receive 11 percentage points more in the vulnerability alternative. These differences follow directly from the distribution of beneficiaries in each alternative.

Table 10: Distribution of care spending across household types

Household type	Demand alternative (%)	Vulnerability alternative (%)
Single parent	6	7
Two parents	62	48
Composite	4	6
Extended	23	34
Other	6	5
Total	100	100

Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

5 Discussion

This paper has analysed two policy interventions that constitute the main components of the NCS in Uruguay. These interventions can be considered as embedded in what is called the social investment paradigm: childcare services and care for the elderly dependent. Both may help to achieve multiple objectives. Early childcare and preschool care can boost human capital accumulation and higher productivity in the long term and home-based care for the elderly can help to improve living conditions for those in need of care. At the same time, both policies can potentially help to promote more inclusive development, by facilitating the inclusion of women in the labour market.

The redistributive scope of these kinds of interventions oriented by the new social investment paradigm is a debated issue in developed countries. In developing ones, the discussion about these policies is much more incipient, as is the related evidence. As discussed in the paper, who benefits from these care services is a crucial point for analysis, an aspect that is especially relevant in the case of childcare. If allocated following demand, it is possible that these services end up benefiting those already better-off, meaning children with employed parents or whose parents have higher probabilities of employment, at least in the short term. The positive side of a policy developed along such a path—in case it is temporary—may be the possibility of avoiding middle classes getting out of public services (opting out). If the rationale is that other households may follow in time, this may help the consolidation of a universal policy while protecting the quality of the service through the pressure of users for institutional improvements and their willingness to contribute to the financing. If, on the contrary, the policy starts as a strictly targeted intervention towards poorer households, this may compromise the quality of services and the ambitions of universality in the long term. However, the distributional effects will be higher. In any case, policy actions may influence results in one way or the other, and so it is desirable that the orientation of the policy in terms of the beneficiaries it wants to reach is clear in its design, and also that it is publicly announced and known by the society.

The inclusion of public services in distributional analysis implies methodological complexities and limitations, but it is still a relevant analysis in order to consider potential impacts of alternative policies and to compare with results from other countries. Our results indicate that the winners from NCS are a very small part of the population, whereas the losers represent the majority. In effect, the policy benefits a small, even marginal, proportion of the whole population, but the levels of spending per beneficiary are relatively high. As the policies are financed by means of a progressive income tax in this exercise, losers make up a very relevant proportion of the population, although the magnitude of their net loss is small. Even if it is likely that every person will use at least one of the services considered at one point in life (as a direct beneficiary or as a parent, spouse, daughter, etc.), the absolute number of winners and losers at one point in time poses some doubts about citizen's support for these polices.

Additionally, our results indicate the redistributive impact of the specific in-kind transfers considered for the Uruguayan case is very limited, even in the case when childcare services are targeted towards more vulnerable children. Even if the benefits are significant for individual households, the overall impact is weak as the number of beneficiaries is low. These results are similar, in sign and magnitude, to the ones found by several studies for European countries for childcare. Nevertheless, it must be stressed that the direct redistributive impact is just one dimension of the effects of the policy, and the consideration of our results must be complemented with the rigorous analysis of the impacts of the policy in other dimensions.

However, many relevant issues remain open. Some of them have to do with the appropriate dimensions and indicators to monitor and evaluate each of these policies, an aspect that should be discussed and considered since the early stages of implementation. How can the quality of services, for children and for the elderly, be measured? Are there any benefits of public childcare services in terms of social inclusion? Will these interventions be able to facilitate female labour force participation in the medium and long term? This last question is directly associated with the one that refers to who benefits from the policy, especially in the case of childcare. The relationship between patterns of use and patterns of provision of the service—which in this paper are identical—also remains an open question that will be clearer once the policy is displayed. Additionally, the exploration of indirect and longer-term dynamic redistributive effects through changes in labour supply is an open line of research. The same is valid for long-term effects on human capital formation in the case of childcare, and for changes in living conditions for the elderly receiving home-based care. The importance of elderly care within social policies in an ageing society like the Uruguayan one will probably increase, and learning from this first intervention will be valuable. Again, changes in values and attitudes may also influence the demand for these interventions.

Finally, in developing economies such as Uruguay it is important to keep in mind the need to combine these new interventions with more traditional policies embedded in the social welfare scheme, whose development is still incomplete. However, social investment interventions should not substitute income protection or cash transfers, which necessarily has a relevant role in fighting poverty and inequality in developing contexts.

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Appendix

Table A1: Probit model for assistance of children aged between 1 and 3 years through public and private care and preschool services

Variables	Assistance
Region	0.282*** (0.0448)
Low education of head of household	−0.768*** (0.0687)
Middle education of head of household	−0.542*** (0.0602)
Working mother	0.375*** (0.0447)
Number of children in household	−0.163*** (0.0224)
Age	0.897*** (0.0279)
Constant	−1.596*** (0.0944)
Observations	4,704

Note: Robust standard errors in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Source: Authors' calculations based on the Continuous Household Survey (INE 2014).

Table A2: Age and income distribution of elderly dependent beneficiaries

	Beneficiaries	Percentage of elderly	Percentage of dependent elderly
Age groups (years)			
65–69	1005	0.7	57.9
70–74	1540	1.3	58.5
75–79	1717	1.9	58.2
80–84	1455	2.1	57.7
85–89	2661	4.6	59.8
Total	8378	1.8	58.6
Income			
Q1	359	1.6	53.6
Q2	1229	1.9	57.0
Q3	2005	1.9	59.5
Q4	2224	1.8	59.3
Q5	2561	1.8	59,0%
Total	8378	1.8	58,6%

Source: Authors' calculations based on the Continuous Household Survey (INE 2014) and the Longitudinal Social Protection Survey (BPS and IDB 2013).

Table A3: Marginal income tax rates

	Current	Proposed
Category 1	10	10.50
Category 2	15	15.75
Category 3	24	25.20
Category 4	25	26.25
Category 5	27	28.35
Category 6	31	32.55
Category 7	36	37.80

Source: Authors' calculations.