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Distributional impact of asset contributions to residential care (Pflegeregress) in Austria

Final report

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Executive Summary

In 2018, Austrian authorities abolished the asset-based out-of-pocket payments (OPPs) required from users of residential care for older people, otherwise termed Pflegeregress. This asset-based OPP aimed to regulate demand for residential care and to adjust contributions to costs from users to reflect their ability to pay. The present study provides evidence of the distributional impact of the abolishment of Pflegeregress, as well as of potential alternative financing options for residential care in Austria.

To estimate the distributional impact of the abolishment of Pflegeregress, the study uses survey data from the Survey of Health and Retirement in Europe (SHARE) for Austria in 2015, administrative data on beneficiaries of the care allowance and mortality data to estimate the probability of being in residential care and remaining life expectancy spent in a care home. The rules of the abolished Pflegeregress are then applied to the resulting sample to estimate who benefits from the abolishment of the Pflegeregress.

Our findings suggest that a disproportionate share of Pflegeregress was paid by older people belonging to the 1st income quintile. The abolishment of Pflegeregress can thus be classified as a progressive measure, insofar as it aligned total OPPs for residential care with the income distribution and mostly benefited people from the 1st income quintile. The reasons for this apparent poor targeting of Pflegeregress are twofold. Firstly, the wealth distribution substantially departs from the income distribution among older people in Austria, leading some income-poor individuals to hold sufficient assets to make them liable to Pflegeregress payments. Secondly, older people from the 1st income quintile are much more likely to both use residential care as a result of poorer health and to have insufficient income to pay for it without tapping into their assets (i.e. paying Pflegeregress). Three alternative financing policies to cover the shortfall left by abolishing Pflegeregress are also simulated: an inheritance tax, an increase in current income tax (on the whole population) and a social insurance applied to older people for the financing of residential care. All three alternatives broaden the contributory base, decouple financing from use of residential care and are all more progressive than the Pflegeregress.

These results broadly confirm evidence from other studies, particularly from England, on the effects of the abolishment of asset-based OPPs for residential care. Still, the large impact found for those in the 1st income quintile is somewhat of a specificity of the Austrian case. The results from this study provide inputs for the broader discussion around the financing of long-term care in Austria, highlighting the need to consider the distributional effects of different policy options, besides their impact on financial sustainability.

Kurzfassung des Berichts

2018 wurde der sogenannte Pflegeregress, also der Zugriff auf das Vermögen zur Finanzierung eines Pflegeplatzes in einer stationären Einrichtung, in Österreich abgeschafft. Diese vermögensbezogenen Zahlungen waren dem Subsidiaritätsprinzip der Sozialhilfe geschuldet, auf welchem die Finanzierung stationärer Langzeitpflege beruhte, wodurch die individuelle Zahlungsfähigkeit der Pflegebedürftigen widergespiegelt werden sollte. Darüber hinaus dienten die Eigenbeiträge auch der indirekten Steuerung der Nachfrage nach Pflegeheimplätzen. Die vorliegende Studie beschäftigt sich allerdings ausschließlich mit den Verteilungswirkungen dieser Eigenbeiträge aus Einkommen und Vermögen bzw. mit den Auswirkungen nach deren Abschaffung. Im Anschluss daran werden auch alternative Finanzierungsmöglichkeiten für stationäre Pflege in Österreich dargelegt und diskutiert.

Schätzungen zur Verteilungswirkung der Abschaffung des Pflegeregresses basieren auf österreichischen Umfragedaten des Forschungsnetzwerks für Gesundheit, Alterung und Ruhestand in Europa (SHARE) aus dem Jahr 2015, Administrativdaten zu Pflegegeldbezieher*innen sowie Mortalitätsdaten. Die Kombination dieser Datenquellen ermöglicht es, die Wahrscheinlichkeit, mit der jemand in ein Pflegeheim kommt, sowie die verbleibende Lebenserwartung nach Einzug in ein Pflegeheim zu schätzen. Die gesetzlichen Regelungen in Bezug auf den Pflegeregress können danach auf die Stichprobe der Pflegeheimbewohner*innen angewendet werden, um die Effekte der Abschaffung zu simulieren.

Unseren Berechnungen zufolge entfiel ein überproportionaler Anteil der vermögensbezogenen Beiträge auf ältere Menschen, welche dem untersten Einkommensfünftel, also dem ersten Einkommensquintil, angehörten. Die Abschaffung des Pflegeregresses kann daher als eine progressive Maßnahme bezeichnet werden, da die Kostenbeiträge zur stationären Pflege mit der Einkommensverteilung in Einklang gebracht wurden, was vor allem Menschen am unteren Ende der Einkommensverteilung zugutekam. Vor seiner Abschaffung gab es zwei Gründe für die ungenügende Treffsicherheit des Pflegeregresses in Österreich. Einerseits unterscheidet sich die Vermögensverteilung bei älteren Menschen in Österreich stark von deren Einkommensverteilung, was dazu führte, dass einige einkommensschwache Pflegeheimbewohner*innen genügend Vermögen hatten, um dennoch vom Pflegeregress betroffen zu sein. Andererseits ist es für ältere Menschen im ersten Einkommensquintil wahrscheinlicher, dass sie aufgrund eines schlechteren Gesundheitszustandes auf stationäre Pflege angewiesen sind. Nachdem ihr Einkommen mit Sicherheit nicht ausreichte, um die Kostenbeiträge zu decken, wurde dann der Rückgriff auf ihr Vermögen erforderlich.

Neben der Verteilungswirkung der Abschaffung des Pflegeregresses analysieren wir drei alternative Finanzierungsmodelle von stationärer Pflege: mittels Erbschaftssteuer, durch eine Erhöhung der Einkommenssteuer und durch eine Pflegeversicherung für ältere Menschen. Alle drei Alternativen erweitern den Kreis der Beitragszahler*innen, entkoppeln die Finanzierung der stationären Pflege von deren Bezug und sind hinsichtlich deren Verteilungswirkung progressiver als der Pflegeregress.

Unsere Ergebnisse decken sich mit jenen aus früheren Studien, vor allem aus dem englischen Sprachraum, zur Abschaffung von vermögensbezogenen Beiträgen für stationäre Pflege. Beachtenswert ist dennoch die starke Auswirkung des Pflegeregress auf das unterste Einkommensfünftel in Österreich. Der hohe Anteil von Personen mit Vermögen im untersten Einkommensfünftel stellt gewissermaßen ein österreichisches Spezifikum dar. Unsere Studie soll einen Beitrag zu einer breiteren Diskussion über die Finanzierung der Langzeitpflege in Österreich leisten und unterstreicht die Notwendigkeit, neben der finanziellen Nachhaltigkeit politischer Maßnahmen gerade im Bereich der Sozialpolitik in erster Linie deren Verteilungswirkung zu berücksichtigen.

1 Introduction

In the context of demographic ageing and societal changes, the affordability and equity implications arising from costs with long-term care has become increasingly relevant. Currently, all long-term care systems in Europe require users and/or their families to make out-of-pocket payments (OPPs) to co-finance long-term care costs, particularly for residential care (Rodrigues, Ilinca & Schmidt, 2017). These OPPs serve several purposes. First, they are meant to keep public expenditure at reasonable levels and contribute to their sustainability. Secondly, they aim to regulate demand by limiting moral hazard, especially for more expensive care alternatives, such as residential facilities (Colombo et al., 2011). Fairness is also invoked, as individuals' contributions to their costs of care should reflect ability to pay. Given that the present cohort of older people has significant accumulated assets, wealth rather than income may be a better measure of their ability to pay for residential care (Mayhew, Karlsson & Rickayzen, 2010). Using assets to pay for residential care could thus be viewed as consumption smoothing along the lifecycle.

Asset-based OPPs and in particular housing assets are not a popular option to finance long-term care among Europeans (Eurobarometer, 2007). Using housing assets to pay for residential care could mimic an inheritance tax, with an up to 100 percent tax rate for those who need care. However, unlike inheritance tax, asset-based OPPs are both uncertain (i.e. conditional on needing residential care) and potentially regressive given the positive gradient between income and health. Furthermore, asset-based OPPs may even be more regressive than income-based OPPs, conditional on the threshold for consideration of assets and alignment of the wealth and income distribution.

A recent OECD study on the affordability of long-term care has found residential care to be relatively affordable in the majority of countries considered, since individuals who cannot afford contributions or fees related to residential care can rely on social assistance schemes to (partly) cover expenses (Muir, 2017). In many of the countries considered, however, qualification for social assistances hinges on the nearly total depletion of assets by users. Low-income but asset-rich individuals may have to pay the equivalent to several times their income while in residential care. For example, the lifelong costs of long-term care borne by the median user in England are estimated to be 21,400 GBP, although the costs are substantially higher for women and as much as four times larger for those in top deciles of care needs (Forder & Fernández, 2009). Not only are OPPs high, but they fall on a large share of the population. For Germany, one out of two people are deemed to need care throughout their lifetime (Rothgang & Engelke, 2009), while for England the estimate is that approximately ¾ of those surviving till the age of 65 will need care at some point of their remaining lives (Forder & Fernández, 2009). Given the skewed

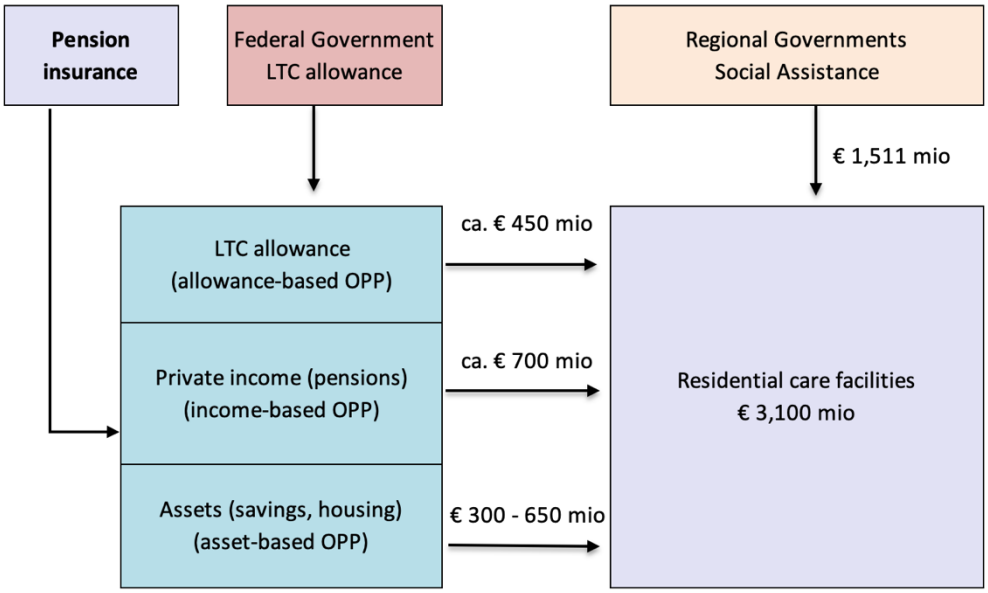
distribution of health by income and gender in old age, the risk of needing long-term care and associated costs are unlikely to be equally distributed in society. This begs the question of whether the distribution of OPPs (either income or asset-based) to residential care is fair (whether poorer or richer individuals are paying for a greater share of costs) and whether alternative ways of funding could provide a more equitable outcome.

For Austria, these are particularly timely questions. In June 2017, the Austrian Federal Parliament approved a law that abolished the possibility of any kind of asset-based OPPs for residential care (*Pflegeregress*), as well as similar contributions based on assets from relatives (e.g. children). The measure came into effect on the 1st of January 2018. The abolishment of Pflegeregress was implemented against a backdrop of significant house ownership and pronounced inequality in the asset distribution in Austria. The Gini coefficient of wealth amounted to 0.73 in 2017, ranking Austria among the countries with the highest wealth inequality in the Euro area (Fessler et al., 2019).

There is to this date a dearth of data and empirical studies on the significance of the now abolished Pflegeregress and its prevalence among users of residential care in Austria. Figure 1 presents a simplified outline of the financial flows before the abolishment of Pflegeregress within the Austrian LTC system across different levels of governance and between public and private contributions (see also Grossmann & Schuster, 2017). The financial flows into residential care are quite substantial, but at the same time they highlight the uncertainty around the exact amounts and relevance of OPPs. Estimates for asset-based OPPs in 2017 therefore ranged from about €300 million, which represents the amount paid by the Pflegefonds in 2018 to compensate for foregone income of the regional governments (Firgo & Famira-Mühlberger, 2020), to €650 million that were estimated as worst case scenarios during the political negotiations (Rechnungshof, 2020). Besides the widely differentiated estimations on the budgetary implications of the abolishment of Pflegeregress (Fink, 2018; Rechnungshof, 2020; Firgo & Famira-Mühlberger, 2020)[1], there is also close to no information about its distributional impact. The abolishment of Pflegeregress highlights the need to better understand the distributional impact of OPPs for residential care in Austria, while calling for a systematic assessment of possible funding alternatives with more favourable distributional impacts.

[1] See also BMASGK (27.12.2019) Beantwortung der parlamentarischen Anfrage Nr. 186 /J der Abgeordneten Gerald Loacker, Kolleginnen und Kollegen.

Figure 1. Financial flows in residential care, 2017



Sources: BMASGK, 2019, *Österreichischer Pflegevorsorgebericht 2018*; Rechnungshof, 2020; own estimates.

Against this backdrop, this study aims to show the distributional consequences of abolishing Pflegeregress across different population groups and to determine the distributional impact of alternative funding schemes to the Pflegeregress. To accomplish this, the study uses a novel methodology that includes a microsimulation model for OPPs based on administrative and survey data for Austria.

This report is organized as follows: The next section provides a description of the Austrian system for financing residential care that was in place until the abolishment of Pflegeregress, as well as a review of empirical evidence from other countries on the distributional implications of different forms of OPPs for residential care. Section 3 details the methods and data used in this study. The distributional analysis of the abolishment of Pflegeregress and alternative financing scenarios (e.g. an inheritance tax, an earmarked income tax and a social insurance scheme) are depicted in Section 4. To establish the robustness of data and methods used, a series of sensitivity analyses are reported in Section 5. The following Section 6 discusses the policy implications arising from the findings of this study, before conclusions are presented in Section 7.

2 Models of out-of-pocket payments to residential care in Austria and selected European countries

Unlike inpatient healthcare, residential care in Austria and elsewhere is still rooted in the subsidiarity principle, which means that public support is only granted if individual resources, or those from the family or local community are exhausted. The rationale for this has generally been one of social fairness (i.e. ability to pay), avoidance of moral hazard and to strengthen personal responsibility and enhancement of fiscal sustainability. The notion of ability to pay suggests that an individual's contributions should reflect their financial situation, although how ability to pay should be calculated (e.g. whether including assets or not) has varied across countries. The concept of personal responsibility posits that individuals should anticipate and plan for their future and potential need of long-term care. In line with the subsidiarity principle, the use of residential care is subject to the payment of fees or contributions to the total costs of residential care (i.e. OPPs) by users or their families. Regarding the design of OPPs, three general types can be distinguished, with various combinations across long-term care systems across Europe. These types are:

- income-related OPPs,
- asset-based OPPs, and
- OPPs based on (adult) children's income.

In the following we first describe the system of OPPs for residential care in Austria, before we briefly discuss alternative approaches applied in other European countries.

2.1 OPPs in Austria

2.1.1 Income-related OPPs in Austria

In Austria, costs of residential care are, first of all, covered by the regular income (pension) of the resident, and by the individual amount of the long-term care allowance (*Pflegegeld*) that the resident is entitled to. Only 20% of the pension payment and a lump sum of about €45 (10% of LTC allowance, level 3[2] in 2019) from

[2] Over the past few years, regional governments have introduced a threshold to access public care homes to people with care needs from levels 3 or 4 up. This has been implemented only during the past few years so that there are still many residents with lower care levels across Austria, e.g. in 2016, about 4% of residents in Viennese care homes even had care level 0 (Rechnungshof, 2020).

the care allowance can be kept by the resident. Given the average old-age pension income in Austria (about €1,620 for men and €1,020 for women in 2019) and care allowance amounts (€690 for level 4 to €1,720 for level 7), residents may on average themselves cover between €1,461 and €2,971 per month. Real monthly costs of providing residential care are estimated to range between €2,500 to €7,500 in case of exceptional care needs, with pronounced regional disparities, e.g. approximately €2,730 on average per month in Carinthia to approximately €4,830 on average per month in Vienna (Rechnungshof, 2020).

Prior to 2018, the difference between real costs and income-related OPPs was covered by other types of OPPs (asset-related or recourse to kin) before means-tested social assistance at the regional level stepped in.

Table 1 provides an overview of the total annual costs for long-term care in Austria that amounted to €7.9 billion in 2016, of which about 37% were covered by income- and asset-related OPPs (Rechnungshof, 2020). It also shows the average total annual costs per person in need of care by region and type of care arrangement, highlighting once more the important disparities between regions, even if these can be at least partly explained by factors such as wage levels, needs structures and real estate prices (Firgo & Famira-Mühlberger, 2019). On average, the total annual cost of a person in a care home amounts to approximately 3 to 8 times that of mobile services and 2.5 to 17.5 times that of 24-hour care, albeit care profiles differ between users of the different care types.

Table 1. Total and average costs of LTC per person by care arrangement and region per year, in €1,000, 2016

Region	Care home	24-hour care	Mobile services	Total formal care	Informal care
Vienna	12.2	0.7	2.8	15.7	10.5
Burgenland	5.0	2.0	0.9	7.9	7.2
Carinthia	5.2	1.2	1.5	7.8	7.1
Lower Austria	5.1	2.0	1.7	8.8	7.3
Upper Austria	6.9	1.5	1.0	9.5	6.9
Salzburg	7.2	1.0	1.5	9.7	7.0
Styria	7.0	1.6	0.9	9.5	7.1
Tyrol	8.7	1.0	1.4	11.1	6.9
Vorarlberg	7.5	2.1	1.6	11.2	6.9
			Austria		
Total annual costs of long-term care (billions)					€7,904
Total annual costs per person in need of long-term care					€17,400

Source: Rechnungshof, 2020.

2.1.2 Asset-based OPPs in Austria

Before 2018, users were required to pay contributions from assets towards the cost of residential care, with regionally diverse exemptions. Table 2 shows an overview of the different regional regulations as of 2017 that were also critically assessed in a recent audit report, due to the inconsistencies and unjustified differences in recourse periods and asset exemptions between states (Rechnungshof, 2020).

Table 2. OPPs on assets by Austrian regions, 2017

Region	Exempted allowance in €	Residents	Heirs	Spouse's assets liable	Donations
Vienna	4,000	3 years	10 years	yes	discretionary
Burgenland	8,450	3 years	5 years	yes	5 years before, 3 years after
Carinthia	4,222	3 years	3 years	no	3 years before, 3 years after
Lower Austria	12,667	3 years	5 years	no	5 years before, 3 years after
Upper Austria	7,300	3 years	3 years	yes	5 years before, 3 years after
Salzburg	5,235	5 years	5 years	yes	5 years before, 5 years after
Styria	7,000	3 years	3 years	no	3 years before, 3 years after
Tyrol	7,000	5 years	3 years	yes	5 years before, 3 years after
Vorarlberg	10,000	10 years	3 years	yes	discretionary

Source: Rechnungshof, 2020.
Note: Exempted allowance refers to the threshold above which a recipient's assets are subject to recourse. 'Residents' and 'Heirs' columns refer to the length of time an individual would be required to contribute out of assets upon a relative entering a care home. The 'Spouse/Partner' signifies whether the assets of the spouse/partner are also taken into consideration in determining an individual's liability for OPPs. The 'Donations' column indicates the time surrounding entry into a care home, during which donations are subject to consideration for asset contributions.

A few months before general elections in autumn 2017, the Austrian parliament passed a bill with constitutional status to prohibit any type of recourse to assets of people in care homes as of 1 January 2018, be it their own or those of heirs and/or recipients of donations.[3] This decision implied that regional governments would be confronted with an increase in social assistance expenditures as a result of the forgone OPPs by self-payers that had contributed to care home costs from their assets. The federal government therefore agreed upon a compensation payment of €100 million for 2018 (Wetsch, 2017). Further negotiations resulted in compensation payments of about €300 million that were distributed across the regions according to the federal accounting system's distribution key. This final compensation payment

[3] Bundesgesetz über einen Zweckzuschuss aufgrund der Abschaffung des Zugriffs auf Vermögen bei Unterbringung von Personen in stationären Pflegeeinrichtungen, BGBl. I Nr. 85/2018.

was based on a compromise between federal ministries and regional governments, although the latter did not provide clearly defined evidence for income foregone by the waiver.[4]

Social assistance legislation of the nine regional governments in Austria had previously stipulated various rules and standards regarding the recourse to other kin (mainly adult children and children in-law). However, some regions (such as Vienna) had basically stopped implementing this (see also Table 2 above) and by 2008, all regions had waived this type of recourse. Following evidence of transfer of assets to children to circumvent asset-based OPPs, Carinthia and Burgenland reintroduced the recourse to other kin in 2012. Styria followed this example, but then waived it again in 2014. These practices compounded on geographic inequalities and adversely impacted predictability of payments needed for care until the abolishment of Pflegeregress in 2018 eventually eliminated these.

2.1.3 The impact of moving away from social assistance rationales in the Austrian LTC system

Public expenditures on LTC, in particular for residential care, have increased significantly over the past decade. Due to the lack of valorization of long-term care allowances and rising staff costs, there was an increase of about 17% of total (public and private) expenditure and almost 23% of public expenditure on long-term care alone from 2015 to 2018 (Table 3), part of which included increased expenditure resulting from the abolition of the recourse on assets. Figure 1 also gives an overview of total OPPs from income, care allowance and assets (until 2018) contributing to total long-term care expenses. In 2015, residents contributed 45.7% of total costs in residential care, while this share slightly decreased to 43% in 2018. At first glance this marginal change might hint at the reduced role played by the recourse to assets in financing residential care. However, it should be noted that the number of residents increased by 14.8% in 2018 (Table 4, below), which means that the average per capita contribution to residential care costs actually decreased by 8.5%. As of 2018, the first year without recourse to assets, net public expenditures increased by 19% in residential care.

[4] Bundesgesetz über einen Zweckzuschuss aufgrund der Abschaffung des Zugriffs auf Vermögen bei Unterbringung von Personen in stationären Pflegeeinrichtungen für die Jahre 2019 und 2020, BGBl. I Nr. 95/2019; see also BMASGK (27.12.2019) Beantwortung der parlamentarischen Anfrage Nr. 186 /J der Abgeordneten Gerald Loacker, Kolleginnen und Kollegen. For more details see also Rechnungshof, 2020.

Table 3. Total and public expenditures on long-term care, in m. Euros, 2015-2018

Total expenditure					Change 2015/18	Change 2017/18	Share contributed by residents (in %)	
Long-term care services	**2015**	**2016**	**2017**	**2018**	**in %**	**in %**	**2015**	**2017**
Residential care*	2,725	2,798	2,837	3,191	17.1%	12.5%	45.7	43.0
Semi-residential care	54.1	58.2	59.9	64.4	19.0%	7.5%	24.1	23.4
Home and community -based care	605	628	631	653	7.9%	3.5%	34.0	32.4
Public expenditures					**Change 2015/18**	**Change 2017/18**		
Long-term care services	**2015**	**2016**	**2017**	**2018**	**in %**	**in %**		
Residential care*	1,480	1,489	1,529	1,819	22.9%	18.9%		
Semi-residential care	40.9	44.2	44.6.	48.6	18.8%	8.9%		
Home and community -based care	399	411	417	442	10.8%	6.0%		

Source: BMASGK, 2019, *Österreichischer Pflegevorsorgebericht 2018*. Remarks: *) includes 'care homes' and 'alternative housing' as by 2017 most regions merged 'alternative housing' with data on 'care homes'.

A recent study by the Austrian Institute of Economic Research revised earlier projections of long-term care expenditures under the new conditions (Firgo & Famira-Mühlberger, 2020). According to the authors, the exceptional increase by €318 million from 2017 to 2018 in expenditures for home care services *and* residential care can of course only partly be attributed to the abolition of asset recourse – both demographics and a range of other factors play a role. In a counterfactual scenario (no abolition of Pflegeregress), it is assumed that the 'usual yearly growth' of about 2.3% would apply while 13.7 percentage-points (out of 16% increase) would be attributed to the additional costs incurred due to the abolition of asset recourse. A mere projection of the two scenarios with and without the waiver thus results in additional costs of €595.6 million in 2030. These scenarios do not

include potential shifts towards more community-based care and alternative housing arrangements, but they make it clear that regions and municipalities will need to look for new ways of organising and funding long-term care as expenditures are expected to increase by 77% until 2030.

The abolishment of Pflegeregress was expected to trigger an increase in demand for care homes. Against the backdrop of previous years, in which the number of resident care users tended to sporadically increase and decrease in the range of 1-2%, there was indeed a significant rise in the number of residents by almost 15% from 2017 to 2018 (Table 4). This increase, however, needs to be placed in perspective as there are several determinants for residential care, of which OPPs are only one part. People in need of care generally prefer to be cared for at home as long as possible. Moreover, demand for residential care also depends on availability of places in care homes situated in the proximity and alternatives such as informal care or 24-hour care. The latter is arguably the most important alternative care arrangement to residential care in Austria and it witnessed a slight reduction in demand in 2018 for the first time in ten years (Table 4). It is worth considering as well that OPPs are highly differentiated among Austrian regions and often even among providers (Rechnungshof, 2020; Firgo & Famira-Mühlberger, 2019). Therefore, there could be important geographical variations in the picture provided by Table 4.

Table 4. Number of residents and users of long-term care services per year, 2015-2018

Long-term care services	2015	2016	2017	2018	Change 2017/18	Change 2017/18
Residential care*	87,651	86,566	85,880	98,585	12.8%	14.8%
Semi-residential care	15,535	16,638	17,366	18,059	16.2%	4.0%
Home care**	145,324	147,037	149,442	153,486	5.6%	2.7%
Subsidised 24-hour care***	21,940	23,836	25,281	24,692	12.5%	-2.3%

Source: Statistik Austria, Pflegedienstleistungsstatistik; BMASGK, 2019, *Österreichischer Pflegevorsorgebericht 2018*. Notes: *) Care homes and 'Alternative Housing'; **) Not including 'case and care management' to avoid double-counts; ***) Subsidies for 24-hour care are means-tested; there are about 8,000 more users of such arrangements with a net monthly income (pension) of above €2,500.

2.2 OPPs in selected European countries

2.2.1 Alternative approaches to income-related OPPs in selected countries

Income-related OPPs are the most common form of individual contribution to the costs of residential care in European countries, often requiring users to contribute either a percentage of their income (e.g. pension), or up until a cap. For example, in Sweden, the complicated procedure of means-testing was abandoned by placing a low cap on the total amount users are required to pay (about €170 per month; cf. Cylus et al., 2018), so that most users are able to pay this from their (pension) income without requiring social assistance – assets are furthermore excluded from the calculation of the OPPs. In total, OPPs cover no more than 5 to 10% of the total costs of residential care in Sweden (Cylus et al., 2018). Sweden is nonetheless an exception in the European context. In Finland, for example, the OPPs for residents of care homes represent 85% of their net income, with a minimum of approximately €100 per month left for personal use. In France, nursing home residents contribute with 90% of their income (including the attendance allowance or *Allocation Personnalisée d'Autonomie – APA*) to 'hotel costs' (i.e. board and lodging) in nursing homes, which may amount to up to €4,400 per month. In England, all users whose income exceeds around €27,000 per year are expected to contribute with all their income towards the costs of residential care, except for a Personal Expenses Allowance of about €120 per month. The Netherlands has a means-tested system for residential care as well, but the monthly cap for income-related OPPs was set at a more affordable €2,150 in 2012 (Tenand et al., 2020).

In all countries, there are variations by region or municipality, regarding both costs and income-related user fees. One variable is, for instance, whether care-related allowances or benefits are counted as income. This is the case in Austria, while a comparable type of allowance in Italy (*Indennità di Accompagnamento*) is suspended if the stay in a care home is partly or entirely funded from public budgets.

2.2.2 Asset-based OPPs

A major issue is whether assets (savings, investments and property) are considered in means-testing and, as a consequence, in the calculation of OPPs. There are various thresholds for the amount of assets that is left for users and numerous regulations regarding in-vivo transfers. Italy is a special case as it has introduced a specific calculation base to estimate the 'equivalent economic situation index' (*Indicatore della Situazione Economica Equivalente – ISEE*) for households. OPPs (as well as other social assistance benefits) are dependent on this assessment that considers all forms

of income, assets and the composition of the household (Brambilla & Crescentini, 2018).

To circumvent the risk of total exhaustion of assets, Ireland has implemented an asset-related OPP known as the '*Fair Deal Scheme*'. People moving into residential care must pay 80% of their 'assessable income' (i.e. regular income minus allowable deductions such as health costs) and in addition, if they own assets or property, another 7.5% per year of their assets above a threshold of €32,000, for a maximum period of 3 years. This time limit attempts to ensure that certain assets such as a farm or family-run business are not be further curtailed in case of longer stays (Robinson & O'Shea, 2010). However, the fact that the state still takes a financial interest in the estate has led in practice to a split of residents into 'Fair Deal' residents with no or rather low assets and 'self-payers' who try to protect their assets by disbursing their fees fully privately. As the OPPs of the latter are often higher than the 'Fair Deal' ones, this results in cross-funding from richer to poorer residents.

2.2.3 OPPs based on children's income or recourse to next of kin

Finally, the implementation of the social assistance rationale also reflects the role of family values and assigned responsibilities in different countries. For instance, in Nordic countries, with a more individualistic welfare system, partners or other family members are not required to contribute to costs. By contrast, in France, eligibility to social assistance to cover for costs with care hinges on a stringent means-test, with recourse to first- and second-order heirs, including grandchildren and in-laws who have to find an agreement on how to divide the charges among themselves. If family members are unable to come to an agreement, local authorities would step in to compensate the care home provider but may reclaim the amount paid from the estate (heritage) after the resident's death.

In Germany, until recently there were a number of regulations for OPPs from next-of-kin, but as of January 2020, recourse on children would only take place if their gross income exceeds €100,000 per year (Bundesregierung, 2020).

2.3 The distributional impact of OPPs

In the following sections, we briefly review the evidence of the distributional impacts of various types of OPPs in Europe, which is confined to income-related and asset-related fees by residential care users.

2.3.1 Distributional impact of income-related OPPs

Income-related fees are intended to ensure that individuals pay a proportional amount of their income with personal allowance expense (i.e. the minimum amount one is allowed to keep after paying for residential care) as an additional tool to protect low-income individuals from destitution after paying for care. At the lower end of pocket allowance amounts in Europe, these can amount to about 3% of median income after costs are covered in Croatia. At the higher end, residential care users with median income in Iceland and the Netherlands are left with about 25% to 50% of their income. In a simulation on the UK system, increasing the personal allowance expense – i.e. the amount one is able to keep after paying OPPs – would likely benefit the lowest three income quintiles the most and the highest quintile the least (Hancock, 2000), as many people in these lower incomes exhaust all income, save for the personal allowance expense.

Furthermore, the income threshold for accessing public funding (e.g. social assistance) is often set far below the relative poverty line, indicating that many lower-income individuals are not eligible for greater financial support (Oliveira Hashiguchi and Llena-Nozal, 2020). On the opposite end of the spectrum, Sweden and the Netherlands have been viewed as having comprehensive systems, in which nearly all individuals receive some type of support towards residential care. In Sweden, a majority of costs for residential care are covered by the state, with medium- to high-income earners benefiting from having a cap on their OPPs and low-income individuals benefitting from having either extremely reduced OPPs or no costs at all (Karlsson et al., 2007). With an extremely low cap set on OPPs in the Netherlands, financial barriers to access are also very limited, leading eligibility to nursing homes to be mostly based on need and availability of informal care (Hussem et al., 2016). This may explain why lower-income individuals use a proportionately higher amount of residential care services even once controlling for the concentration of needs amongst this group (Tenand et al., 2020).

2.3.2 Distributional impact of asset-related OPPs

The inclusion of assets in determining liable OPPs, particularly housing assets, has also been argued to be an indicator of ability to pay, as it could better reflect one's economic position in old age. In the case of England, if income alone were used to cover residential care, less than 20% of homeowners would be able to afford care for more than 12 months (Mayhew et al., 2017). Conversely, if wealth were included in addition to income, this would extend the time that these individuals could afford to pay for care by more than five years, indicating a large difference in ability to pay when wealth is included.

The existing studies on the distributional impact of asset contributions to residential care have primarily focused on the English system. What has thus far been found is that while asset-based OPPs are intended to reflect an individual's ability to pay, these payments more often fall on lower- and middle-income individuals, as they are the most likely to need residential care due to health problems or more quickly exhaust their assets in paying for residential care. While homeowners tend to be concentrated in middle- to higher-income groups, a substantial number of income-poor individuals hold assets and are therefore required to pay asset-related OPPs (Hancock et al., 2013). Stringent asset-testing is more likely to adversely impact people with assets that are lower in the income distribution more so than those with high income who are more likely able to afford residential care fees out of their income alone (Muir, 2017; Hancock et al., 2007). Lower-income individuals may thus be required to pay more out of pocket for their residential care through asset-related OPPs than those with higher income yet no assets. This is especially intensified when the asset threshold is placed at a relatively low level, such as in the case of England.

Simulating reforms to the English means-tested system further indicates the nuanced impact that asset-based OPPs have on individuals requiring residential care. Defining 'benefit' as an increase in disposable income after covering care costs, Hancock and colleagues (2007) find that:

- Disregarding housing assets entirely from OPPs for residential care would benefit the middle quintiles most, as most asset contributions come from middle-class individuals with housing assets whose income is insufficient to cover all costs.
- A lifetime cap of £100,000 on OPPs to residential care would benefit the highest income quintile and homeowners the most, suggesting that mostly higher income individuals and homeowners spend in excess of that amount on residential care. Individuals in the first four income quintiles do benefit from a cap on fees, but gains are below average compared to the highest income quintile, suggesting that fewer individuals in the lower income quintiles spend in excess of £100,000, simply because they do not have the assets or have such low income that the OPPs paid in their lifetime never reach this value.

3 Methods and Data

3.1 Data Sources

The approach taken in this study relies on the use of microsimulation based on the integration of several administrative and survey datasets (Table 5). Administrative data include the LTC allowance benefit database (Pflegegelddatenbank, PFIFF) from the Main Association of Austrian Social Insurance Institutions (HVB) for 2015, which provides information on care allowance recipients in Austria, stratified by age, gender, level of care benefit (Pflegegeldstufe or simply Pflegestufe) and geographic location of benefit recipients (i.e. municipalities), as well as mortality data on benefit recipients by level of care allowance for 2015. Additional administrative data comes from the federal statistical office (Pflegedienstleistungsstatistik, Statistik Austria) on the number of people in care homes, stratified by gender, age group, and level of care benefit.

As for survey data, we use the 6th wave of the Austrian sample of the Survey of Health and Retirement in Europe (SHARE) whose fieldwork was carried out in 2015. SHARE is a representative survey of people aged 50 and older in Europe, which contains information on age, gender, household composition, income and several types of assets (e.g. net assets, real estate and value of one's housing), as well as debt. SHARE specifically samples the older population in each country and collects a breadth of health data, including self-reported and objective measures of health status. The former include self-assessed general health condition, psychological health, diagnosed chronic conditions, limitations with activities of daily living (ADLs) and instrumental activities of daily living (IADLs), while the latter include grip strength and walking speed.

Finally, we use periodic life tables for men and women for 2015, obtained from Statistik Austria, with information on the number of deaths by age and gender during that year.

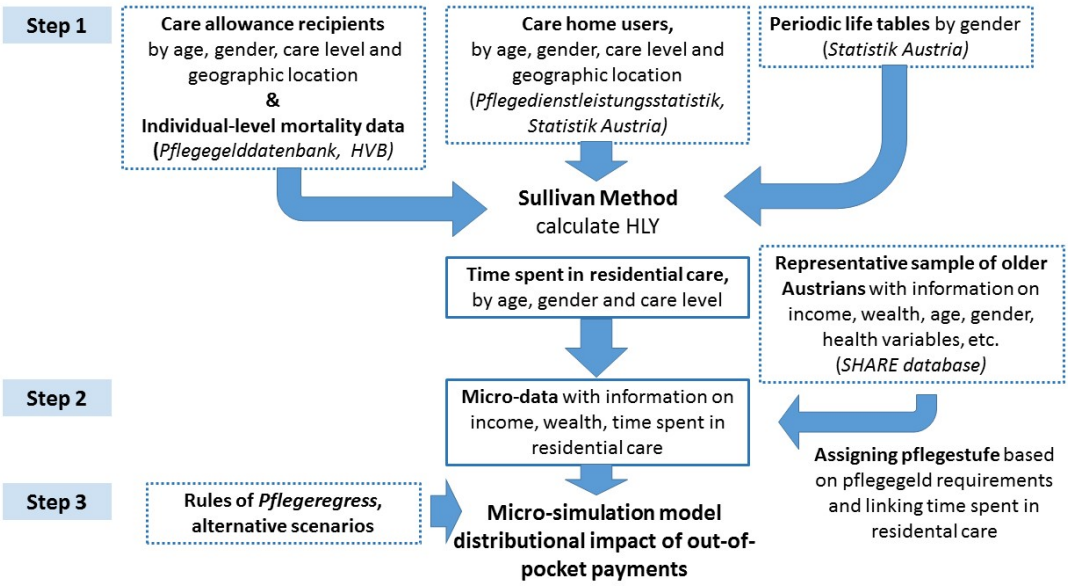
Table 5. Main data sources for this study

Name	Content	Purpose
Pflegegelddatenbank (PFIFF), Main Association of Austrian Social Insurance Institutions (HVB, 2015)	Aggregated data on care allowance recipients in Austria for 2015 (by level of care allowance, age, gender, postcode, and mortality)	Estimated remaining total life expectancy, residential care free life expectancy (stratified by level of care allowance, age, and gender) and expected share of remaining life expectancy spent in residential care.
Periodic Life Tables (Statistik Austria, 2015)	Periodic life table for 2015	
Pflegedienstleistungs-statistik (Statistik Austria, 2015)	Data on all care allowance recipients that are in a care home in 2015 (by age, gender, and level of care allowance)	
Survey of Health and Retirement in Europe (SHARE, wave 5, 2013)	Representative sample of older adults containing individual and household level data on income, assets, functional status, health condition, etc.	To link estimates of share of remaining life expectancy spent in residential care with individual and household level income and wealth data, to simulate distributional impacts.

3.2 Method for linking the datasets and description of the microsimulation model

The methodology used to estimate the distributional effect of out-of-pocket payments is carried out in three sequential steps as depicted in Figure 2.

Figure 2. 3 step process for linking data for the microsimulation model



Step 1: Estimating share of remaining life-expectancy spent in residential care

In step one, we combine data on care allowance recipients (Pflegegelddatenbank, Pfiff), the probability of entering a care home (taken from the Pflegedienstleistungs-statistik), and periodic life tables (Statistik Austria) to estimate total remaining life expectancy and 'residential care-free life expectancy' for men and women, at each age and different levels of care allowance in Austria using the Sullivan method (Jagger, Oyen and Robine, 2006). The Sullivan method is a lifetable approach that allows for the calculation of the time an individual, for each gender and at each age, is likely to spend either in full health, or in a state of diminished health, for the remainder of the life. The method is widely used to calculate Healthy Life Years (HLY) (Eurostat, 2014). In our case, the diminished health state was defined as being institutionalized in a care home. The difference between total life expectancy and residential care-free life expectancy denotes the expected lifetime an individual at each age, gender and level of care allowance is likely to spend in a care home for their remaining life. To determine which subset of our sample would actually be in a care home, i.e. would be spending this estimated remaining time in residential care in a particular year, we use the data from the Pflegedienstleistungsstatistik to assign this probability, stratified by age and care level.

Step 2: Linking estimated lifetime spent in residential care with income and wealth data

The second step includes linking the resulting estimates of expected lifetime spent in residential care with the SHARE dataset. To make this link, we rely upon the process detailed by Brugiavini et al. (2017) to assign care levels of the care allowance to each individual in SHARE. Based on the official list of limitations used to determine the eligibility for the care allowance (i.e. preparing meals, daily body care, dressing, taking medication, etc.) in 2015, we assign time allotments (i.e. 'needs' as defined by the legislation of the care allowance) for each task to individuals in SHARE that reported difficulties with said task. While not all tasks listed by the legislation can be accounted for in SHARE (i.e. colostomy care, catheter care, enemas, etc.), a large majority can. Mental health/disorders are also considered, with individuals with Alzheimer diagnoses or behaviour disorders being attributed the corresponding number of hours per month as designated by the legislation. The number of hours according to this list of tasks is then summed up for each individual. The care allowance rules are then used to attribute individuals into a care level (i.e. Pflegestufe) according to the number of hours of care they required. As care levels 5-7 are all characterized by requiring at least 180 hours of care per month, further distinctions were placed on these higher levels. More specifically, assignment of care level 6 requires the constant presence of a carer, both during the day and at night, and level 7 further requires a lack of movement of the 4 extremities of the care receiver. Therefore, to assign care levels to individuals in SHARE with more than 180 hours of care needs in a month, several other factors are considered in order to distinguish between the higher care levels 5-7, including Activities of Daily Living (ADLS), Instrumental Activities of Daily Living (IADLS), mobility issues and number of chronic conditions.

Once all individuals in the SHARE dataset are assigned a care level, we superimpose the observed distribution of beneficiaries of the care allowance onto the SHARE dataset using a least-distance algorithm. For example, if 5% of individuals between 80-84 years old receive the highest level of care benefit in Austria (Pflegestufe 7), this care level is assigned to 5% of individuals of the same age group in the SHARE sample using a least-distance algorithm, taking the care level assigned in SHARE as the distance-minimizing variable. As a result, the distribution of care allowance beneficiaries by age, gender and care level in the SHARE sample mirrors that of the real-life distribution of care allowance recipients.

Once the observed distribution of beneficiaries of the care allowance is super-imposed onto the SHARE dataset, we assign the expected lifetime spent in residential care to each individual. We also assign probabilities to each individual to represent the likelihood of spending this estimated remaining time in a care home in 2015 in particular. These probabilities are derived using the Pflegedienstleistungsstatistik

data which details the number of care allowance beneficiaries in nursing homes in 2015 by age, gender and care level.

Step 3: Microsimulation and analysis of distributional effects

In the third and final step of the analysis, a microsimulation model is constructed using the 2015 rules of Pflegeregress (baseline scenario) to simulate the distributional effect of asset-based OPPs and their abolishment using the resulting dataset. The rules of Pflegeregress include simulating income liable to be used in determining OPPs, amount of asset exemptions by region and regional costs of residential care. The microsimulation uses the original information on individuals' income, household situation and assets contained in SHARE to determine the OPPs that each person would be liable to for one representative year (i.e. the annual OPPs paid). Alternative reforms to the asset-based OPPs are also simulated to determine the distributional effects of those compared to the abolition of Pflegeregress.

3.3 Strengths and caveats of our method and data

A large strength of our study rests in the novelty of simulating OPPs for users of residential care made possible through the linking of administrative data and SHARE data. This allows us to circumvent the lack of accessible data on OPPs in care homes for Austria.

The use of microsimulation serves us with several advantages, particularly in comparison to other tax and benefit simulations that are based solely on administrative data at the individual level or considering 'typical' model families (Karlsson, 2007). Microsimulation allows for the estimation of effects at both the individual and household level, which is of particular relevance for policies for which family context matters, as is the case of asset OPPs based on jointly held assets. By estimating effects at the individual level and considering the entire distribution of variables across the population, microsimulation also allows for specific effects to be analysed according to particular groups in the population and for several policy outcomes to be analysed, such as how much users contribute to the system (Karlsson, 2007; Fernandez and Forder, 2010).

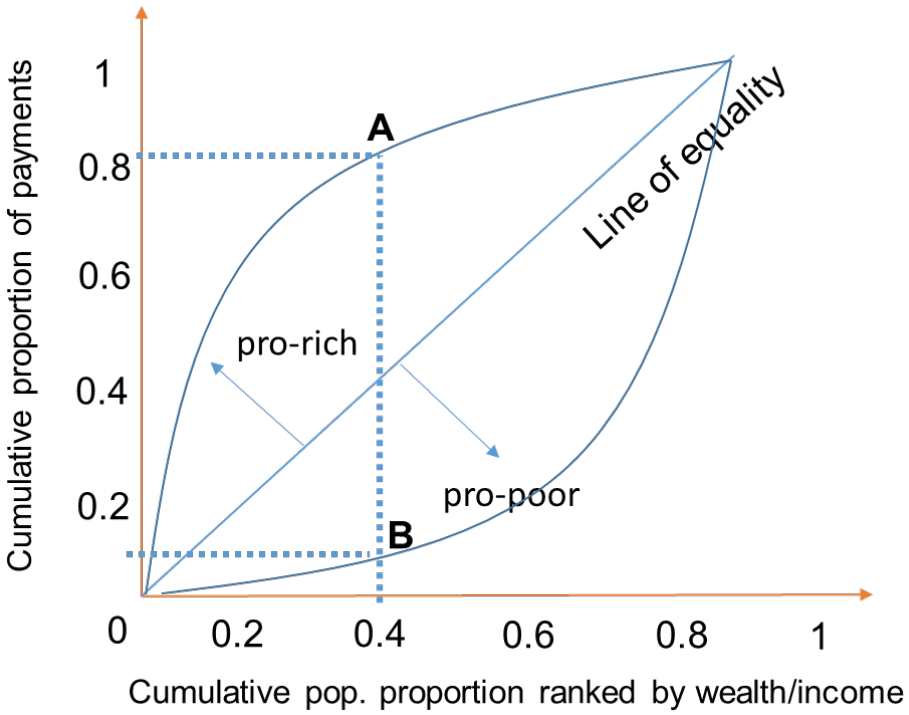
One caveat of the SHARE sample is that it does not include individuals in a residential care setting. As a result, our SHARE sample consists only of individuals outside a care home, who can be assumed to have a better average level of health than those in care homes. However, we assign care levels to each non-institutionalized person using the vast variety of health variables available in SHARE, allowing us to have a scale of relative health levels across the sample. Our results can therefore be

interpreted as a simulation of who would be most likely to require residential care and pay OPPs.

3.4 Measures of distributional effect

To assess the distributional impact of OPPs, we employ well-used measures of inequality in the payment of health services, such as Concentration Curves (CC) and Concentration Indices (CI) for OPPs (Wagstaff, Paci and van Doorslaer, 1991; Wagstaff and van Doorslaer, 2000). The CC provides an intuitive graphic representation of the distribution of payments along the whole distribution of a continuous ranking variable (e.g. income or wealth), allowing us to determine if lower or higher income individuals are paying a larger proportion of payments relative to their position in the rank. If the CC is above the 45-degree line (e.g. point A), lower income individuals are paying a larger portion of overall payments (i.e. the distribution of payments is pro-rich) (see Figure 3) and vice-versa for a CC situated below the 45-degree line.

Figure 3. Graphic representation of the concentration curve



Source: Based on Wagstaff & van Doorslaer, 2000.

The Concentration Index (CI) provides a single measure of inequality and inequity that lends itself to a direct comparison across policy scenarios. Represented by twice the area between the 45-degree line and the CC, the CI is derived by:

$$CI = \frac{2}{\mu} cov(h_i, R_i)$$

where h_i represents the OPP variable, μ is the average of h_i, R_i represents the fractional rank of each individual in the socioeconomic distribution (whether income or wealth), and cov (…) is the covariance between the OPP variable and the fractional rank of each individual.

Health needs can be a legitimate reason for differences in requiring residential care, with those with more severe health needs more likely to require residential care and therefore pay higher OPPs. We account for this by also calculating horizontal inequity indices (HI) via the indirect need-standardisation process (Wagstaff & van Doorslaer, 2000), using income as a measure for socioeconomic status. For our purposes, the HI estimates the amount of OPPs (total, income-related and asset-related) an individual requiring residential care would have paid, had she been someone with an average level of need. For example, for a given 70-year-old woman in our sample, the amount of OPPs she pays is compared to the average OPPs paid by individuals with similar characteristics (e.g. care needs, age and gender). The differences in OPPs paid by similarly situated individuals is then analyzed across the income distribution. The index is denoted by:

$$h_i = \alpha + \sum_k \beta_k N_k + \sum_j \gamma_j \mathrm{Z}_{ij} + \varepsilon_i$$

where h_i represents the residential care utilization variable and is assumed to be linear, N_k represents a function of need variables and Z_{ij} represents non-need indicators. This value of h_i is then used in the CI formula to derive the needs-predicted use of residential care. The HI is calculated by subtracting the needs-predicted CI from the actual CI. A negative resulting CI/HI value indicates a pro-rich distribution of OPPs (i.e. payments are concentrated among the poor), whereas a positive value indicates a pro-poor distribution.

Distributional effects are also simulated using other standard measures that rest on different assumptions of fairness (Olsen, 2011):

- Ability to pay: in which OPPs are deemed fair if they represent for lower income individuals a similar or higher share of income of richer individuals. To calculate ability to pay, we take the total payments made by each quintile and divide it by the average income of that quintile. For a policy to be deemed fair under this measure, OPPs would represent the same share of income across quintiles.
- Actuarial fairness: in which OPPS are deemed fair if they are equally distributed across quintiles. To observe actuarial fairness, the portion of payments by quintile out of the total amount of payments is calculated.

In all measures, we disaggregate total payments into the income-related OPPs and asset-related OPPs (the latter equivalent to the Pflegeregress paid in the baseline scenario).

3.5 Sensitivity analysis

A series of sensitivity analyses are carried out to confirm the robustness of our results. Information on wealth is usually subject to under-reporting in surveys, particularly at the upper end of the distribution. To test for a potential underestimation of assets we compare the distribution of net wealth in SHARE to the Household Finance and Consumption Survey (HFCS) of the European System of Central Banks. The HFCS is the first wealth survey in Austria that uses advanced sampling and imputation techniques and thus allows for a sound scientific analysis of the financial situation of households. Upon finding differences in the distribution of wealth within quintiles between these datasets (see Section 5), alternative estimations are carried out using the SHARE distribution of wealth corrected to match that of the HFCS. For the adjustment, a top-up amount is added to a household's net wealth while the household's position within the wealth rank distribution remains unchanged. This top-up amount is designed in such a way that the distribution of adjusted net wealth in SHARE mirrors the distribution of net wealth in the HFCS. For the correction, the second wave of the HFCS referring to the years 2014/2015 is used.

Another sensitivity analysis is carried out, where in step 2 of matching the SHARE data to expected lifetime spent in residential care, we instead use Multiple Correspondence Analysis (MCA) to match the several datasets (see Figure 2 above). MCA is used to estimate a composite indicator score for each individual in the SHARE subsample based on a vector of covariates denoting measures of self-assessed health, diagnosed chronic conditions, ADLs, IADLs and self-assessed psychological health. As in step 2 above, after estimating MCA scores for every individual, we superimpose the observed distribution of beneficiaries of the care allowance by care level, gender and age onto the SHARE dataset, by assigning in accordance to that distribution the expected lifetime spent in residential care based on the MCA scores obtained. For example, if 5% of individuals between 80-84 years old receive the highest level of care benefit in Austria (Pflegestufe 7), this care level is assigned to the individuals with the top 5% of MCA scores of the same age group in the SHARE sample. This continues for each age cohort and care level until all individuals have been assigned. As a result, the distribution of care allowance beneficiaries by age, gender and care level in the SHARE sample using MCA mirrors that of the real-life distribution of care allowance recipients and could be compared with the matching method described in step 2 above.

4 Distributional analysis of the abolishment of Pflegeregress and alternative scenarios

In this section we provide the results for the simulation of Pflegeregress payments in 2015 – the baseline scenario – and therefore the starting point to analyse the impact of its abolishment, as well as simulation of alternative scenarios for financing long-term care. The section starts with an overview of the descriptive statistics of the administrative and survey data used in the simulation. It then goes on to describe the simulated distribution of OPPs for residential care according to the measures of distributional impact described above. The distributional analysis is first presented using income as a ranking variable, and then using wealth where relevant, before expanding to homeownership and gender. Finally, results for the simulation of alternative scenarios are presented.

4.1 Descriptive results

The majority of care allowance beneficiaries living in residential care are aged 85 and older (53.7%) according to data from Statistics Austria (Table 6). Of those in residential care, over half have either care level 4 (25.8%) or care level 5 (30.7%). Overall, 73.2% of individuals living in residential care have at least care level 4 or higher. A sizeable number of individuals in residential care have an assigned care level below 4 (26.9%), and in a very limited number of cases, no care level at all. These may be old cases who began living in residential care prior to the threshold of care level 4 being instated, or may include individuals with dementia.

Table 6. Distribution of individuals living in residential care in 2015

Care level	Proportion
0	1%
1	2%
2	7%
3	17%
4	26%
5	31%
6	11%
7	5%
Age	
<60	5%
60-74	14%
75-84	27%
85+	54%
Total	**54,687**

Source: Statistics Austria (2015).

Looking at the distribution of the SHARE data for 65+ as a whole, 56.8% are women, a percentage that increases for higher age categories (Table 7). About half of the total SHARE sample is between the age of 65 and 74 (51.4%), with about 15% of the sample being older than 85.

Table 7. Descriptive statistics of SHARE data

		Gender	
	Total	Female	Male
Gender	2,221	1,262 (56.8%)	959 (43.2%)
Age			
65-69	608 (27.4%)	320 (25.4%)	288 (30%)
70-74	532 (24%)	278 (22%)	254 (26.5%)
75-79	446 (20.1%)	254 (20.1%)	192 (20%)
80-84	302 (13.6%)	180 (14.3%)	122 (12.7%)
85+	333 (15.0%)	230 (18.2%)	103 (10.7%)

Source: own calculations from wave 6 of SHARE. Note: Percentages in brackets in the first row represent share of men and women out of total sample. Figures for age groups represent within (each gender) group percentages. Results weighted.

Table 8 showcases the characteristics of each income quintile of the SHARE data. Particularly noteworthy is that considering average residential care fees (varying from €37,193 to €72,866 per year depending on the region), not many individuals would be able to afford a full year of residential care if needed. Wealth distribution is also quite skewed, with the 1st wealth quintile averaging €1,353 and the 5th averaging €514,439 (Table 9).

Table 8. Descriptive statistics by income quintiles

Income quintile	Lower income range	Upper income range	Average income	Average assets
1	0	13,480	9,466	47,429
2	13,481	17,819	15,776	67,678
3	17,820	22,519	19,944	98,530
4	22,520	28,154	25,040	136,228
5	28,155	387,030	39,125	211,220

Source: own calculations from wave 6 of SHARE. Results weighted.

Table 9. Descriptive statistics by wealth quintiles

Wealth quintile	Lower wealth range	Upper wealth range	Average wealth
1	0	4,242	1,353
2	4,260	20,000	10,335
3	20,116	97,022	50,994
4	97,356	222,173	151,984
5	222,385	3,635,606	514,439

Source: own calculations from wave 6 of SHARE. Results weighted.

4.1.1 Results of matching care level distribution to the SHARE data

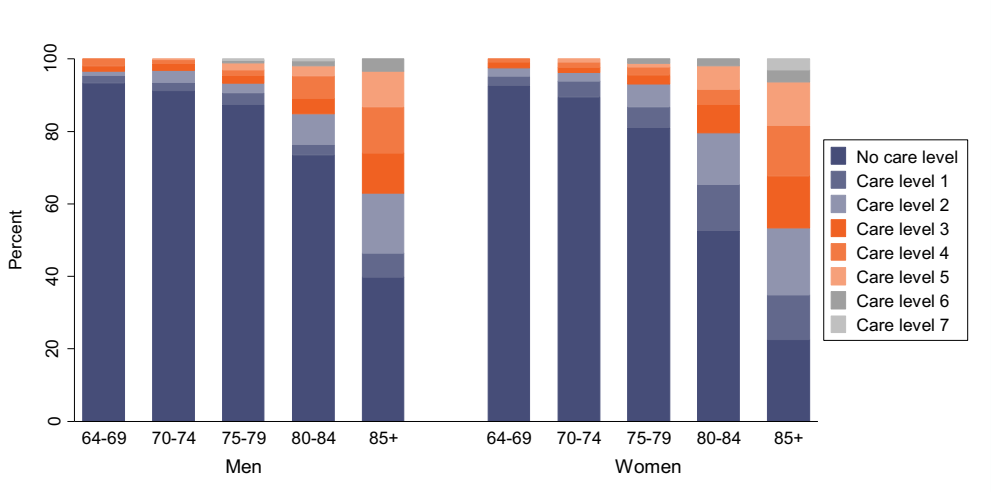
The result of superimposing the distribution of care allowance beneficiaries from 2015 based on administrative data onto the SHARE dataset can be seen in Table 10. The resulting distribution of care levels stratified by age groups and gender of the SHARE data can be seen in Figure 4. The number of individuals with no care level quickly decreases by age category, with the 85+ age category having the largest proportion of individuals assigned a care level, particularly among women.

Table 10. Descriptive statistics of SHARE data

		Gender	
Pflegestufe	Total	Female	Male
0	76%	71%	83%
1	5%	7%	3%
2	6%	8%	5%
3	4 %	5%	3%
4	4%	4%	3%
5	3%	3%	2%
6	1%	1%	1%
7	<1%	<1%	<1%
Total	2221	1276	945

Source: own calculations from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

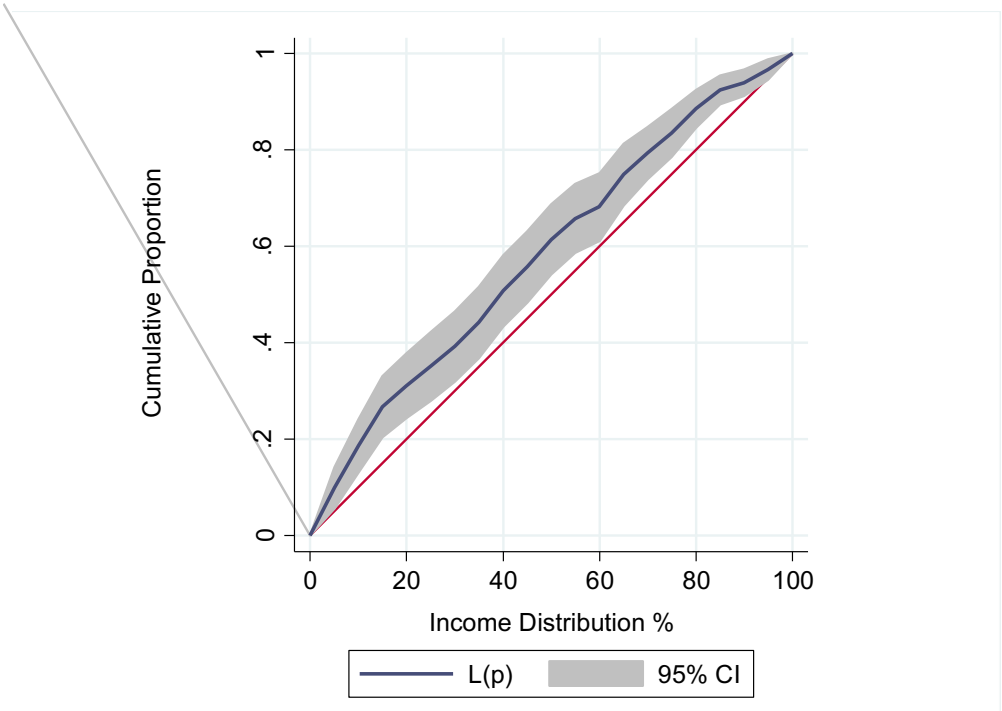
Figure 4. Distribution of care levels by age group and gender



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

Corroborating previous findings (Schmidt, 2017), the concentration curve for proportion of time spent in residential care shows that poorer individuals spend a larger portion of time in residential care than richer individuals (Figure 5). Compared to the top 20% of the income distribution who spend about 15% of the total time in residential care, the poorest 20% spend nearly 30% of the total time.

Figure 5. Concentration curve of distribution of time spent in residential care



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

4.1.2 Ability to pay

Looking at the ability to pay amongst the whole population and residential care users, as well as the intersection of homeowners amongst these two groups, we find a very low ability to pay for residential care fees amongst the Austrian population when considering income alone. Very few individuals would be able to afford 6 months of care solely using income, even amongst the general population and homeowners, who tend to have slightly higher incomes than those in residential care (Table 11). However, ability to pay increases substantially when assets are included, with homeowners being able to afford residential care for the longest period of time.

Table 11. Estimated ability to pay (time during which one could pay OPPs fully)

	Whole population	Home owners among whole population	Residential care users	Home owners among residential care users
Average months liable to be financed using income only	3.4	3.8	3.3	3.7
Average months liable to be financed using income and assets	61.4	131	27.1	80.3
Percentage that could afford >1 year of residential care (income only)	.80%	1.3%	1.1%	2.3%
Percentage that could afford > 6 months of residential care (income only)	6.3%	8.7%	5.1%	7.2%

Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Note: standard errors are in brackets. Results weighted.

Breaking down the ability to pay by income quintiles, substantial differences persist between income alone and inclusion of assets (Table 12). As expected, including assets significantly extends the ability to pay for each quintile, at an increasing rate. At the lower end, those in the 1st quintile could afford 1.1 years of residential care using assets while those in the 5th quintile could afford on average 16.7 years.

Table 12. Estimated ability to pay (average maximum length of stay (years) with OPPs fully), by quintiles

Quintile	1st	2nd	3rd	4th	5th
All (only income)	.113	.206	.258	.316	.525
All (income and assets)	1.13	1.83	2.38	4.0	16.69

Source: Own calculations. Notes: Asset-based OPPs are in cases where income is insufficient to cover nursing fees. Asset thresholds are taken into consideration according to regions. Results weighted.

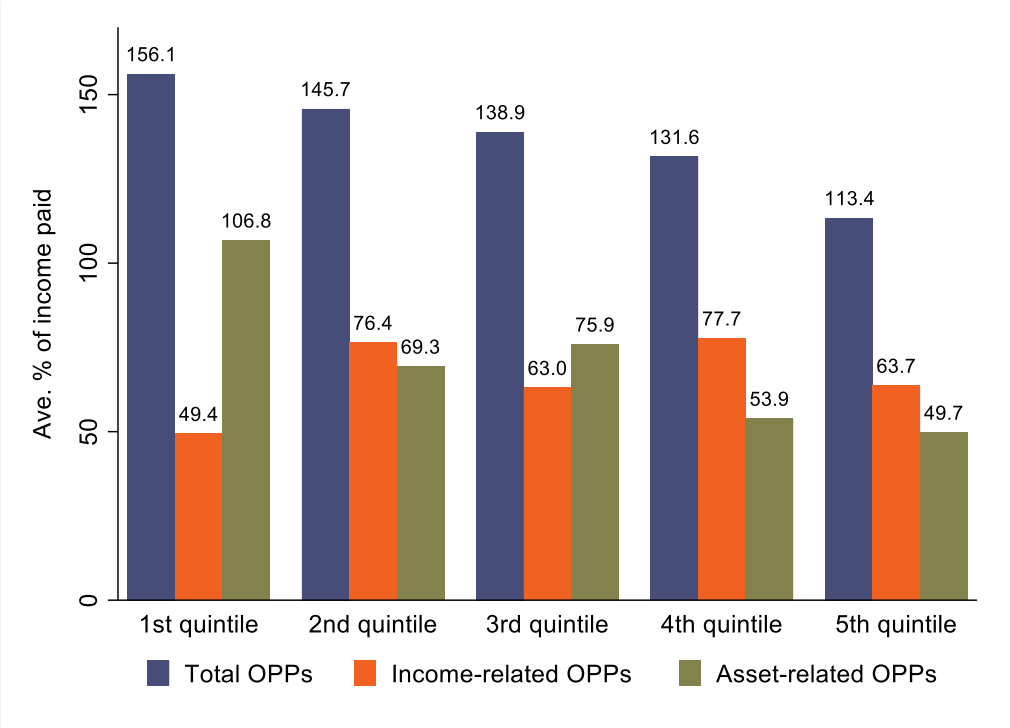
4.2 Baseline results

4.2.1 OPPs in percentage of income and absolute amounts

In analysing the results for the baseline – Pflegeregress in place in 2015 – we first present the results for the distribution of OPPs in percentage of income. All OPPs, whether total, income-related or asset-related, are calculated in terms of proportion of income for the sake of comparability. Using proportion of income as the measurement is particularly important for contextualizing asset-related OPPs, as wealth accumulation can vastly differ within and between income quintiles, rendering comparability in terms of percentage of assets paid unsuitable. In cases where OPPs are in excess of 100% of income, this means individuals had to pay out of assets. Results show that individuals in the 1st quintile pay the highest OPPs in proportion to their income, at an average of 156.1% (Figure 6). This value indicates that on average low-income individuals are forced to pay out of assets – i.e. they pay Pflegeregress – in order to meet their care home fees. More specifically, these individuals contribute 49.4% of their income towards income-related OPPs and the equivalent of 106.8% of their income towards asset-related OPPs. Those in the 5th income quintile pay the equivalent of 113.4% of their income as OPPs, broken down to 63.7% of their income being paid through income-related OPPs and 49.7% through asset-related OPPs. While this is the lowest amount proportional to their income of all the quintiles, it still indicates that individuals in the 5th quintile are also required to pay from assets to access residential care. For the 1st and 3rd income quintile, a larger percentage of their OPPs are paid out of assets, whereas the remaining income quintiles contribute more through income-related OPPs. In comparison to the other

quintiles, the 1st income quintile contributes the largest portion of asset-related OPPs in percentage of their income.

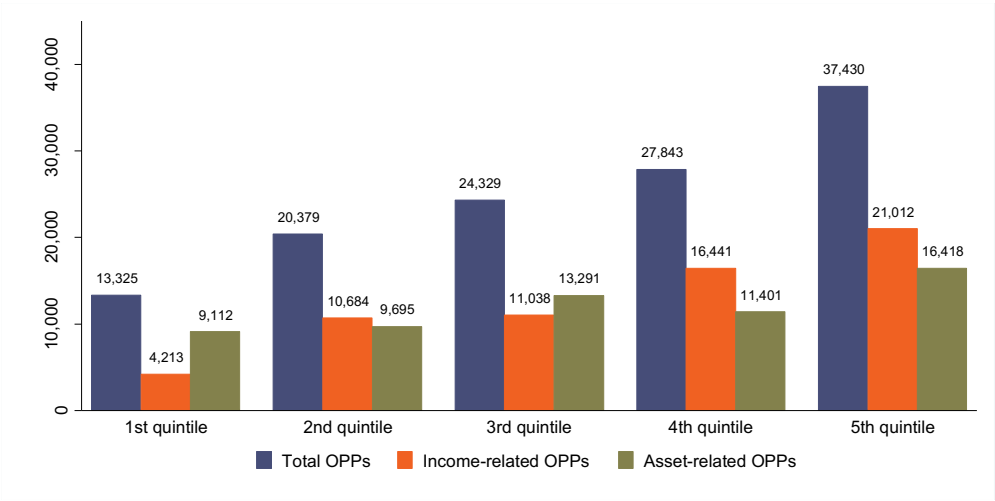
Figure 6. Baseline, annual average OPPs for individuals in nursing homes (% of income)



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

While the 5th income quintile pays the lowest OPPs proportional to their income, in absolute amounts their OPPs are still significantly higher (nearly 3x as much) than those in the 1st income quintile, amounting to approximately €37,430 per year (Figure 7). Of this, €21,102 is contributed through income-related OPPs and €16,417 through asset-related OPPs. On the other hand, those in the 1st income quintile pay on average €13,324, with €9,111 paid from assets and the remaining €4,213 from income. Hence, the majority of the fees paid by individuals in the 1st quintile are through Pflegeregress (68% of total fees) in contrast to the higher quintiles, who pay less than half of their fees through Pflegeregress (41% and 44% of their total fees for the 4th and 5th income quintile respectively). The 1st and 3rd income quintiles are again the only quintiles where the absolute values of asset-related OPPs are higher on average than income-related OPPs.

Figure 7. Baseline, annual average OPPs for individuals in nursing homes

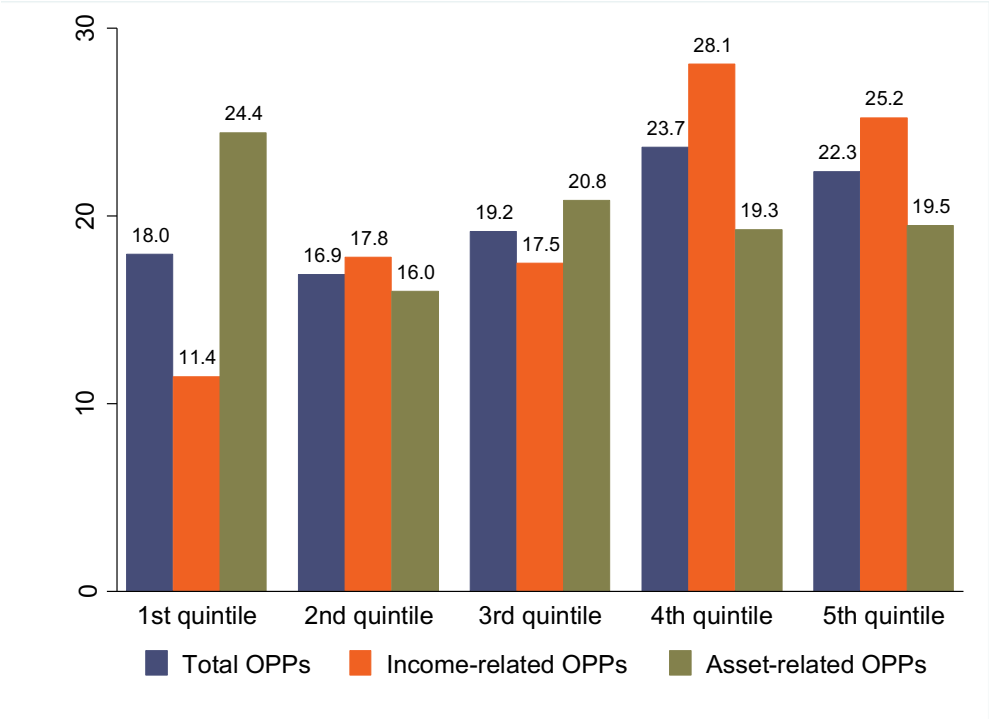


Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

4.2.2 Actuarial fairness: the distribution of OPPs by each quintile

From an actuarially fair perspective, the 1st and 2nd quintile contribute the lowest proportion to the total OPPs, while the 4th and 5th quintiles contribute the most (Figure 8). Similar findings can be seen for the income-related OPPs, where the 1st quintile contributes the smallest proportion, and the 4th and 5th quintiles contribute the most. This takes into consideration that while the 1st quintile contains the largest proportion of individuals assigned into a nursing home, these individuals tend to pay less in absolute terms as a result of having lower income. However, while the 1st quintile contributes the lowest proportion of overall income-related OPPs, they pay the highest portion of the asset-related OPPs (24.4%), despite having the lowest average value of assets of all the quintiles.

Figure 8. Baseline, share of total OPPs per type of OPP (% of total paid by type of OPP)

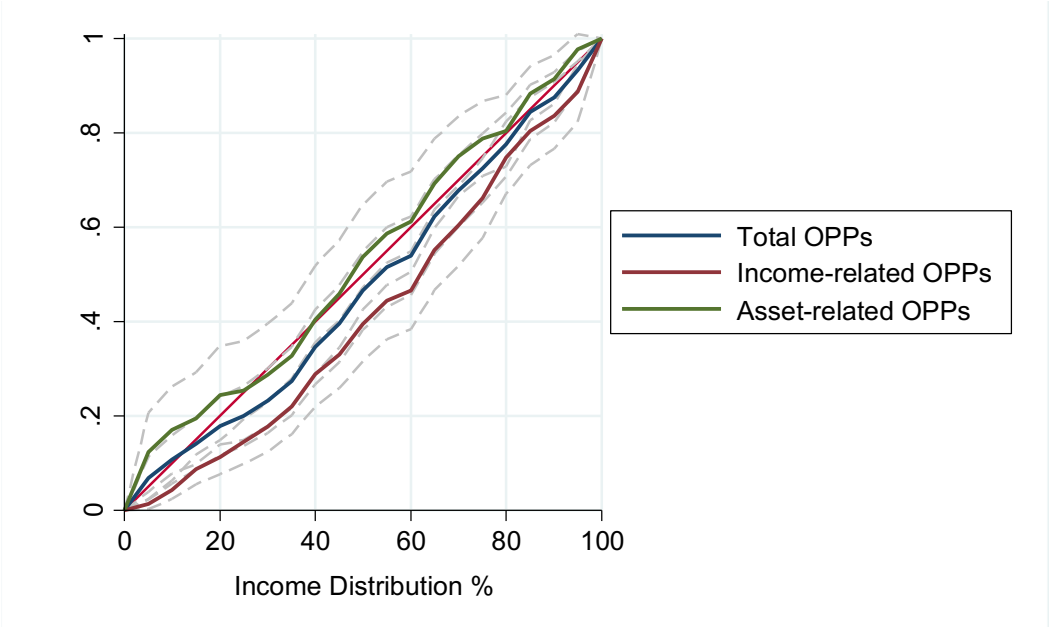


Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

4.2.3 Concentration curves and concentration indices for OPPs

Using income as the ranking variable, results for the baseline show that the concentration curve (CC) for income-related OPPs is situated further below the 45-degree than the CC for total OPPs (Figure 9). Conversely, the CC for asset-related OPPs lies mostly above the 45-degree line, save for some sections between the 25th and 40th percentile of the income distribution that slightly cross below the 45-degree line. It is evident that the income-related OPPs are targeted in a way that reflects richer individual's higher ability to pay, as these individuals paid a larger proportion of the income-related OPPs. The distribution of asset-related OPPs tells another story, in that poorer individuals pay a larger proportion of these fees from their assets. It is clear that the pro-rich distribution of asset-related OPPs counteracts the pro-poor distribution of income-related OPPs, resulting in the distribution of total OPPs being only slightly pro-poor.

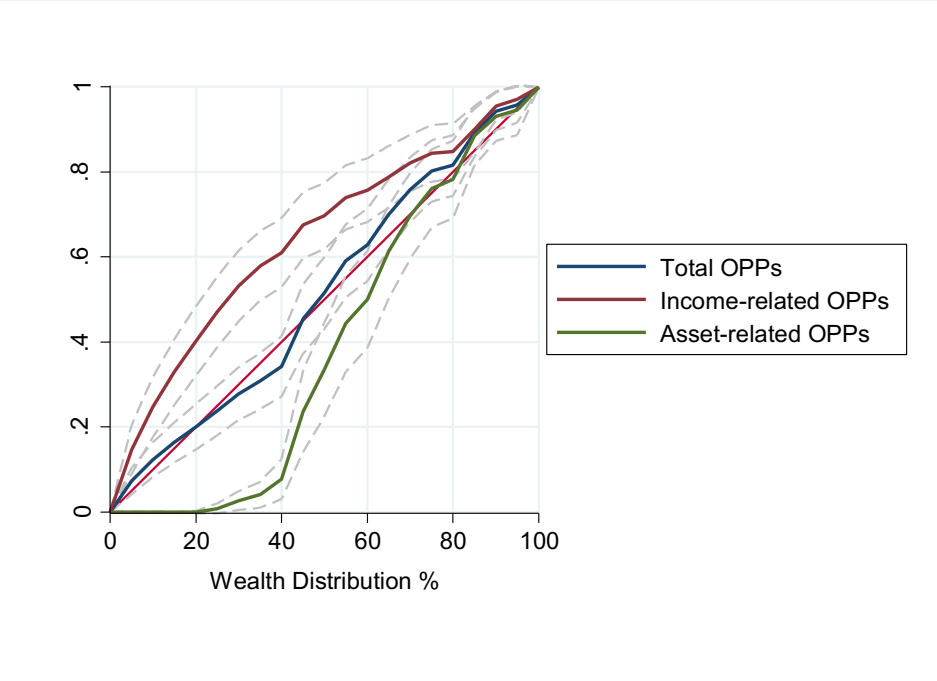
Figure 9. Concentration curves of OPPs, broken down into income- and asset-related fees, using income as a ranking variable.



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

The mismatch between income and wealth distributions is evident when taking wealth as the ranking variable (Figure 10) and comparing it with the above CC. The CC for total OPPs follows the 45-degree equality line for most of the distribution, apart from the median percentiles onward, suggesting limited inequality overall (Figure 10). However, breaking down total OPPs into their income- and asset-related components reveals the counteractive distributions of each. The distribution of income-related OPPs is pro-rich, as less-wealthy individuals pay a larger proportion of overall income-related OPPs. Conversely, the distribution of asset-related OPPs is pro-poor, as wealthier individuals pay the largest portion of these OPPs. The middle wealth quintile in particular pays the largest proportion at 40% of total asset-related OPPs. This suggests that Pflegeregress payments are actually concentrated in the middle wealth quintile more so than the upper wealth quintiles for asset-related OPPs.

Figure 10. Concentration curves of OPPs, broken down into income- and asset-related fees, using wealth as the ranking variable.



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

The concentration indices (CIs) offer the numerical representation of the results displayed for the CC above. The CI for income-based OPPs is pro-poor, meaning that higher income individuals pay a larger proportion of the income-related fees (Table 13), while the CI for asset-based OPPs is negative, as poorer individuals pay a larger proportion of the Pflegeregress, although the results are not statistically significant. With the CI for income and asset-related OPPs working in opposite directions, the CI for total OPPs is slightly positive, indicating a pro-poor distribution, but again, insignificant at the 10% level. Even once the distribution of needs is accounted for, which is depicted by the inequity indices (HIs), all OPPs (total, income and asset-based) are positive, indicating a pro-poor distribution. The change in direction of the HI for asset-related OPPs in comparison with the CI above suggests that the larger proportion of these OPPs paid by poorer individuals reflects their higher average need and therefore use of residential care.

Table 13. Concentration indices (CI) and inequity indices (HI) for the baseline scenario

	Total OPP	Income-related OPP	Asset-related OPP
CI for baseline	0.057	0.168***	-0.052
HI for baseline (i.e. accounting for need)	0.159**	0.249**	0.198*

Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. *** p-value<0.0001, ** p-value<0.001, * p-value<0.01. Results weighted.

Our findings indicate that the abolishment of Pflegeregress on average benefits individuals across all income quintiles. In fact, many lower-income individuals hold sufficient assets to qualify them for asset-based OPPs and these stand to gain from its abolishment. The income and wealth distributions amongst older Austrians is only very partially overlapping, which also likely contributes to the substantial asset-related OPPs paid by these lower quintiles (Table 14). The average value of assets held by individuals in the 1st and 2nd quintile is equivalent to over €42,000 and €71,000 respectively. Many lower-income individuals therefore still have sizable assets that are considered towards OPPs for residential care as they cannot afford nursing home fees through income alone. At the higher end, those in the 5th income quintile hold on average €198.000 worth of assets.

Table 14. Distribution of income quintiles versus wealth quintiles (%)

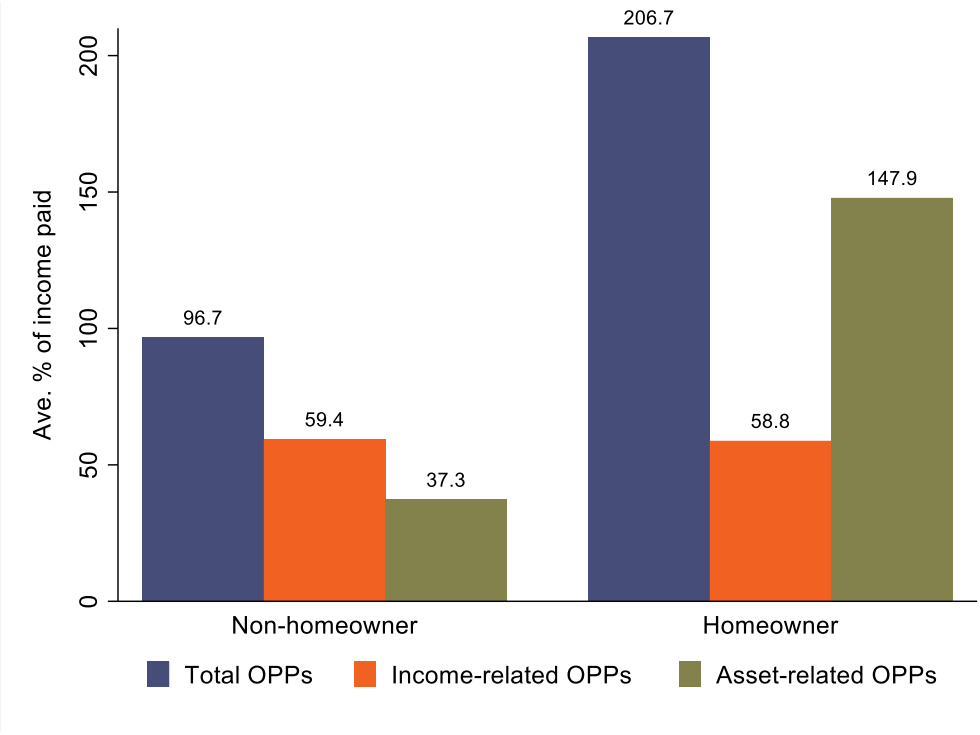
	Wealth quintiles					Average assets (yearly, Euros)
Income Quintiles	**1st**	**2nd**	**3rd**	**4th**	**5th**	
1st	39.6	22.1	15.1	17.3	5.7	47,429
2nd	26.5	23.3	19.6	20.1	10.4	67,678
3rd	18.2	25.7	20.9	19.5	15.5	98,530
4th	11.6	19.0	22.2	21.41	25.7	136,228
5th	4.0	10.1	21.8	21.3	42.5	211,220

Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

4.2.4 OPPs according to home ownership status and gender

We find that for individuals in residential care, homeowners contribute on average more than double their income for total OPPs, whereas non-homeowners contribute approximately the equivalent of their income (Figure 11). This difference can be explained entirely by asset-related OPPs. Although both groups pay the same equivalent proportion of income on income-related OPPs, homeowners contribute 148% of their income on asset-related OPPs compared to 37% by non-homeowners. These results indicate that home ownership makes up for a significant share of assets held by users of residential care and that it is likely that a substantial share of Pflegeregress is financed through these.

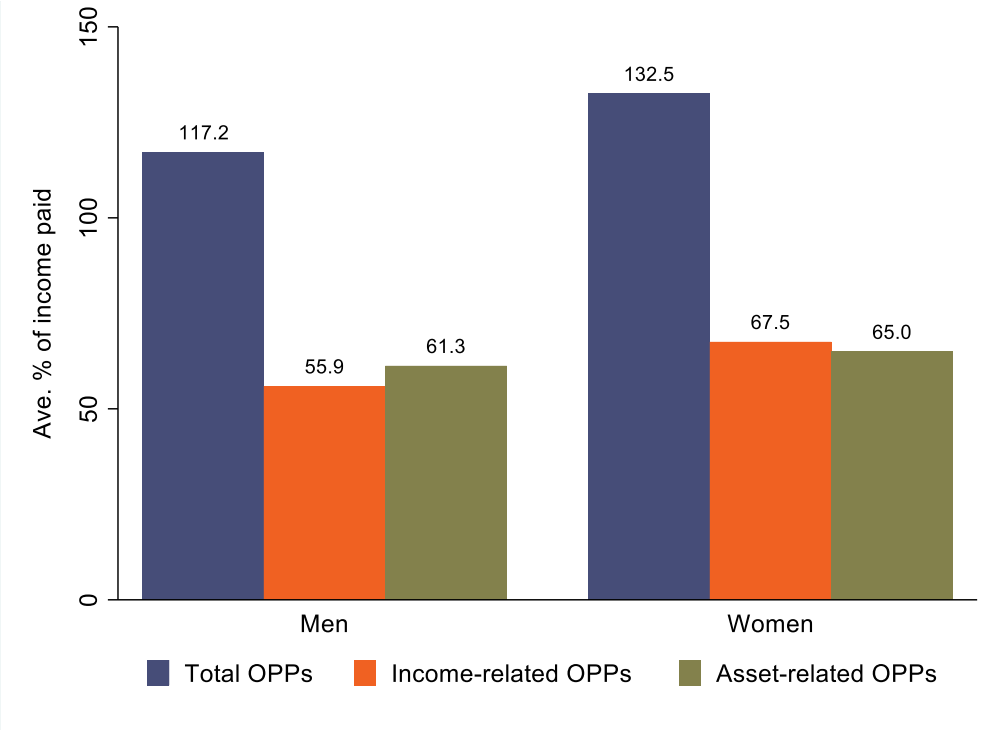
Figure 11. Baseline, annual average OPPs for those in a nursing home by homeownership (% of income)



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

The results of the simulation can also be viewed from a gender aspect. Women requiring residential care pay on average 132% of their income while men pay on average 117% (Figure 12). Women pay a slightly higher proportion of income for income-related OPPs than asset-related OPPs, whereas the opposite is seen for men.

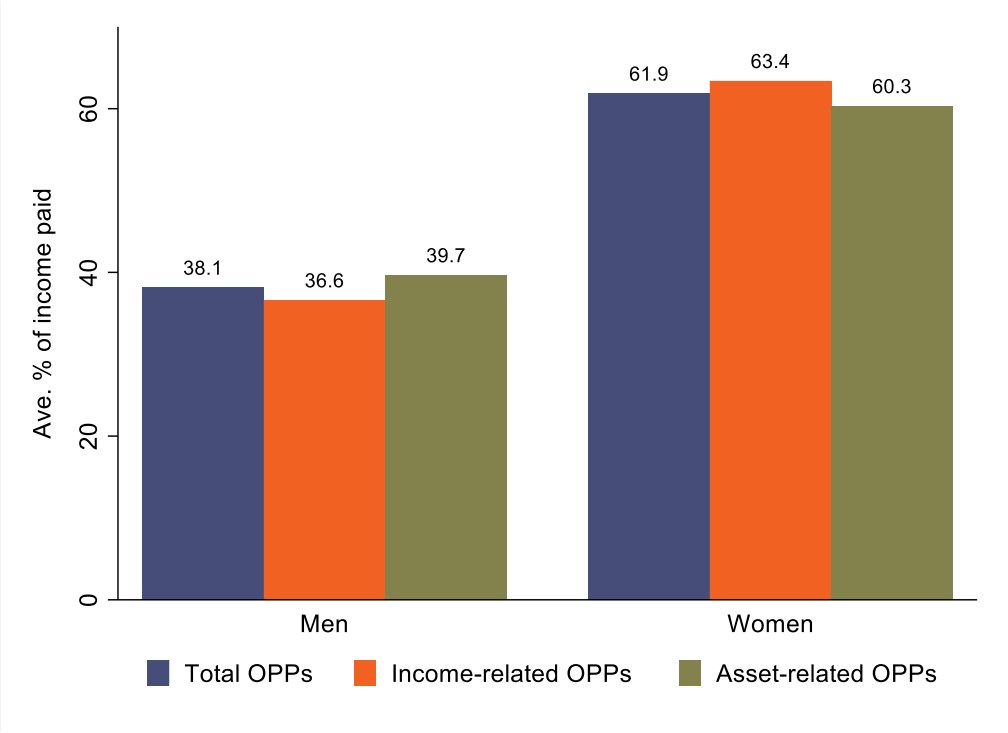
Figure 12. Baseline, annual average OPPs for individuals in nursing homes (% of income), by sex



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

Breaking the results down by gender also shows that women contribute proportionately more, almost 62%, to overall OPPs (Figure 13). Even broken down into income- and asset-related OPPs, still women contribute more through both avenues. One likely explanation is that women are more likely to use residential care, as a result of their longer life expectancy, living arrangements in old age (a higher proportion live alone) and higher prevalence of frailty and health problems in old age. In fact, nearly 57% of nursing home residents in Austria in 2015 were women.

Figure 13. Share of total OPPs (per type of OPP) (% of total paid by type of OPP), by sex



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

4.3 Comparing alternative financing scenarios

Having established the baseline of who was contributing to residential care fees prior to abolishment, we now examine potential alternative options to financing the shortfall created by abolishing Pflegeregress. The alternatives considered are:

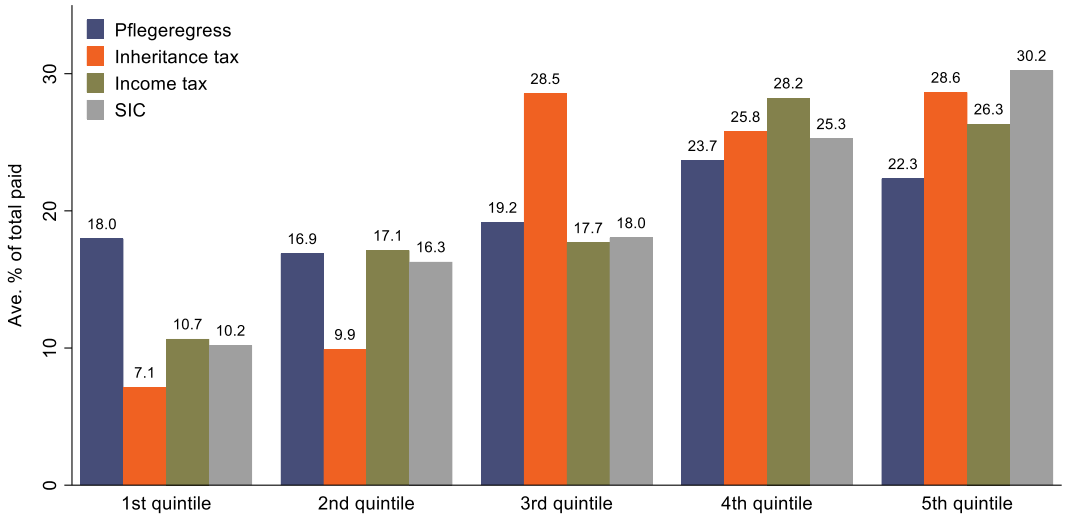
- Introducing an additional income tax among the entire population;
- Applying an inheritance tax of 31.48% on individuals 65+ with an asset threshold of €300,000;
- Introducing a social insurance contribution towards long-term care by individuals 65+.

For the income tax scenario, we use EUROMOD to determine the required additional income tax rate of 0.65% for 2015. The inheritance tax rate of 31.48% is determined given the total wealth available in the SHARE sample for 65+. Finally, the social insurance contribution (1.55% of income) for those 65+ is applied in line with the design of the current social insurance contribution system (SIC), where everyone 65+ with monthly income (employment income, self-employment income and pension income) higher than €405,98 contributes, up to a maximum SIC base of €4,650 per month. All scenarios are budgetary-neutral in that they would completely offset the

cost of abolishing Pflegeregress. They can be seen as alternative scenarios to the agreed transfer from the federal government that will need to be paid by increased tax revenue or future debt.

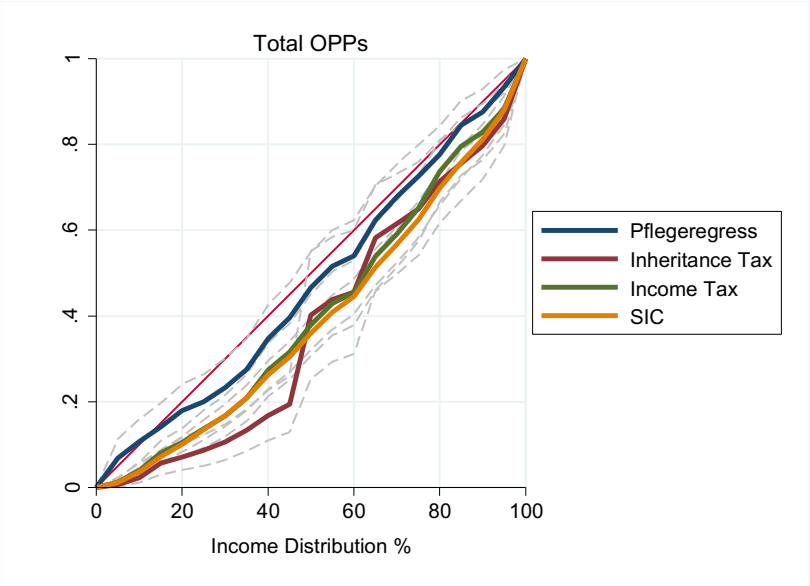
From an actuarially fair perspective, Figures 14 and 15 demonstrate that the alternative options to Pflegeregress would generally entail a redistribution of financing from higher- to lower-income individuals (i.e. the former would pay more). While the baseline results indicate that contributions of each quintile to total OPPs hovered around 20% each, the alternative solutions would leave the 4th and 5th quintile contributing significantly more to total payments, in the range of 25% to 30%. At the same time, the alternative scenarios would result in the 1st quintile contributing between 7.1% and 10.7% of overall payments.

Figure 14. Contribution to the total payments (% total paid), alternative scenarios



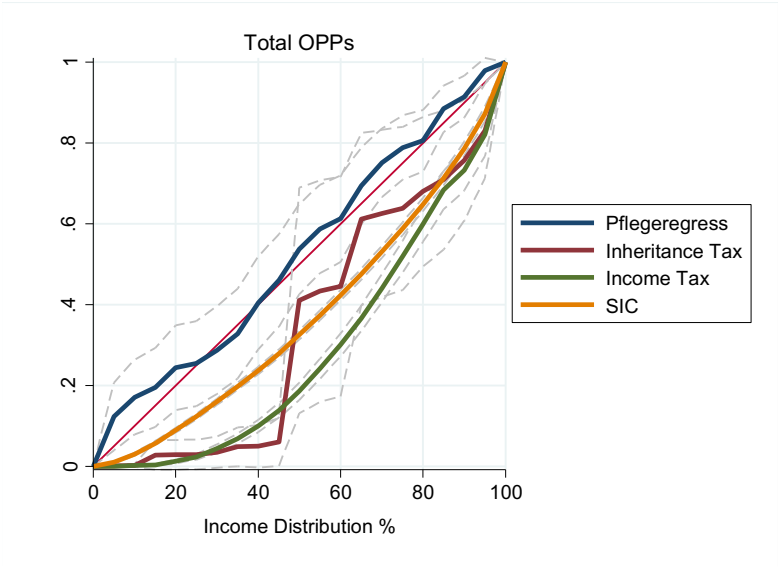
Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

Figure 15. Concentration curves for different scenarios for all individuals (in and out of nursing homes), total OPPs.



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

Figure 16. Concentration curves for different scenarios, OPP for "assets or replacement of assets" (i.e. not including income-related fees) (right).



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

Increasing income tax by 0.65% would benefit the first 2 quintiles, particularly the 1st quintile that pays nothing due to the income tax threshold set at €11,000, while simultaneously negatively impacting the 4th and 5th quintile. These 2 upper quintiles would end up paying nearly 70% of the overall OPPs collected in place of Pflegeregress. The middle quintile would be left relatively unchanged.

We find that by instating the inheritance tax to cover the shortfall of Pflegeregress, the first 2 quintiles would be significantly better off at the expense of the 3rd, 4th and 5th quintiles who collectively would pay nearly 95% of all the inheritance tax payments. The 3rd quintile alone would contribute to 40% of the overall payments. This indicates that those owning housing with value above €300,000 are concentrated in the middle to upper quintiles.

Similarely to the first alternative, the first 2 quintiles would benefit from the social insurance scheme for 65+ at the expense of the upper 2 quintiles, as they pay a smaller portion of these OPPs in place of Pflegeregress (the bottom 60% pay 40% of overall fees). This is the result of higher-income individuals paying a larger absolute amount for the insurance contribution compared to lower-income groups. The middle quintile again is relatively unimpacted, as they would pay a similar proportion of OPPs as they did when Pflegeregress was in place.

Important to note is that in all three of the alternative options of funding the shortfall, benefits would accrue on average to each quintile, as individuals paying asset-related OPPs are found throughout each quintile. In our simulation of alternative options, individuals requiring residential care would benefit insofar as the alternative financing mechanisms do not require them to pay more than what they would pay under Pflegeregress. However, in all of these alternative scenarios, not only are individuals that require residential care affected, but additionally so are those that do not require these services. Individuals outside of nursing homes are left worse off, as a result of having to contribute through the alternative financing mechanisms despite not needing the services. In the income tax scenario specifically, payments are re-distributed through a significantly larger base, specifically those aged below 65 that already contribute through income taxes. A large portion of the income tax burden falls on the working class below 65, as individuals above 65 tend to have less income by comparison.

The CCs for the alternative solutions indicate that all 3 alternatives would result in richer individuals paying a larger portion of the costs for residential care than when Pflegeregress was in place (Figures 15 and 16). Calculating the concentration indices for the alternative scenarios confirms this, with the total OPPs and asset/tax-related OPPs in place of Pflegeregress all representing pro-poor distributions (Table 15).

Table 15. Concentration indices for the different scenarios

	Total OPP	Income-related OPP	Asset-related OPP
Baseline	0.057	0.168***	-0.052
Inheritance tax	0.241***	0.168***	0.312***
Income tax	0.187***	0.168***	0.426***
Social insurance 65+	0.214***	0.168***	0.260***

Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. *** p-value<0.0001, ** p-value<0.001, * p-value<0.01. Results weighted.

By comparing the change in proportion of total asset-related OPPs paid for the alternative financing measure, we can distinguish which alternative measure benefits each quintile most on average, or in the case of the upper quintiles, which scenario is least harmful. It stands then that of the 3 alternative scenarios, the income tax would benefit the 1st quintile the most, as a result of income-earners under €11,000 not having to pay any income tax, let alone the increase in tax. The inheritance tax scenario would closely follow as the most beneficial for the 1st quintile, as very few individuals have homes valued above €300,000 in this quintile. Of the 3 scenarios, the 2nd quintile would benefit most from the inheritance tax, followed by the income tax, for similar reasons as the 1st quintile. Few individuals in the 2nd quintile own property above €300,000, and in the case of the income tax, they still pay significantly less in absolute terms compared to the upper quintiles. The income tax and social insurance contribution leave the 3rd quintile relatively unimpacted, while the inheritance tax scenario would negatively impact this quintile heavily, as many individuals in this quintile own housing assets above €300,000. The 4th and 5th quintile do not benefit at all from any of the alternative scenarios, as each results in larger OPPs for these quintiles. For the 4th quintile, the inheritance tax and the social insurance scheme appear to negatively impact this group relatively the same, but less in comparison to the income tax scenario. The inheritance tax would impact the 5th quintile the least, as only a few would pay the inheritance tax. The income tax scenario would render the 5th quintile the worst off of the 3 alternative scenarios, with this quintile contributing with 40% of the overall additional tax revenue.

Breaking this further down into contributions to OPPs by gender to determine if certain policies may have a gendered impact, we find that all 3 scenarios resulted in women paying a lower proportion of overall OPPs in comparison to when the Pflegeregress was in place (Figure 16). The inheritance tax scenario results in men and women contributing almost an equal share to total OPPs (51.4% of total OPPs versus 48.6% respectively), as women contribute a smaller proportion to the inheritance tax revenue than men. In the social insurance scheme for 65+, women contribute more overall to total OPPs (54.9% of total OPPs) compared to men

(45.1%), despite women contributing a smaller proportion to the total social insurance scheme revenue than men. The income tax scenario only marginally decreases the proportion paid to total OPPs by women, yet significantly shifts the distribution of who pays, with men contributing to a larger proportion of total OPPs.

Figure 17. Share of total OPPs (per type of OPP) for each scenario (% of total paid by type of OPP), by sex

Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

5 Sensitivity analysis

The lack of publicly available administrative data providing insights into the relationship between income, wealth, Pflegestufe and OPPs poses significant obstacles to the validation of our results. Nonetheless, we are able to compare the distribution of income and OPPs with administrative data on actual payers of residential care, namely data under reserve from the Fonds Soziales Wien (FSW)[5]. The referenced dataset includes all persons in Vienna who used care services of the FSW in 2011. Updating incomes to 2015 levels allows us to compare the income distribution of people living in care homes in Vienna to the income distribution of people we allocate to care homes in SHARE[6]. Both income distributions match very well with only minor deviations (Table 16), indicating that incomes of people in residential care are well reflected in our sample using our method to match administrative data from users of Pflegegeld and survey data from SHARE (see Methods section above).

Table 16. Deviation (in percentage) between the income distribution of users of residential care in FSW data and our simulation sample

Percentile of income	10%	25%	mean	50%	75%	90%	95%
Average deviation from FSW data	--(a)	-3.72	0.13	-2.85	-8.50	-9.98	-0.47

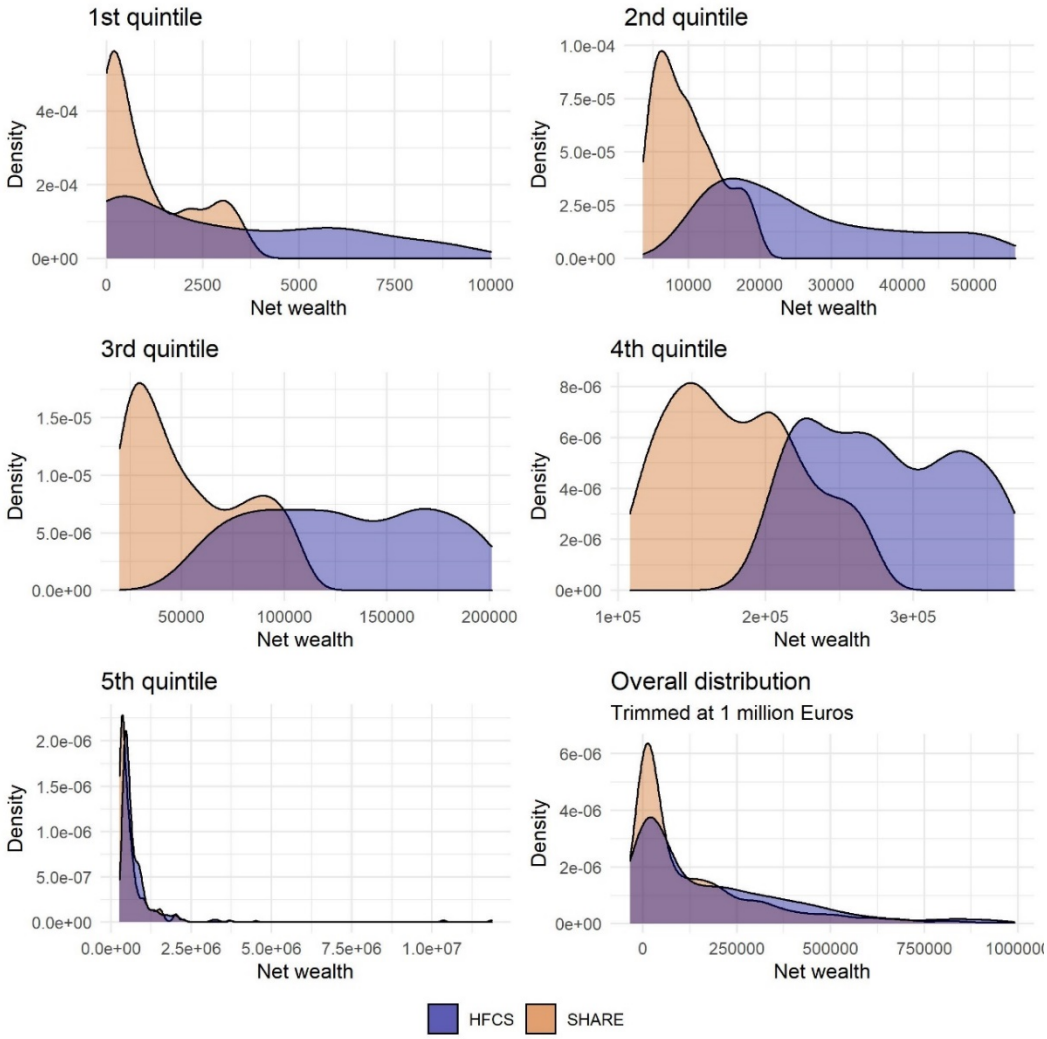
Source: Own calculations using data from FSW, Statistics Austria and SHARE.
Notes: (a) No income-related OPP information for the 1st decile.
Negative values mean that income in the simulation sample was lower than in the FSW data for users of residential care and vice-versa for positive values.

Despite the limitations that the FSW data only refers to Vienna and the year 2011, we can conclude that the allocation of people to residential care in SHARE is carried out in such a way that their income, as well as average OPPs, are comparable to actual figures from Vienna.

[5] Contractual restrictions do not allow us to publish statistics directly derived from this FSW data. For further information please contact the authors.

[6] We compare the FSW data for Vienna with our whole sample used for the simulation as the number of observations for Vienna alone in the latter is too small for a meaningful comparison.

Figure 18. Net wealth quintiles of HFCS and SHARE



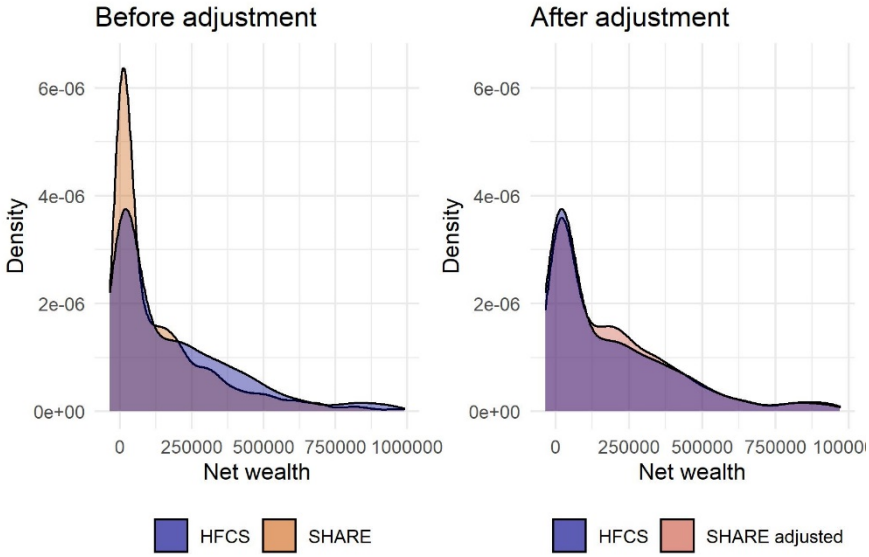
Source: own calculations based on HFCS and SHARE.
Notes: Results weighted.

An additional sensitivity analysis is carried out to adjust the wealth reported in SHARE to account for any potential underreporting of assets. Through the correction, the distribution of wealth in SHARE mirrors the distribution of wealth in the Household Finance and Consumption Survey (HFCS). The HFCS is used as a benchmark as it is the most reliable data source for wealth in Austria. Figure 18 compares quintiles of wealth of the two datasets. Wealth reported in HFCS is considerably higher than wealth in SHARE. While the sum of wealth in SHARE amounts to €202.6 billion, wealth in HFCS sums up to €326.6 billion. This difference is not limited to rich households as a strong divergence is visible across the whole distribution starting in the first quintile.

Through the correction applied, total wealth in SHARE increases from €202.6 billion to €326.4 billion. Figure 19 shows the distribution of SHARE before and after the adjustment. When considering the wealth correction, the estimated cost of the

abolishment of Pflegeregress in the baseline scenario increases from €565.6 million to €715 million.

Figure 19. Distribution of wealth before and after adjustment



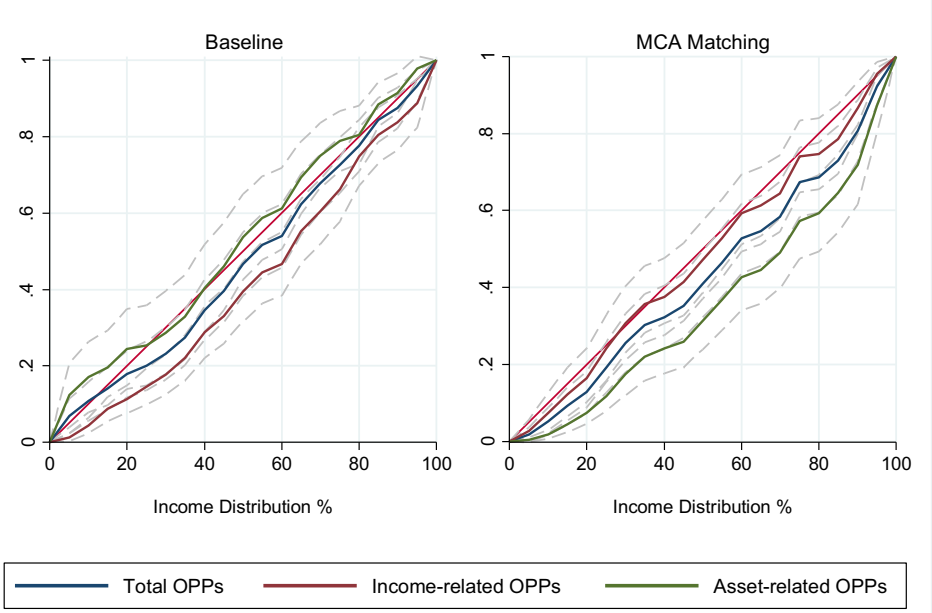
Source: own calculations based on HFCS and SHARE. .
Note: For a better readability the x-axis is cut at €1 million. Results weighted.

Finally, we also verify our method of matching the data of Pflegegeld beneficiaries and individuals in residential care to the SHARE data by testing an alternative method to match both datasets using factor analysis, specifically MCA.

Using the MCA method to match the data, we also find that those assigned into care on average have higher income than those assigned in our baseline results. Essentially, those assigned into care homes using the MCA method are a different segment of the population (more affluent) than those in our baseline results. These differences in assignment to residential care between methods is likely a result of the different factors taken into consideration for each. Our baseline results strictly use the care tasks set out in the requirements for determining care levels. Conversely, the MCA matching method uses a variety of more general needs, such as self-assessed general and psychological health, diagnosed chronic conditions, ADLs and IADLs that do not reflect as closely the requirements to determine care levels.

Comparing the baseline results to the results using the MCA method (Figure 20), we find the MCA results in a larger pro-poor distribution of total OPPs, as well as when broken down into income-related and asset-related OPPs. The largest difference can be seen from the baseline results to the MCA-matched results for total OPPs, where the CC shifts significantly further below the 45-degree line, resulting from both income- and asset-related OPPs being markedly more pro-poor.

Figure 20. Concentration curves of the baseline results (left) and using the MCA matching method (right).



Source: Own calculation from the simulation model based on Statistics Austria (2015) and wave 6 of SHARE. Results weighted.

Finally, we find that the total cost of abolishing Pflegeregress is significantly higher when using the MCA method. We find the cost of abolishing Pflegeregress to be slightly over €1.1 billion, almost double that of our baseline matching. We find this to be the case due to the MCA method of matching resulting in higher average assets for those assigned into care homes.

These results indicate that our initial method of matching the distribution of care allowance beneficiaries to the SHARE data is a better fit than the MCA matching, as it minimizes the deviations from the real distribution of users of residential care by income. Taking this into consideration, our baseline results could be considered a lower end estimate of the potential impact of Pflegeregress.

6 Discussion and policy implications

6.1 The distributional impact of Pflegeregress and several alternatives

Asset-based OPPs for residential care are built on the premise that individuals' contributions to their costs of care should reflect ability to pay. As such, equity, or the distributional impact of asset-based OPPs are a key parameter for the assessment of their performance as a policy tool. The simulation results show that Pflegeregress entailed a significant re-distribution of resources from wealthy individuals to those without assets. However, the distribution of wealth substantially departs from the distribution of income among older people in Austria. Moreover, those with low income are more likely to use residential care. Taken together, this means that Pflegeregress disproportionately fell on low-income older individuals who had some or modest assets. This was evident whenever income was used as a ranking variable for the distributional analysis. On average, the simulated Pflegeregress paid by individuals of the 1st income quintile amounts to more than the equivalent of their annual income. For individuals in the other income quintiles, Pflegeregress represents a much smaller share of their annual income. From the total asset-based OPP paid in one year, approximately one quarter is concentrated on the 1st income quintile. The concentration index for the asset-based component of the OPPs (i.e. Pflegeregress alone) is also negative, denoting a concentration of payments in the less (income) affluent, although the confidence interval includes the value 0.

The abolishment of Pflegeregress could thus be classified as a progressive measure, insofar as it aligned total OPPs for residential care with the income distribution. Those who benefited from the abolishment of Pflegeregress are mainly concentrated among the 1st income quintile of older people in Austria, particularly among those with lifelong savings and homeowners. Assuming, however, that wealth rather than income better reflects older people's ability to pay, was the maintenance of Pflegeregress still defensible from an equity point of view? The results seem to indicate that, even when considering wealth as a ranking variable for socio-economic condition, Pflegeregress achieved a relatively poor targeting because a substantial part of the total asset-based OPPs were paid by the middle wealth quintile.

Findings must be interpreted also in light of less affluent individuals' higher likelihood to be in residential care (Schmidt, 2017; Schmidt et al., 2014). This is due to poorer health, but also housing conditions (e.g. smaller apartments that preclude the hiring of a 24-hour carer). Residential care is also often a last resort for the poorest individuals with poor health that have no other options. This double whammy highlights the potentially regressive nature of asset-based OPPs for residential care.

Conversely, richer individuals are less likely to use residential care (Fuino & Wagner, 2020), potentially out of preference for home-care services and stronger financial incentive to use homecare services instead (Tenand et al., 2020). This also recognizes the fact that homeowners, who tend to be concentrated in the higher income quintiles, are less likely to use residential care (Rouwendal & Thomese, 2013; Miller & Weissert, 2000; Luppa et al., 2010).

From a gender perspective, Pflegeregress seems to have been paid by women more so than men. This, too, can be attributed to higher probability of being in residential care and longer average length of stays among women as a result of longer longevity, higher levels of disability in older age and higher probability of living alone (Fuino & Wagner, 2020; Monod-Zorzi et al., 2007)

The true total cost of abolishing Pflegeregress has remained unsubstantiated, with various figures being suggested across stakeholder groups. According to our simulation, the abolishment of Pflegeregress amounted to a total of €565.6 million, leaving a sizeable shortfall in financing for residential care. Considering that our simulation includes only those that would have used residential care prior to the abolishment, and that the demand for residential care slightly increased in 2018 with the abolishment of Pflegeregress, our estimate could be considered a lower bound. A recent study by the Austrian Institute of Economic Research, estimated a €318 million increase in expenditures for services *and* residential care from 2017 to 2018, which can only partially be attributed to abolishing Pflegeregress (Firgo & Famira-Mühlberger, 2020). Despite our determined cost being higher than the official reported transfer by the federal government and the recent study by Firgo and Famira-Mühlberger (2020), we find our figure to be in the range of the initial figures stated by the regional governments in the range of 531.84 million to 653.69 million (Rechnungshof, 2020), suggesting that the true cost may have been higher than originally expected.

The abolishment of Pflegeregress did not entail any immediate increase in taxes to compensate for forgone revenue and the findings above reflect this. From an economic standpoint, the net increase in public expenditure arising from the abolishment of Pflegeregress will eventually need to be covered by budget surplus or increased public debt. Three alternative policy options were therefore simulated that could have been implemented to cover the additional public expenditure:

- the introduction of an inheritance tax,
- an increase in income tax, and
- a social insurance scheme for those aged 65 and older, i.e. an intra-generational social insurance.

All these alternative scenarios decouple contributions into the long-term care system from the actual use of residential care. Consequently, they also have a broader base

from which to draw resources to finance residential care and strengthen the solidarity principle in long-term care. Moreover, these scenarios are constructed as budgetary-neutral in relation to the former Pflegeregress.

The inheritance tax achieves a very high redistributive effect, in particular if the exemption threshold is set high enough (€300,000) so that a large number of older people would be exempt from paying it. This scenario ensures a significant distribution of resources from the upper end of the wealth distribution to those who receive residential care, who are disproportionately concentrated on the lower end of the distribution. However, a significant number of middle-class individuals are also impacted, reflecting the sensitivity of the exemption threshold – the latter being a key parameter to ensure that ability-to-pay is accurately reflected. This alternative is the only one among those considered that affects assets and as such it is the only one to affect homeowners

The increase in income tax produces arguably the greatest redistribution of resources across income quintiles (and across generations), even if the tax increase needed is very small. Unlike the inheritance tax, this alternative spreads contributions across the whole population whose income is subject to income taxation. This accounts for some of the redistribution effect, which is compounded by the progressive nature of the Austrian income tax system as pension income below €1,110 per month (€1,235 for single-income couples and €1,285 with children) is not taxable. While not shown in our simulation (as our SHARE sample includes only 65+), a significant portion of the tax burden would fall on the working class, resulting in an intergenerational redistribution of resources.

The insurance model provides an alternative in which redistribution occurs solely within the 65-year-old group – similarly to the inheritance tax alternative – and as such it entails no direct inter-generational transfer. Although it entails arguably the least redistribution among the alternatives considered, it still entails a transfer of resources from more affluent individuals to those with lower income.

6.2 The results against the broader literature

The relatively poor targeting of Pflegeregress to lower- and middle-income groups aligns with the broad findings on the impact of asset-related OPPs. In simulations of asset-based OPPs in the England, 'self-funders' (i.e. those required to contribute to their own fees as a result of having assets above the threshold – and thus comparable to *Pflegeregress* payers), were quite spread out among the income distribution, with most concentrated in the higher income groups (Hancock et al., 2013). As a comparison, in Austria, individuals paying asset-based OPPs can be found across all quintiles, but are concentrated in the highest quintiles, as well as in the 1st and 2nd

income quintiles. It should be noted, however, that the threshold for consideration of assets towards OPPs was lower in Austria than in England.

In the English case, Mayhew et al. (2017) found that if income alone were to be used to cover residential care, less than 20% of homeowners would be able to afford care for more than 12 months. If wealth were included in addition to income, this would extend the time that these individuals could afford to pay for care by more than five years, indicating a large difference in ability to pay when wealth is included. Our simulation results in a similar finding, though to a more extreme extent, as only 1.1% of homeowners would be able to pay for their residential care fees for more than 12 months using income alone, with the average being about 4 months. When including wealth in this figure, 92.2% of homeowners could afford more than a year, with an average of 9.6 years.

Asset-based OPPs in England have been observed to fall disproportionately on homeowners, as well as on lower-income individuals owning assets (Muir, 2017; Hancock et al., 2007; Hancock et al., 2013). Our results confirm this, as homeowners requiring residential care all together pay on average 207% of their income, versus non-homeowners who pay the equivalent of 97% of their income in OPPs. Furthermore, considering our simulation indicates that the lowest-income individuals in nursing homes pay the highest proportion of their income on asset-related OPPs, it stands that lower-income individuals are more impacted by asset-related OPPs than higher-income groups.

Findings from the literature indicate that individuals with severe needs and income-poor individuals with sizeable assets are most likely to exhaust their assets in paying for residential care (Muir, 2017). We similarly find that of those owning assets, the first quintile would only be able to afford residential care for an average of 1.1 years, versus higher-income individuals who could afford to pay for care for 16.7 years.

Muir (2017) found that stringent asset-testing would be likely to adversely impact people with assets that are lower in the income distribution more so than those with high income. This is confirmed in our simulation as the asset threshold for assets under Pflegeregress was relatively low. The other side of the coin to this is that, while assets tend to be concentrated between middle- and higher-income individuals, those earning a higher income tend to be more likely to cover the majority of residential care fees without the need to draw from assets and are therefore less affected (Hancock et al., 2007). While the upper quintiles still contribute asset-related OPPs on average, our simulation generally confirms this finding.

Overall, the results of the simulation carried out for Austria on the distribution of asset-related OPPs are quite similar to the broader literature, in that low-income groups and homeowners are adversely impacted by the requirement to contribute out of assets. While the broader literature finds that the middle-income quintiles benefit the most from disregarding assets, we find an exception in our simulation, as

lower-income individuals were amongst those that benefitted most due to many of these individuals owning considerable assets/homes. This speaks to the particularity of deviance in distribution of income to the distribution of assets in Austria.

6.3 Limitations of this study

Our study uses a combination of matched administrative and survey data to circumvent the absence of data on actual payers of residential care and Pflegeregress in Austria. Our sensitivity analysis gives reasons to trust that the simulations we carried out are very close to the actual profile of residential care users – namely the comparison to data under reserve on a subset of residential care users for Vienna (see Section 5 above). Nonetheless, the lack of data on actual payers of Pflegeregress in Austria is an important limitation that we acknowledge.

Given the data limitations detailed above, our distributional analysis of the impact of Pflegeregress is calculated in relation to one reference year, i.e. it refers to the annual payments and distribution of payments across different groups for a typical year. Available data did not allow us to construct a lifelong approach to the distributional effects of OPPs as in other studies. This would better capture the full extent of the distributional impact of Pflegeregress on individuals – the approach followed in this study likely underestimates the payments made by those that spend longer time in residential care. Such an alternative approach would also enable a life-course analysis of alternative financing models, such as those based on individual long-term care accounts or caps on lifelong asset-based OPPs (Commission on Funding, 2011).

Finally, there are clear signs that the abolishment of the Pflegeregress has increased demand for residential care (see section 2.1.3 above). This was not, however, incorporated in our simulation.

6.4 Policy implications

The results of the simulation carried out in this study indicate that from a distributional standpoint, the Pflegeregress was suboptimal in financing residential care due to poor targeting. *Ceteris paribus*, the abolishment of the Pflegeregress turned the financing system of care homes in Austria more pro-poor. Together with the uncertainty that such asset-based OPPs bring, our results raise further questions about the desirability of such asset-based OPPs as a tool to finance residential care, at least outside a context where such care may constitute a luxury good.

The abolishment of Pflegeregress entailed an additional expense for the social assistance budgets of regional governments in Austria that remains largely unquantified. This additional annual expense has been estimated to range between

about €300 and €600 million. Our simulation showed that how this shortfall could be financed also has distributional implications. We offered a number of budgetary-neutral scenarios that highlighted the following aspects:

- The increase in the additional income tax levied on the whole population or the additional social insurance contribution on older people needed to finance the shortfall is relatively small.
- The inheritance tax simulated (in practice levied on older people only) would have a relatively high threshold, while the marginal tax rate would be comparable to other European countries (Drometer et al., 2018).
- Besides being budgetary-neutral, the alternative scenarios are all more progressive in comparison with the current situation (no Pflegeregress).

Financing the revenue shortfall with an increase in income tax would keep with the tax-based nature of the financing of Pflegegeld in Austria. Given the exemptions in place for pension income, it would also strengthen intergenerational redistribution while ensuring that all cohorts at a given moment are contributing to finance the risk of needing residential care. Covering the shortfall of the Pflegeregress through an increase in income tax, however, could raise issues of intergenerational equity and fairness. Although pensioners are also liable to pay income tax, their present exemption threshold is higher than for the working age population, which means that the rates simulated here would have to adapt in the future to an ageing population (i.e. shrining working age population).

It would also be possible to finance this risk with a social insurance model. The one simulated here for the 65 and older would entail a contributory rate of 1.55% – which could be repurposed to protect against the risk of needing residential care. This option would strictly entail an intra-generational redistribution.

Arguably the most controversial of the alternatives simulated would be the inheritance tax. The inheritance tax rate that would be required to cover the shortfall of Pflegeregress (31.48%) is quite comparable to other countries (Drometer et al., 2018). This would entail a return to 2007, until when an inheritance tax was in effect in Austria, albeit with different parameters, namely a tax threshold of only 7,300 Euros and a sliding tax rate of between 2-15% (for close relatives) to 60% for non-family members. At the time, this tax collected an annual revenue of approximately €140 million (Berghuber et al., 2007) – considerably lower than the revenue required to finance revenue shortfall from the Pflegeregress. Inheritance taxes have proven to be unpopular (Prabhakar, 2015), despite their fairness and the fact that only a small minority is typically subject to such tax (Jestl, 2018). A further caveat of an inheritance tax is the possibility of tax evasion, namely by gifting wealth earlier in life or using legal loopholes (Bakija & Slemrod, 2004; Ritsatos, 2014; Garbinti & Goupille-Lebret, 2018). Evidence from other forms of taxation – such as environmental taxes – indicate that earmarking such taxes may increase willingness to pay (Kallbekken et

al., 2011). Although dated, figures from the Eurobarometer survey on long-term care for Austria seem to indicate that financing residential care could be deemed a worthy policy goal by taxpayers (Eurobarometer, 2007). There is evidence that progressive inheritance taxes may reduce inequality if they manage to tax larger inheritances while exempting smaller bequests (OECD, 2017). On the contrary, the results showed that Pflegeregress was not able to exempt bequests in the lower income quintiles.

We also estimated the distribution of assets held by individuals and how long these would enable them to finance residential care fully out-of-pocket using assets. This provides a picture of the viability and distributional impact of alternative LTC financing models such as individual long-term care accounts or caps on lifelong assets. Even placing a moderate threshold on the asset-based OPPs (e.g. equivalent to 6 months' worth of fees net of income-related OPPs) could result in exhaustion of savings for lower-income individuals, suggesting that dependent on the threshold, caps on lifelong asset-based OPPs or an individual long-term care account may be suboptimal as they will likely fall on lower-income groups more than on affluent individuals. Placing too high of a cap on fees would require individuals to contribute significantly before reaching the cap (Hancock et al., 2007), and would therefore benefit the most those that already have substantial means to pay (i.e. income). While further research on these other financing options is merited, these considerations indicate that individual long-term care accounts or caps on lifelong asset-based OPPs may have similar distributional implications as the Pflegeregress.

7 Conclusions

This study focused on the distributional aspects of the asset-based OPP, also known as Pflegeregress, and potential alternative options to funding the shortfall created by its abolishment. We showed that partially decoupling the use of residential care from its financing by waiving asset-based OPPs strengthens the solidarity principle. In addition, asset-based OPPs may be poorly targeted if use of residential care is concentrated among the less affluent and if the income and wealth distribution significantly depart from each other. Findings suggest that this is indeed the case for Austria.

Apart from the amount needed to cover foregone public revenue, there is an on-going debate about general reforms of the Austrian long-term care system, including its financing. Since the introduction of the care allowance in 1993, there have been

several reforms that strengthened the tax-funded basis of long-term care.[7] In contrast to the other pillars of the Austrian social security system that are organised and financed by social insurance schemes, the tax-funded long-term system is thus somehow atypical for a continental welfare regime. The current study raises a number of considerations that could be useful to the broader debate on financing of long-term care in Austria. Chiefly among them are the equity considerations of different funding mechanisms for long-term care, their implications for intergenerational fairness and predictability and the possibility to use assets decoupled from use to fund long-term care (e.g. through an inheritance tax).

The discussion on the financing of residential care seems to have been for now settled with the abolishment of Pflegeregress and the agreement on the transfer of funds between the federal and regional governments in Austria. Demographic ageing and societal changes are bound to change this in the future as are possible changes to the demand for residential care resulting from the abolishment of Pflegeregress itself. The findings of this study remain therefore relevant and liable to be used by policy-makers and researchers in the current and future debates on the financing and distributional impact of long-term care in Austria and Europe.

[7] https://www.demenzstrategie.at/de/Plattform.htm

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