Journal of Public Policy (2023), **43**, 86–114
doi:10.1017/S0143814X2200023X

RESEARCH ARTICLE

The hidden homeownership welfare state: an international long-term perspective on the tax treatment of homeowners

Konstantin A. Kholodilin[1,2], Sebastian Kohl[3,4]*, Artem Korzhenevych[5,6] and Linus Pfeiffer[1]

[1]DIW Berlin, Germany, [2]NRU HSE, Russia, [3]Max-Planck-Institut für Gesellschaftsforschung, Germany, [4]Freie Universität Berlin, JFK Institute, Sociology, Berlin, Germany, [5]Leibniz Institute of Ecological Urban and Regional Development, Germany and [6]Technische Universität Dresden, Faculty of Business and Economics, Germany
*Corresponding author. Email: kohl@mpifg.de

(Received 6 October 2021; revised 3 June 2022; accepted 25 July 2022; first published online 21 October 2022)

Abstract

Welfare is traditionally understood as social security decommodifying labour markets or as social investment policies. In the domain of housing, however, welfare for homeowners is largely hidden in the tax codes' fiscal exemptions. Based on a content analysis of legislation, this article introduces a novel yearly database of 37 countries between 1901 and 2020 to uncover the "hidden welfare state" of taxes on imputed rent, deductibility of mortgage payments, housing capital gains tax, and value-added tax on newly built dwellings. Summary indices of homeownership attractiveness and neutrality of the tax code show that fiscal homeownership policies have been in decline until the 1980s and risen ever since. They are in place where finance is liberally and labour restrictively regulated. Contrary to the classical welfare state, they are not associated with an economic logic of industrialism or left-wing governments. They rather are an alternative to rent regulation used by Common-law jurisdictions or smaller countries. As welfare for property owners, the logic of fiscal homeownership welfare diverges from the classical welfare for the labouring classes.

Keywords: homeownership taxation attractiveness; international longitudinal data; leximetrics; tenure neutrality

JEL codes: C43; H24; K25; R38

Introduction

Traditionally, the welfare state is seen as the very visible complex of social security programmes which provide income support in case of old age, accident, unemployment, maternity, and sickness. A broader understanding might as well add labour activation programmes, education, or social investment to the sum of social expenditures (Nikolai 2012). More recently, broader conceptions of welfare have been

suggested: particularly in times of traditional welfare retrenchment, "social policies by other means" have come to play a more important role (Seelkopf and Starke 2019) as has the conception of welfare as social investment (Morel et al. 2012). One central nonclassical policy instrument is fiscal exemptions, as when states willingly forgo tax income under certain conditions to subsidise economic activities. Below the visible surface of social security contributions and direct transfer programmes, these indirect, fiscal expenditures have grown into an additional welfare pillar, ever since first estimates became available in the 1970s (Pollard 2011). One, if not the central, component of what Howard coined the "hidden welfare state" lies in the policy domain of housing. It particularly favours homeownership, which accounts for large parts of fiscal expenditure in the United States (US) (Howard 1999). Homeowners' undertaxation of capital gains and mortgage payments has also been estimated to cause a distorting excess consumption of 7.8% of housing values in the European Union (EU) (Fatica and Prammer 2018). Yet, whereas direct welfare regulations have been extensively measured and explained across countries (Myles and Quadagno 2002; Emmenegger et al. 2015) and whereas total fiscal expenditure have received quite some attention (Morel et al. 2012), including from the Organisation for Economic Co-operation and Development (OECD) (Adema et al. 2014), the long-run cross-country measurement or let alone theorising on the hidden *homeownership* welfare policies is virtually nonexistent within comparative political economy.

This study fills this gap by presenting a novel regulation database currently covering a total of 37 OECD and non-OECD countries which traces four major fiscal exemptions for homeowners over a century, starting in 1901, when first modern tax codes started to come into being. Ever since, states could allow homeowners to not pay imputed rent tax, to deduct mortgage interest payment from income taxes and housing capital gains from capital gains taxation as well as to not pay value-added tax (VAT) on new housing construction. Through a content coding of countries' major tax codes, we use these four binary variables to see how favourably the legislation treated homeowners and to what extent it was biased towards homeownership as tenure. Over time, we find that there was a rise, fall, and re-emergence in the 1990s of the homeownership attractiveness of tax codes. It generally correlates positively with liberal regulation in finance and the rule of law and negatively with labour market regulation, as measured by other existing indices.

Furthermore, the article explores to what extent typical theories from classical welfare state research carry over to the study of the hidden housing welfare state of fiscal exemptions. Contrary to traditional welfare, we find that partisan effects hardly play a role for homeownership welfare and, if anything, left governments are negatively associated with it. Contrary to a "logic of industrialism", economic development, if at all significant, is also negatively associated with tax welfare, which often sets in as stimulus in depressions. Rather, modern state capacity is positively associated with fiscal exemption policies. The strongest predictor throughout is a countries' legal origin polity: again contrary to classical welfare, Anglophone countries display the strongest and Scandinavian ones the weakest homeownership preference in the tax code. Overall, our results cast considerable doubts on the hypothesis that homeownership welfare can be understood in terms of classical

social security welfare. The findings rather suggest that it fits descriptions of "asset-based welfare," as it incentivises indebtedness and capital gains speculation and favours asset holders over tenants.

The study contributes to the literature that compares tax systems in historical-comparative perspective (William Martin and Prasad 2014) and links this literature with the classical welfare state studies (Beramendi and Rueda 2007). Introducing a novel database, it extends this research into the domain of fiscal expenditure and homeownership welfare and shows substantively that the two follow rather different explanatory logics. The study speaks to asset-based welfare theories which see a negative trade-off relationship between classical welfare and homeownership or debt (Doling and Ronald 2010), also known as "privatised Keynesianism" (Crouch 2009). We do find that homeownership welfare is associated with measures of financial liberalisation but not negatively with classical social expenditure (in line with recent critics Lepers 2021; Van Gunten and Kohl 2020; Wiedemann 2021). We rather find a trade-off between supporting homeowners fiscally and supporting tenants legally.

The study is organised as follows. In the next section, we review some theories concerning welfare state development to formulate theoretical expectations for understanding homeownership fiscal welfare. In the following section, we explain the general toolkit of homeownership and housing taxation policies. The method section explains the approach used to quantify these tools. In the result section, we present our data descriptively across time and countries, explore bivariate associations with other types of government policies, and use multivariate analyses to explain differences in homeownership welfare. Finally, our last section section concludes.

Explaining homeowner supporting policies

To our knowledge, we are the first to explain the existence or absence of homeownership-supportive policies in a large sample of countries over time. There is hence not a very established body of existing quantitative literature that we could easily draw upon in terms of theoretical expectations. Yet, there are obviously many country-specific studies detailing qualitatively why certain homeownership-friendly policies have come into place. Moreover, homeownership-supportive policies can arguably be seen as a part of the global welfare state development. We therefore turn to these studies to derive four general theoretical expectations about homeownership welfare in this section.

"Welfare state" usually refers to the introduction of the four social insurances: accident, pensions, health, and unemployment. These were introduced in roughly this order in almost all countries throughout the 20th century in a global diffusion process (Schmitt et al. 2015), starting with Bismarck in Germany in 1883. While the OECD has gradually broadened the definition of "social expenditure" to also include maternity, labour market activation, and even housing allowances (most paid to tenants) after 1980, the considerable expenditure in favour of homeowners has long gone unnoticed.

One reason for this oversight is that homeownership welfare differs in two dimensions from the traditional social-insurance-based welfare. First, it mainly comes in the form of fiscal expenditure and has therefore been considered part of the "hidden welfare state" (Howard 1999). Social housing programmes did also include direct transfers to homeowners in a number of countries, particularly those with a "socialised homeownership" regime where basically all government subsidies go to homeowners (Norris 2016). Some countries, such as Germany, also support ex-ante savings earmarked for housing with bonuses and transfers (Börsch-Supan and Stahl 1991). Yet, a large share of homeownership subsidies comes in the form of exemptions from taxes, mainly from income, capital gains, and value added taxes, and of all fiscal exemptions, the housing exemptions are one of the largest items (Pollard 2011). Their politics are rather hidden, because fiscal expenditure is rather technical and only known at the end of fiscal years. Therefore, they have an in-built tendency to grow and do not rely on permanent political support, which most voters would withdraw, if they were faced with more information on these expenditures (Guardino and Mettler 2020).

Second, fiscal expenditure by their very definition only regard residents obliged to pay taxes. Without income, capital, or new production to be taxed, no taxes can be claimed back from the state. This implies that homeownership welfare presupposes a certain economic standing to apply. It is not welfare directed at the have-nots, but it is also different from universal social insurances because it targets only a selected group in the population, most probably with an above-average income. The income tax progressivity can make fiscal expenditure regressive in nature. In this, homeownership could share some similarities with other peripheral welfare domains such as (higher) education, which is similar to housing in being a middle-class status good.

The idea that welfare and debt-financed homeownership share basic similarities is particularly pronounced in the view of "asset-based welfare" (Doling and Ronald 2010) or "privatised Keynesianism" (Crouch 2009). This research strand sees general welfare and state-supported housing assets as functional equivalents, which stand in a negative trade-off relationship: in countries with low public welfare and in fiscal austerity times, governments incentivise private households to use their homes as basic insurance, as social buffer, or piggy bank to save in and draw from in difficult times. Much supported by the subprime mortgages in the US (Schwartz 2009), the idea is rather contested in cross-national contexts with Northern European countries, where a functional-complementarity view seems more adapt: generous welfare states act as a kind of public insurance for households to leverage debt to become homeowners (Lepers 2021; Anderson and Kurzer 2019; Van Gunten and Kohl 2020). Whatever the direction of the relationship, the literature makes clear that welfare and housing share fundamental similarities addressing not only lower-income but also middle-class households. We summarise this in the first guiding hypothesis:

Welfare hypothesis: Homeownership-supportive policies share basic characteristics across countries and over time with conventional welfare policies.

Therefore, to explain the presence and extent of homeownership policies, it could be useful to draw on more general welfare state theories. Moreover, understanding housing in terms of the welfare state has a certain (Kemeny 1992), not uncontested tradition (Stephens 2016; Blackwell and Kohl 2019). A first set of theories relates to

basic fundamentals explaining homeownership welfare. According to the logic of industrialism, richer countries are accordingly rather able to afford welfare of any kind, including fiscal benefits to homeowners (Wilensky 1975). Hence, we would expect higher economic development to be associated with more homeownership support. A specifically relevant fundamental for homeownership policies obviously is the extent of owner-occupied housing in a society (Ansell 2012). The higher the homeownership rate and rate of indebted homeowners, the more a homeownership-focused welfare state would matter (Schelkle 2012). Population size and growth could be a second fundamental driver: smaller countries can find it easier to implement redistributive subsidies in general and can withstand globalisation pressures well (Obinger et al. 2010), whereas stronger population growth can require to make use of homeownership policies as construction incentive to cope with supply shortages. Other than economic or demographic fundamentals, homeownership policies could simply be part of a modernisation of governance: they obviously require a certain state capacity to be implemented, such as the rise of the fiscal state with its survey and information capacity. All this could lead us to expect the

Fundamentals hypothesis: Homeownership-supportive policies can be explained by basic economic, demographic, or state-capacity fundamentals.

Beyond fundamentals, politics is obviously an important dimension to understand why certain countries or time periods preferred homeownership-supportive policies, while others did not. Welfare policies have been traditionally seen as a resort of the political left who have a stronger preference for redistributive policies. Even if homeownership policies with their middle-class focus have also been found to be the traditional foster child of conservative parties, they are equally supported by the left in most countries, particularly in more recent periods, when lower-income families also came to live in homeownership (Kohl 2020). More historically and in the German-speaking countries, however, the political left was rather in favour of urban tenants and hence of a stronger regulation of tenancy. If the rental market is well regulated, one might expect, homeownership policies might be needed less. To the extent that voters of traditional left-wing parties underwent processes of *embourgeoisement* with ever higher participation in higher-income groups, education, and homeownership (Häusermann 2018; Hadziabdic and Kohl 2021), parties of the left may thus have also become a major driver of homeownership-favouring measures. Homeowners usually do not form additional organised groups beyond political parties to defend their interests, while tenant organisation, though existent, face recurrent problems of collective actions and are not as politically important as unions in labour and welfare politics. Therefore, we expect politics to be mainly driven by partisan and less by power-resource logics:

Partisan hypothesis: Homeownership-supportive policies can be explained by the relative strength of (centre-)left governments.

Finally, the political and legal system itself can be an important determinant of how welfare policies, including homeownership ones, are designed. In the Anglophone two-party systems, for instance, both parties tend to favour

homeowners, as they are an important constituency that no party can afford to ignore. Countries' tax regimes also differ and can be focused on indirect taxation, such as in Scandinavian countries (Beramendi and Rueda 2007), or on income taxes, as in most of the continental Europe.

Polity hypothesis: Homeownership-supportive policies can be explained by features of the political and fiscal system.

Equipped with these four theoretical expectations derived from classical welfare state research, we now turn to introducing the measurement of homeownership support and taxation.

Tax treatment of the owner-occupied housing

Most countries foster homeownership in one way or another. Traditionally, homeownership policies are rather found in the manifestos of conservative parties and are particularly pronounced in Anglophone countries (Schelkle 2012). In German-speaking countries, by contrast, Social Democrats in particular were rather skeptical about homeownership subsidies and either introduced it quite late in their party manifestos or did not consider it as a central objective of their housing policy (Kohl 2020). The political parties that propose homeownership subsidies not only for reasons of housing provision but also for reasons of fostering equality, secure wealth and stable democracies (Arundel and Ronald 2021). This translated into a number of different subsidy schemes.

On the one hand, homeownership can be promoted through direct subsidies. In countries with a tradition of "socialised homeownership" such as Iceland or Ireland, future homeowners have been eligible to subsidised loans or government transfers (Sveinsson 2000). In Germany, for example, these are housing construction bonuses (*Wohnungsbauprämie*) and family housing grants (*Baukindergeld*) (Kohlhase 2011). On the other hand, homeownership can be stimulated through the taxation system. In this study, we will focus on this second element of subsidy policies. In the literature, the following four types of instruments are mainly considered: taxes on imputed rent, interest relief on mortgage repayments, capital gains tax on housing, and the VAT on new dwellings (Haffner 1992; van Weesep and van Velzen 1995; MacLennan et al. 1998; Stephens 2003; Wolswijk 2009; Figari et al. 2012). Below, we introduce each tax and exemptions in turn.[1]

Imputed rent tax

Taxes on imputed rent must be paid by the owner for the dwelling he occupies. This is justified by the fact that homeowners, unlike renters, do not pay any rent and therefore have an additional source of income. Especially, if at the same time the mortgage interest can be deducted from the income tax (see below), a bias in favour of homeowners emerges. The tax on imputed rent is aimed at restoring tax

[1]We purposefully refrain from considering real estate transfer and the property taxes here. These taxes are levied on both owner- and tenant-occupied housing and should therefore not affect the tenure neutrality.

neutrality. In order to evaluate the amount of unpaid rent, fiscal authorities estimate a monetary use value of owner-occupied dwelling. The tax is expected to reduce the formation of homeownership. On the other hand, since the use value of housing can be considered as an additional income, the failure to collect such a tax would mean an unequal treatment of other types of income and, hence, a stimulation of the homeownership. The collection of this tax is often complicated, because the use value is difficult to assess correctly. Moreover, the absence of a tax on imputed rent represents a subsidy, which does not discriminate between the newly built and existing housing. Thus, everyone occupying one's own dwelling can benefit from it.

Tax deductibility of mortgage payments

The possibility to deduct mortgage interests goes often hand in hand with the tax on imputed rents. It follows from the logic that the cost incurred to obtain an additional income (nonpayment of rent) must be deductible. In some countries, the possibility of mortgage interest relief exists even in the absence of an imputed rent tax. The interest deductibility makes the purchase of a home more attractive. However, this can generate the risk of speculative price bubbles.

Capital gains tax

This tax is imposed in cases when the owner makes profits resulting from the positive difference between the selling price of a dwelling and its purchasing price, provided that this difference cannot be entirely related to the improvements made to the dwelling. The capital gains tax tends to make the purchase of housing less attractive. One of the disadvantages of homeownership compared to renting is its reduced flexibility and mobility. Typically, it takes more time to sell an owner-occupied home than to terminate a rental contract. The absence of a capital gains tax could compensate for such a disadvantage and eventually make it more attractive for renters to become homeowners. On the other hand, it could create incentives for speculating with housing, since the absence of the capital gains tax for housing would make it more attractive than other assets (e.g., shares), which are subject to such a tax. This could stimulate the formation of speculative house price bubbles and, hence, make it more difficult for the low- and middle-income households to purchase homes. Therefore, the capital gains tax on housing is sometimes conceived as a speculation tax from which the owners, who really occupy their dwellings, are exempted. Being a speculative tax, the capital gains tax imposes as a rule a minimum holding period. It means that the real estate must be kept by the owner for a certain time period until it is exempted from the taxation. Table A5 reports different exemptions from the capital gains tax for each country. The capital gains tax is assumed to be applicable regardless of the holding period, save for the cases, where the owner-occupier is explicitly exempted from the tax.

VAT on the new dwellings

The VAT on newly built dwellings is added to the purchasing price of a dwelling offered for sale. As a result, housing becomes more expensive and less attractive to

buy. At the same time, exactly as in the case of the imputed rent tax, the VAT for new dwellings allows treating housing similar to other goods, which are subject to VAT. Hence, the absence of the VAT on housing can be considered as a subsidy. Unlike the absence of the tax on imputed rent, the absence of the VAT stimulates the construction of new dwellings.

Quantification of taxation attractiveness and tenure neutrality

In order to assess the impact of these forms of housing taxation, they have to be measured in numeric terms. The coding of regulations is a difficult task, since it has to strike a balance between capturing the essence of legal acts and producing interpretable and objective indices. Surely, the regulations are very complex and trying to mimic them in a detailed way would make their quantification infeasible. Therefore, certain simplifying assumptions must be made in order to render the task tractable. We therefore only account for the existence of taxes not for their rates or application sphere.

Leximetric approach to taxation policies

Here, we apply the methodology, which is known as *leximetrics*, used since at least the early 1990s to measure the intensity of governmental regulations. Leximetrics is employed in a large variety of areas of economics, such as labour markets, finance, shareholder protection, and housing.[2] There are already several studies examining homeownership taxation (e.g. Wolswijk 2009; Figari et al. 2012). However, none of them intends to quantify the regulations. The first researcher to quantify the housing ownership policies was Atterhög (2005). Based on expert surveys conducted in 18 countries, he built six indices (direct grants for buying, other subsidies, mortgage deduction, grant tax deduction, low property tax, and homeownership allowances) covering the period between 1970 and 2000 at decade frequency. His indices vary between 0 (no support) and 5 (very generous support). Thus, our databases partly overlap (countries, periods, and policies). However, our data have annual frequency, are based on regulation and not expert opinion, and cover a much longer period. In addition, our database and that of Atterhög share only one common policy index – the mortgage deduction.

Barrios et al. (2019), on the other hand, consider five homeownership policy indicators (transfer taxes, recurrent property taxes, capital gains taxes, imputed rent taxation, and mortgage interest deduction) to show the distortions for households decisions by computing the cost of owner-occupied housing. Their policy indicators are similar to the ones that we use in this study, except for their additional implicit recurrent property taxes. Another difference is that they measure transfer and capital gains taxation in absolute terms rather than as a dummy variable. Their sample comprises 28 EU countries between 1995 and 2017.

While these approaches examine the existence or magnitude of housing taxation policies, Seelkopf et al. (2021) take another dimension of taxation policies into account, which is the year of introduction of the corresponding tax. They achieve

[2]Kholodilin and Pfeiffer (2021) thoroughly discuss various leximetric applications in economics.

this by constructing a new data set containing the year and mode of introduction of six key modern taxes (personal income tax, corporate income tax, social security contributions, inheritance tax, general sales tax, and VAT) in 220 countries between 1750 and 2018. While this is a useful database for the introduction of general tax codes, it is not specific enough for the subdomain of housing and homeownership.

Our approach

In this study, we follow the approach suggested by Kholodilin (2020), who measures the intensity of rental market regulations worldwide over a long period. First, we conduct an overview of the relevant legislation pieces in order to extract information concerning the tax treatment of owner-occupied dwellings.[3] Second, for each of the four taxation types discussed above, a binary index is constructed that equals one, if regulation is more favourable with respect to homeowners, and zero, otherwise:

$$I_{jt} = \begin{cases} 1, & \text{if taxation of type } j \text{ is favorable to homeowners in period } t \\ 0, & \text{otherwise} \end{cases} \quad (1)$$

Thus, the binary indices for the imputed rent tax, capital gains tax, and VAT are equal to 1, when homeowners are not subject to these taxes, while the binary index for interest deductibility is equal to 1, when such an option is provided to homeowners. When a regulation exists (such as capital gains taxation), but subject to major exemptions (e.g. tax exemptions for certain holding periods), we consider the regulation to not be in place (cf. Table A5 in Supplementary material for a detailed list of exemptions). The resulting binary indices are plotted in Figures 1, 2, 3, and 4 as shaded areas. Each horizontal bar corresponds to an individual country. The darker shades of grey correspond to regulations that are more beneficial for homeowners. Yellow colour denotes missing observations.

In addition and to reduce descriptive complexity, we compute a composite homeowneship taxation attractiveness index as a simple average of binary variables:

$$HOTA_t = \frac{1}{J}\sum_{j=1}^{J} I_{jt} \quad (2)$$

where $J = 4$ is the number of individual binary taxation indices. Hence, the index can vary between 0 and 1. The higher its values, the more favourable the housing taxation for homeowners.

The indices of homeownership tax attractiveness cover 37 countries in total which reflects our attempt to cover the economically most important OECD and a dozen of non-OECD countries, where data were available and accessible. Figure 5 shows their geographical distribution in 2020. Again, the shades of grey depict the degree of attractiveness of taxation, while yellow denotes countries for which no such information is available. The composite indices for individual countries are displayed in Figure 6.

[3]A complete list of these legal acts can be accessed online in the *Longitudinal database of homeownership taxation: Documentation*, https://rpubs.com/Konstantin_Xo/HOTI. In addition, short country summaries are presented in Appendix C in Supplementary material.

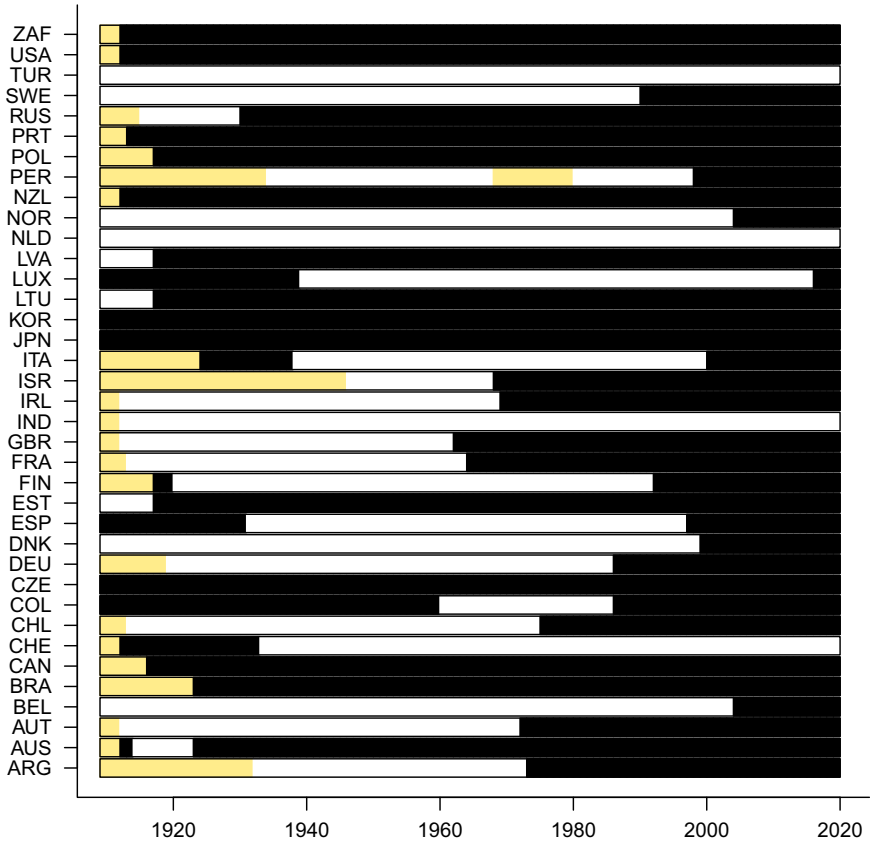

Figure 1. Tax on imputed rent indices, 1901–2020.
Note: Black color stands for the existence of owner-beneficial taxation, and yellow shading indicates missing data.

Finally, we also compute the degree of neutrality of homeownership taxation with respect to the housing tenure. If the tax treatment is more favourable towards homeowners, then *ceteris paribus* it can create an additional incentive for people to choose owning over renting. The taxation neutrality is defined through the following two cases: either the imputed rent tax is absent and mortgage payments are not deductible or the imputed rent tax is levied and mortgage deductions are allowed.

$$TNI_t = \frac{I_t^{\text{imputed rent tax}} + I_t^{\text{mortgage deductibility}} - 1}{2} \tag{3}$$

Thus, the value of this index corresponding to the taxation neutrality will be equal 0. When it is below zero, taxation is biased towards renters, while when it is positive, it is biased towards homeowners.

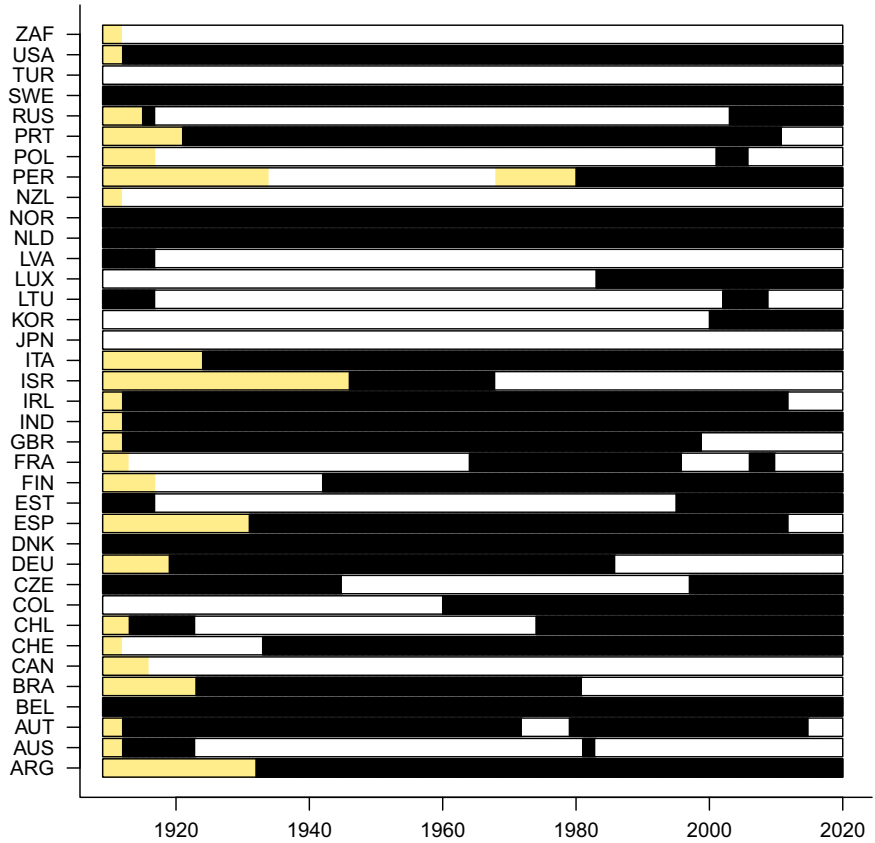

Figure 2. Mortgage deductibility indices, 1901–2020.
Note: Black color stands for the existence of owner-beneficial taxation, and yellow shadings indicate missing data.

Results: descriptive and explanatory assessment of homeownership welfare

Individual tax indices

We first assess the tax indices descriptively. In many countries, the imputed rent tax existed at earlier stages, but was lifted in the 1960–1970s, as seen in Figure 1. Some countries have never introduced it. Only three countries (Chile, India, and Turkey) have had imputed rent tax throughout the whole observation period. The picture for mortgage deductibility is much more heterogeneous. In fact, countries are divided into three groups: those that had this option over the whole period; those that never had it; and those that had it for some period (see Figure 2). In addition, several countries (Australia, Austria, Chile, France, and Russia) eliminated this benefit but later re-introduced it. In Russia, it was related to radical changes in the economic and political system that occurred in 1917 and then in 1991. A similarly heterogeneous picture is observed for the capital gains tax (see Figure 3). Finally, the VAT on new housing appears to be a relatively new development, as Figure 4 shows. In part, it has

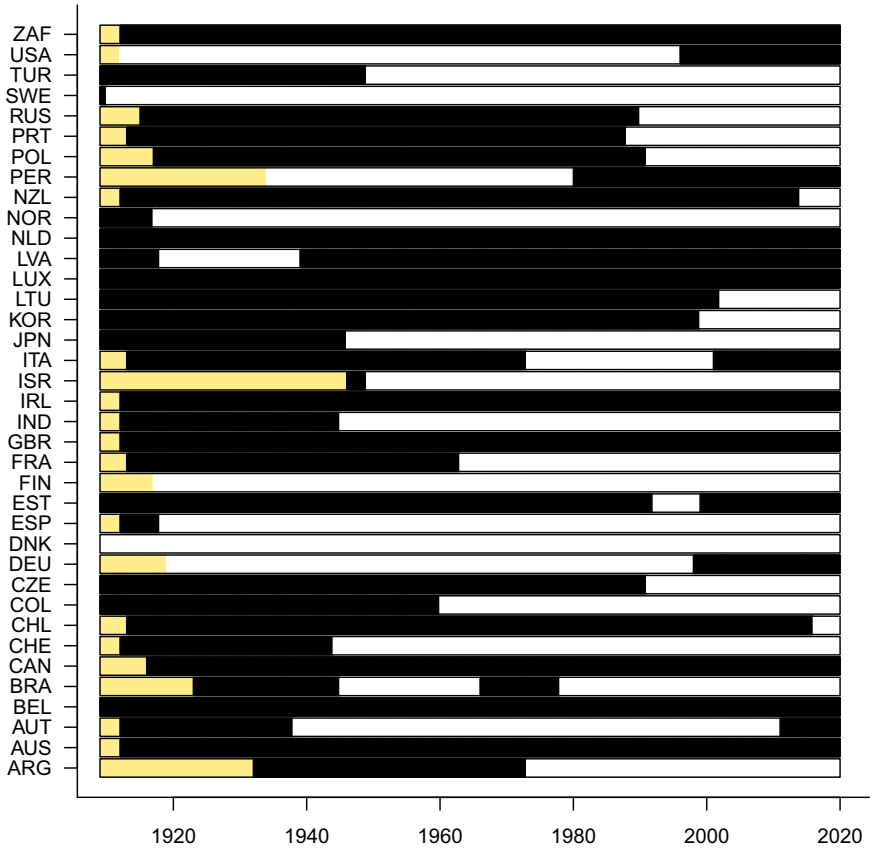

Figure 3. Capital gains tax indices, 1901–2020.
Note: Black color stands for the existence of owner-beneficial taxation, and yellow shading indicates missing data.

to do with relative novelty of the VAT as such. However, even under the predecessor of the VAT – sales tax – exceptions for housing often existed. In most cases, the VAT for the new housing was introduced between 1960 and 2000.

The composite index of homeownership taxation attractiveness as defined in Equation 2 is displayed in Figure 5. It shows that the attractiveness varied considerably between 1901 and 2020. Therefore, it is difficult to draw generalised conclusions. In many countries, the tax treatment of homeownership has become less attractive, for example, in Brazil, Japan, and Turkey. Other countries made their taxation more favourable for their homeowners: e.g., Finland and the US. In fact, the US taxation policy has been always biased towards homeownership, but a particularly strong increase in this bias occurred in the mid-1990s. All in all, the Anglophone countries appear to give more fiscal preference to homeowners. By contrast, in the Scandinavian countries, during the long period under inspection, the taxation has been much less favourable to homeowners. This is, in parts, due to countries like Sweden having followed an explicit tenure neutrality policy (Bengtsson 2006). In parts, countries have simply used homeownership subsidies

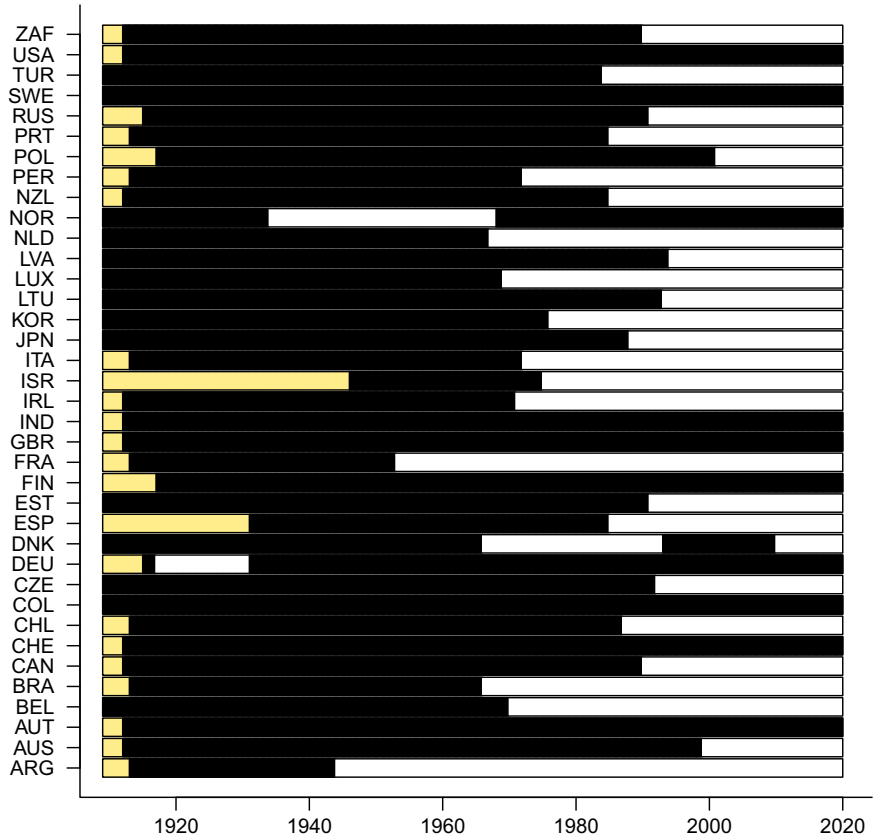

Figure 4. VAT on new housing indices, 1901–2020.
Note: Black color stands for the existence of owner-beneficial taxation, and yellow shading indicates missing data.

other than fiscal ones. Moreover, since the 1990s, the situation changed in the opposite direction.

Table 1 shows the long-run averages of the four individual indices and of the composite tax neutrality index, which are calculated over the period between 1901 and 2020. It allows comparing the degree of the long-run attractiveness and neutrality of taxation of owner-occupied housing.

In most Anglophone countries (Australia, Ireland, United Kingdom, and the US), the long-run average of the attractiveness index is much higher than the long-run average for the whole sample. Portugal belongs to the countries with a very high attractiveness index. Thus, during the past 100 years, these countries have conducted taxation policies that fostered the formation of homeownership. By contrast, the lowest levels of the composite attractiveness index are observed in the Scandinavian countries (Denmark, Norway, and Sweden). There is a broad correspondence between countries with early, high homeownership and fiscal homeownership support and between countries with later, lower homeownership and the absence of such support.

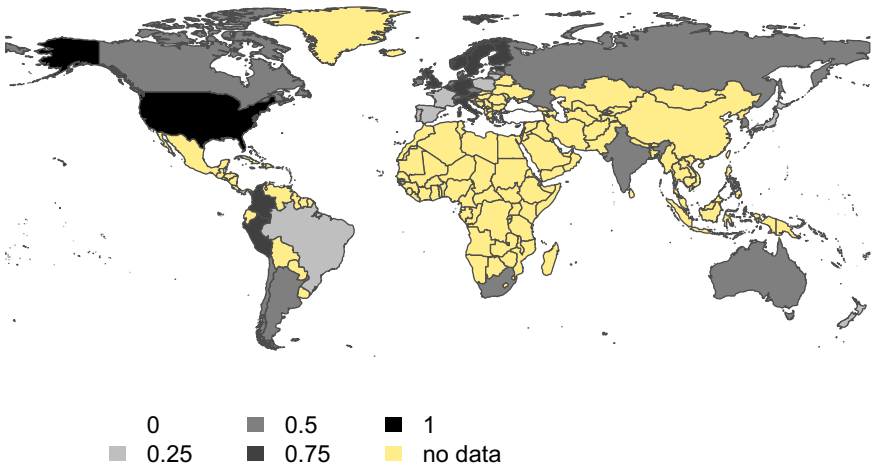

Figure 5. Map of the composite homeownership tax attractiveness index, 2020.
Note: Darker shading stands for more owner-beneficial taxation, and yellow shading indicates missing data.

The last column of Table 1 reports the long-term averages of the neutrality index as defined in Equation 3. It varies between −0.5 in Turkey (biased towards rental tenure) and 0.5 in the US (biased towards homeownership). Only six countries have negative neutrality indices (Chile, France, Luxembourg, Peru, Sweden, and Turkey) pointing to a taxation bias towards the rental tenure most of the time. In 10 countries, taxation is neutral in the long run: Canada, Germany, India, Israel, Japan, Latvia, The Netherlands, New Zealand, South Africa, and Switzerland.

Correlation with other regulation indices

Homeownership taxation does not exist in a regulatory vacuum, as governments have a wide range of regulations in place, for example, those concerning finance, labour, and product markets. Many of them are approximated by indices constructed in existing research. The country and year coverage is very different, but in order to see what kind of public policy the homeownership tax treatment is, we inductively explore the correlations between homeownership tax attractiveness and each of the 50 other indices. These indices have varying dimensions: from 5 to 200 countries and from 1 to 112 years. Among the 50 indices, 19 represent cross-sections, while the rest are panel data. Figure 7 displays only the statistically significant coefficients of correlation between our composite homeownership tax attractiveness index and various indices representing other types of governmental regulations (see the Appendix B in Supplementary material for all others). The correlation coefficients are computed for all available values of each pair of indices. Thus, if both indices have longitudinal structure, the country-specific indices are correlated for the maximum of overlapping country-years.

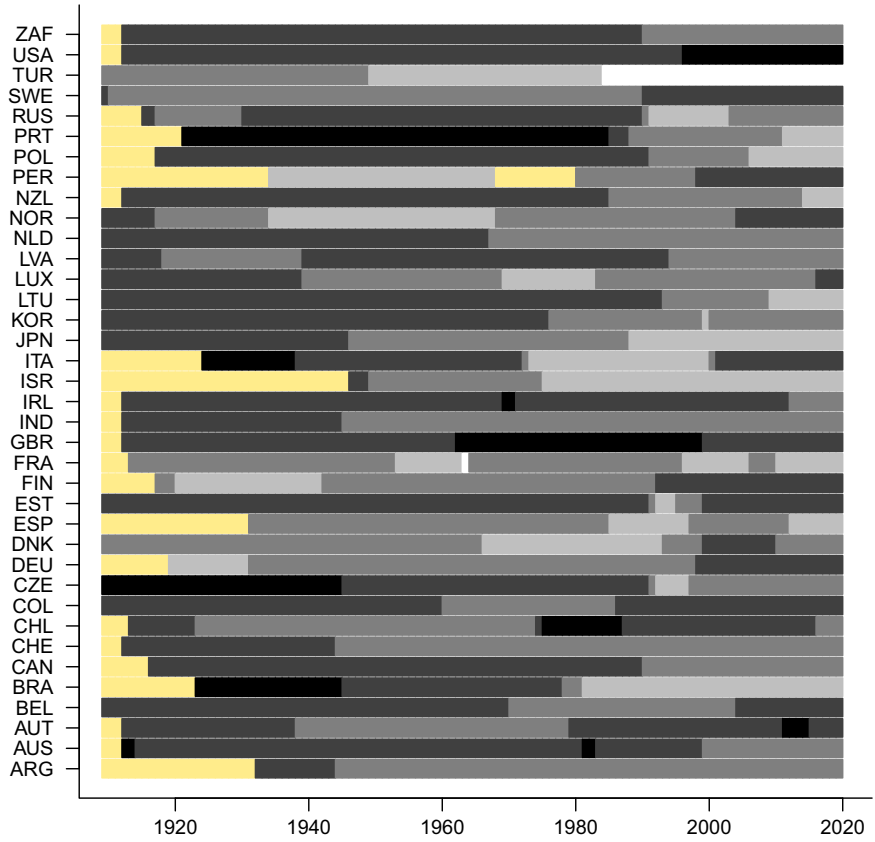

Figure 6. Composite tenure neutrality tax indices, 1901–2020.
Note: Darker shading stands for more owner-beneficial taxation, and yellow shading indicates missing data.

The selected indicators come from various sources and cover different areas of governmental regulations. OECD indicators,[4] concerning the individual/collective dismissals and temporary contracts, measure the strictness of employment protection legislation (EPL). Higher values signify more comprehensive EPL within a country in a certain year. Similarly, Nicoletti et al. (1999) use data from the OECD Employment Outlook 1999 in order to gauge EPL. Botero et al. (2004) examine employment law, industrial/collective relations law, and social security laws in 85 countries for the year 1997. Higher values indicate a higher degree of regulation and, thus, of protection of the employees. The project "Law, Finance and Development" at the Centre for Business Research at the University of Cambridge (Armour et al. 2016) built several indicators to measure shareholder, creditor, and worker protection (labour regulation) that take higher values for more protection of the corresponding market participants through legislation. Djankov et al. (2007) also measure creditor protection in 129 countries following the

[4]See https://stats.oecd.org/Index.aspx?DataSetCode=EPL_OV.

Table 1. Long-term averages of taxation attractiveness and neutrality indices, 1901–2020

Country	Imputed rent tax	Mortgage deduction	Capital gain tax	VAT new housing	Attractiveness index	Neutrality index
ARG	0.534	1	0.466	0.290	0.534	0.267
AUS	0.917	0.120	1	0.806	0.711	0.019
AUT	0.444	0.889	0.324	1	0.664	0.167
BEL	0.133	1	1	0.583	0.679	0.067
BRA	1	0.598	0.351	0.495	0.598	0.299
CAN	1	0	1	0.722	0.678	0
CHE	0.194	0.806	0.296	1	0.574	0
CHL	0.421	0.523	0.963	0.692	0.650	−0.028
COL	0.783	0.500	0.500	1	0.696	0.142
CZE	1	0.567	0.758	0.767	0.773	0.283
DEU	0.337	0.663	0.218	0.867	0.525	0
DNK	0.189	1	0	0.667	0.464	0.095
ESP	0.405	0.910	0.056	0.607	0.444	0.084
EST	0.858	0.350	0.942	0.758	0.727	0.104
FIN	0.301	0.757	0	1	0.515	0.029
FRA	0.523	0.336	0.467	0.374	0.425	−0.070
GBR	0.537	0.806	1	1	0.836	0.171
IND	0	1	0.306	1	0.576	0
IRL	0.472	0.926	1	0.546	0.736	0.199
ISR	0.703	0.297	0.041	0.392	0.358	0
ITA	0.354	1	0.738	0.551	0.641	0.177
JPN	1	0	0.383	0.733	0.529	0
KOR	1	0.167	0.825	0.633	0.656	0.083
LTU	0.858	0.200	0.850	0.775	0.671	0.029
LUX	0.358	0.308	1	0.575	0.560	−0.167
LVA	0.858	0.142	0.825	0.783	0.652	0
NLD	0	1	1	0.558	0.640	0
NOR	0.144	1	0.072	0.694	0.477	0.072
NZL	1	0	0.944	0.676	0.655	0
PER	0.297	0.541	0.465	0.551	0.459	−0.081
POL	1	0.049	0.718	0.816	0.646	0.024
PRT	1	0.909	0.701	0.673	0.808	0.455
RUS	0.857	0.181	0.714	0.724	0.619	0.019
SWE	0.270	1	0.009	1	0.570	0.135
TUR	0	0	0.408	0.700	0.277	−0.500
USA	1	1	0.222	1	0.806	0.500
ZAF	1	0	1	0.722	0.681	0
Average	0.589	0.548	0.595	0.725	0.613	0.067

approach of La Porta et al. (1999). Again, higher values of the indices imply stronger protection of the creditor rights. Pistor et al. (2000) use the same approach for several transition economies. Abiad et al. (2008) created an index that measures financial reform, with higher values indicating more liberalisation concerning financial laws. Finally, Botero and Ponce (2011) create the Rule of the Law index and Freedom House[5] measures freedom in the world, again higher values for both indices indicating more rule of the law/freedom.

Despite the heterogeneous nature of these data, the resulting picture situates fiscal homeownership support in the regulatory landscape quite clearly (Figure 7). The strongest correlations are observed between the homeownership

[5]See https://freedomhouse.org/countries/freedom-world/scores.

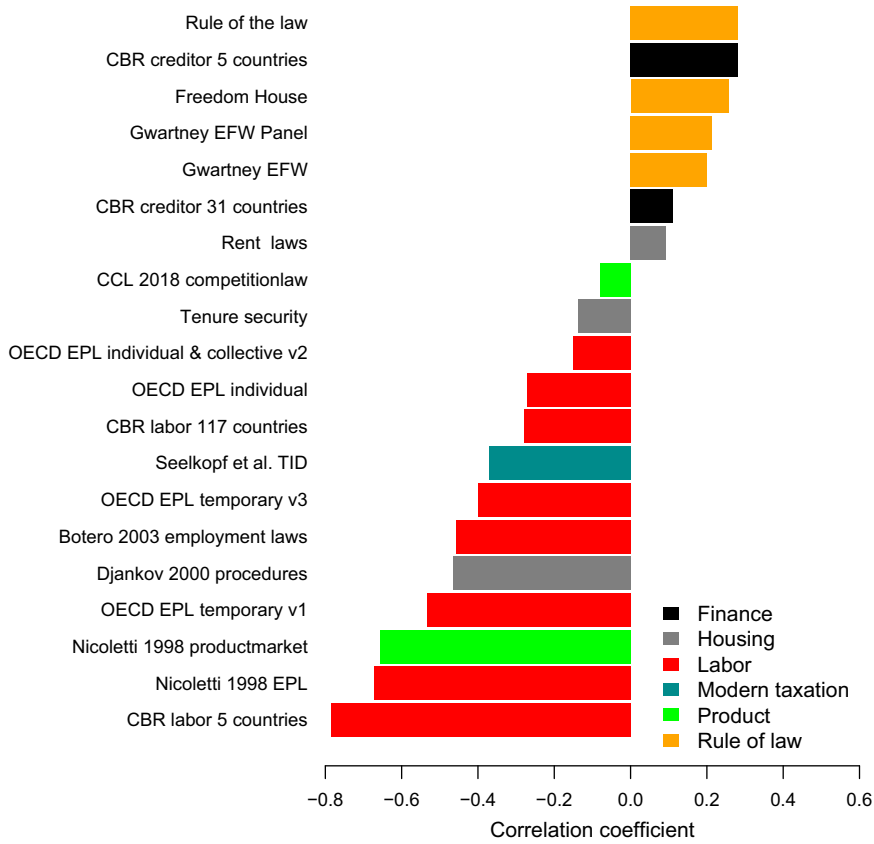

Figure 7. Correlations between homeownership tax attractiveness and other regulation indices
Sources: Abiad et al. (2008); Armour et al. (2006); Armour et al. (2016); Botero and Ponce (2011); Botero et al. (2004); Deakin et al. (2007); Djankov et al. (2007); Freedom House (2020); Howell (2005); Gwartney and Lawson (2003); Kholodilin (2020); Lele and Siems (2007); Nicoletti et al. (1999); Pistor et al. (2000); Seelkopf et al. (2021), OECD, and own calculations.

taxation index, on the one hand, and regulations concerning financial markets, labour markets, and the rule of law, on the other hand. The correlation is negative and relatively strong for labour market indices. In particular, the correlation is significant with the strength of labour market regulation (Botero et al. 2004; Armour et al. 2016) as well as with the strictness of employment protection. The correlation is much weaker and positive for financial market indices and for rule-of-law and freedom indices.

Thus, a more generous support of homeownership is accompanied by more liberal financial regulations, stronger creditor protection, and weaker regulation of labour. This purely bivariate result is broadly in line with the asset-based welfare hypotheses which consider homeownership support as a financial-market kind of welfare that is at odds with labour-supportive kinds of welfare arrangements. The indices also capture a certain left-right dimension, where homeownership support is rather associated with regulation situated on the political right, while the

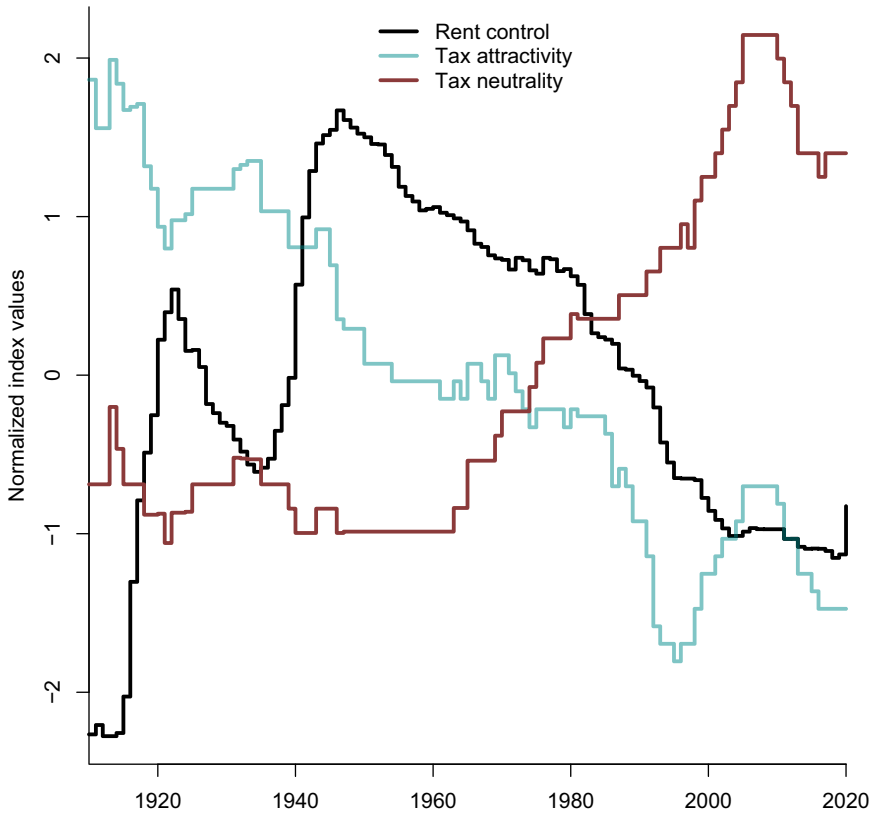

Figure 8. Homeownership tax attractiveness index vs. rent control index.
Source: Kholodilin (2020) and own representation.
Note: The values of indices are normalised by subtracting averages and dividing by the standard deviation so that the indices have the same scale and become easier to compare. Higher values of indices correspond either to stricter rent control or to more state support of the homeownership.

associations with welfare state indicators remain insignificant. The evidence for the above welfare hypothesis is therefore mixed: homeownership tax welfare is not correlated with the conventional welfare understood as social security but rather with characteristics of asset-based welfare.

When it comes to the other housing-specific regulation, we can draw on existing regulation data measuring the intensity of rent control and tenant protection through indices of similar country and even time coverage (Kholodilin 2020). Figure 8 shows the indices of homeownership taxation attractiveness and neutrality as well as rent control. All these indices are computed as simple averages for the 37 countries under inspection (except for South Korea for which no rent control index is available) and then normalised to render the picture more readable.

The relationship between the tax attractiveness and rent control indices varies strongly over time. Until 1920, both indices moved in the same direction: stricter rent controls were accompanied by more tax benefits for homeowners. In the interwar period, the relationship changed: a certain retreat of rent controls went

Table 2. Descriptive statistics of explanatory variables

Code	Variable	N	Mean	St. dev.	Minimum	Q1	Q3	Maximum
DLGDP_PC	Growth rate of GDP per capita, %	8,901	2.1	6.6	−94.8	0	4.8	100.8
pop	Population, million persons	9,821	37.5	120.7	0.1	3.2	24.4	1,385.4
Rent_laws	Rent control index	13,786	0.5	0.4	0	0	0.8	1
Social2GDP	Social expenditure-to-GDP ratio, %	2,738	10.8	8.8	0	2.1	18.1	31.9
Soc_housing	Share of social housing	2,887	19.8	21.8	−0.8	3.9	25.4	83.1
Left_right	Left-right government	2,730	5.3	0.6	0.4	4.9	5.7	7.4
leftgov	Left government	4,099	0.4	0.5	0	0	1	1
TID	Tax introduction	13,080	0.5	0.3	0	0.2	0.8	1
infcap_pca	Information capacity	6,337	0.7	0.2	0	0.6	0.7	1

Note: N stands for the number of observations; St. dev. denotes standard deviation, Q1 and Q3 stand for the 1st and 3rd quartiles, respectively.

hand in hand with more favourable taxation of homeowners. After World War II, the state lifted rent controls and cut benefits to homeowners. However, from the mid-1990s onward, governments have shown renewed interest in fiscal support for homeowners, while rent controls kept decreasing. In 2020, the emergency measures related to the COVID-19 pandemic led to a spike in rent control regulations. Interestingly, the relationship between homeownership taxation neutrality and rent control is much more clear cut: over most of the period, they are negatively correlated. Between 1965 and 2009, the aggregate neutrality index was on an upward trend. However, after the Great Recession of 2008–2009, it declined, as a reaction to the burst of the huge speculative bubble in the housing market in many countries. Supporting homeowners or tenants has thus stood in a certain historical trade-off relationship.

Regression analysis

After these binary correlations and general trends, we turn to a multivariate analysis of the factors determining the attractiveness and neutrality of the homeownership tax treatment. Following the underlying first expectation that it follows welfare state logic, we first introduce fundamentals such as log per capita GDP (LGDP_PC), population (Lpop), state information capacity (infcap_pca), and the number of taxes (TID) introduced. This broadly corresponds to the expectation that fiscal homeownership welfare is mainly driven by economic or demographic fundamentals and the secular trend towards state and fiscal capacity. The data are retrieved from the Maddison Project Database,[6] the Information Capacity Dataset (Brambor et al. 2020) – an index varying between 0 and 1, where higher values imply a high information capacity[7] – and Seelkopf et al. (2021); see Table 2 for descriptive statistics.

[6]See https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project-database-2020.

[7]The aggregate indices used in our regressions are based on the data on several institutions and policies that modern states use to collect information about their populations and territories: (1) the regular implementation of a reliable census, (2) the regular release of statistical yearbooks, the operation of (3) civil registers, (4) population registers, and (5) the establishment of a government agency tasked with processing statistical information. The indices cover 85 countries over the period 1750–2015.

To speak to the polity expectation, we introduce a time-invariant legal-origin variable (La Porta et al., 1998) which groups countries into a categorical variable describing their legal system (e.g., Common law, French Civil Law, etc.). We use this variable because our taxation law outcome variables are closely associated with aspects of countries' legal system and it has been used previously to explain tax-system features (Beck et al. 2003). The legal-origin variable itself correlates strongly with welfare typologies and even the varieties of capitalism, but its individual country classifications are less contested than these alternative typologies. Still, the variable just allows to reveal associations, not explanatory substance, and requires further interpretation below.

To further address our theoretical partisan and welfare expectations, we introduce the left-right orientation of the government, the social expenditure to GDP, and rental market regulation into the model. This is to test whether homeownership policies follow a partisan, welfare, or housing-regulation logic and limits our main analysis to advanced capitalist democracies only and excludes developing countries and countries with a socialist history during our observation period. Beyond reasons of data availability, this subsample reasonably includes only countries which are broadly comparable in terms of political and economic background conditions. We also report a model with less variables, but including a maximum of 30 countries in Appendix. The *Left_right* index – ranging from 0 (very left) to 10 (very right) – is computed as the average of a cabinet right/left index weighted by the share of elections seats based on the country-specific index from the ParlGov database (Döring and Manow 2020). For robustness check, we use the leftgov index of Scheve and Stasavage (2009): the index equals 1, if the country's prime minister and/or president is from a left party, and 0, otherwise. Welfare expenditure is from the OECD[8] and rental housing market regulation indices are from Kholodilin (2020).

We first estimate the following fixed-effects panel data model:

$$y_{it} = \mu + \sum_{k=1}^{K} \beta_k x_{i,t-1}^{k} + u_i + v_t + \varepsilon_{it} \tag{4}$$

where y_{it} is one of the four homeownership tax treatments in country i in year t; μ is the intercept; x_{it}^{k} is an explanatory variable k; u_i are the country fixed effects; v_t are the year fixed effects; and ε_{it} is the random disturbance. The potential endogeneity problem (e.g., homeownership taxation and rent control can be driven by common factors) is dealt with by using the lags of the explanatory variables. Moreover, the use of lags allows accounting for the lengthy process the policymakers and legislators need to go through before the policies reacting to some shock will be adopted (Blanchard and Perotti 2002, p. 1334). Second, in addition to the fixed-effects model, we also estimate a random-effects model in order to include the time-invariant variable legal origin into the analysis.

We use ordinary least squares (OLS) regressions to estimate all models and report robust standard errors. In case of the four individual binary indices, we have discrete-choice models. These models can be estimated using binary regression, including both logit/probit or linear probability model (PLM). The latter linearly

[8]OECD Social Expenditure Database (SOCX): https://www.oecd.org/social/expenditure.htm.

https://doi.org/10.1017/S0143814X2200023X Published online by Cambridge University Press

Table 3. Estimation results of fixed-effects panel data model: individual components

	Dependent variable:							
Control variable	Tax on imputed rent	Mortgage deduction	Capital gain tax	VAT	Tax on imputed rent	Mortgage deduction	Capital gain tax	VAT
LGDP_PC_lag1	0.163	0.039	0.092	0.248	− 0.092	0.257	0.162	0.126
	(0.107)	(0.098)	(0.135)	(0.130)	(0.142)	(0.132)	(0.204)	(0.200)
Lpop_lag1	− 0.475*	− 0.155	0.082	− 0.412*	− 0.925***	0.243	0.153	− 0.721*
	(0.190)	(0.167)	(0.182)	(0.175)	(0.206)	(0.232)	(0.272)	(0.292)
Rent_laws_lag1	− 0.219**	0.113	− 0.054	0.241**	− 0.130	0.001	0.013	0.183
	(0.082)	(0.084)	(0.078)	(0.077)	(0.107)	(0.069)	(0.113)	(0.104)
Social2GDP_interp_lag1	0.016*	− 0.004	− 0.013	− 0.018	− 0.005	0.014	− 0.013	− 0.036*
	(0.008)	(0.006)	(0.010)	(0.010)	(0.012)	(0.013)	(0.018)	(0.014)
Left_right_lag1	− 0.022	0.142	0.011	− 0.061	− 0.001	0.125*	− 0.000	− 0.001
	(0.046)	(0.076)	(0.071)	(0.070)	(0.036)	(0.061)	(0.062)	(0.076)
TID_lag1	0.155	0.463	− 0.432	− 0.790*	0.006	0.713*	− 0.394	− 1.007**
	(0.261)	(0.301)	(0.339)	(0.325)	(0.275)	(0.337)	(0.442)	(0.375)
infcap_pca_lag1	0.315	− 0.312	1.089	0.410	0.091	− 0.016	0.954	0.588
	(0.414)	(0.312)	(0.788)	(0.561)	(0.420)	(0.289)	(0.750)	(0.543)
Country effect	√	√	√	√	√	√	√	√
Year effect					√	√	√	√
Adj. R^2	0.420	0.061	0.088	0.322	0.105	0.058	− 0.017	0.103
Num. obs.	1670	1670	1670	1674	1670	1670	1670	1674

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

Note: The estimation results are based on the data covering 19 advanced economies (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and United Kingdom) between 1901 and 2016.

regresses a binary-dependent variable on the explanatory variables (Wooldridge 2015, p. 248 ff). The PLM is both computationally much easier to estimate and more stable than the panel logit or probit models with random effects.[9]

We report the fixed- and random-effects models in Tables 3 and 4, respectively, each time for the four individual taxation variables. The models using fixed effects differentiate between country- and country-year fixed effects but do not display any qualitative differences. The "fundamentals hypothesis" suggested that basic socio-economic and state-infrastructural factors could explain homeownership tax welfare. The coefficients of the fundamental variables generally point in the unexpected directions, but at low significance levels: the association with GDP is at times even negative, suggesting that homeownership support through fiscal exemption follows more a stimulus than a luxury-tax-gift logic. One persistent significant effect throughout models is that small states tend to make more use of fiscal homeownership measures than large ones. This could be for various reasons: small (Scandinavian) countries had their modern tax system in place earlier, they can implement redistribution measures easier given small, homogeneous populations and fiscal homeownership subsidies may face less race-to-the-bottom pressures from small countries' stronger exposure to international trade.

This is also in line with the significant positive effects of information and taxation capacity on various homeownership taxation items: information capacity tends to increase the likelihood of being lenient on taxing homeowners' capital gains. The more developed a country's public registers and surveying apparatus, the more likely it can also use more fine-grained tax exemption policies. The development of a modern tax state, in turn, increases the likelihood of not exempting new construction from VAT and of using mortgage deductions. To use the instrument of tax exemptions, taxes and a modern tax administration have to be in place.

When it comes to partisan effects, the first finding to be highlighted is the absence of many significant effects which is surprising given the strong (centre-left) partisan expectations about traditional social security welfare. The one significant coefficient even shows the opposite sign, linking mortgage deduction policies to centre-right parties, which holds for parties' share in parliament but not for the political position of the executive (cf. Appendix A in Supplementary material). As a result, social expenditure (but also social housing in Appendix A in Supplementary material) is rather positively correlated with items such as imputed rent which are favourable to homeowners. This is a further evidence against a simple welfare hypothesis: homeownership welfare has, if at all, a reversed partisan logic and does not necessarily work like conventional social security welfare. The negative association of imputed rent exemptions with rental regulation confirms the bivariate findings that there is a certain homeowner–tenant trade-off baked into homeownership welfare policies. The different sign of the coefficients for VAT exemptions shows that this policy is more of a construction stimulus policy, switched on in times of rent control, and less one in favour of homeowner welfare.

[9]The complexity of such models sometimes precludes their estimation due to convergence problems. In the programming language **R**, there are two packages allowing to estimate panel discrete-choice models with random effects: *pglm* and *glmmML*. The former does not supply robust standard errors, while the latter theoretically bootstraps standard errors, but in our case does not converge properly.

https://doi.org/10.1017/S0143814X2200023X Published online by Cambridge University Press

Table 4. Estimation results of random-effects panel data model: individual components

	Dependent variable:							
Control variable	Tax on imputed rent	Mortgage deduction	Capital gain tax	VAT	Tax on imputed rent	Mortgage deduction	Capital gain tax	VAT
Intercept	3.125**	0.645	− 0.038	2.392**	3.121	0.645	− 0.025	2.362**
	(1.069)	(1.394)	(1.261)	(0.794)	(1.798)	(1.246)	(0.961)	(0.744)
LGDP_PC_lag1	0.112	0.039	− 0.040	0.146	0.111	0.039	− 0.039	0.144
	(0.107)	(0.091)	(0.084)	(0.110)	(0.308)	(0.125)	(0.096)	(0.127)
Lpop_lag1	− 0.311**	− 0.152	0.121	− 0.141*	− 0.310**	− 0.152	0.120	− 0.138*
	(0.120)	(0.139)	(0.104)	(0.062)	(0.111)	(0.110)	(0.071)	(0.067)
Rent_laws_lag1	− 0.227**	0.115	0.011	0.226*	− 0.227*	0.115	0.011	0.225**
	(0.088)	(0.085)	(0.065)	(0.088)	(0.109)	(0.163)	(0.107)	(0.077)
Social2GDP_interp_lag1	0.016*	− 0.004	− 0.005	− 0.016	0.016	− 0.004	− 0.005	− 0.016
	(0.008)	(0.006)	(0.009)	(0.010)	(0.019)	(0.012)	(0.009)	(0.012)
Left_right_lag1	− 0.017	0.139	− 0.066	− 0.060	− 0.017	0.139	− 0.066	− 0.060
	(0.046)	(0.075)	(0.064)	(0.073)	(0.122)	(0.104)	(0.068)	(0.077)
TID_lag1	0.111	0.452	− 0.503	− 0.871**	0.110	0.452	− 0.503	− 0.872**
	(0.262)	(0.300)	(0.293)	(0.318)	(0.425)	(0.452)	(0.389)	(0.319)
infcap_pca_lag1	0.432	− 0.319	1.117**	0.574	0.432	− 0.319	1.116*	0.576
	(0.415)	(0.310)	(0.396)	(0.515)	(1.075)	(0.439)	(0.534)	(0.441)
Legal_originFrench	− 0.417	0.635*	− 0.581**	− 0.241	− 0.417	0.635*	− 0.580**	− 0.244
	(0.218)	(0.279)	(0.180)	(0.180)	(0.262)	(0.271)	(0.197)	(0.176)
Legal_originGerman	− 0.267	0.558	− 0.989***	0.150	− 0.268	0.558	− 0.988***	0.147
	(0.337)	(0.296)	(0.149)	(0.209)	(0.364)	(0.287)	(0.153)	(0.197)
Legal_originScandinavian	− 1.021***	0.644*	− 0.983***	− 0.143	− 1.021***	0.644*	− 0.984***	− 0.140
	(0.155)	(0.256)	(0.127)	(0.169)	(0.227)	(0.260)	(0.137)	(0.179)
Country effect	√	√	√	√	√	√	√	√
Year effect					√	√	√	√
Adj. R^2	0.414	0.073	0.182	0.316	0.241	0.311	0.519	0.343
Num. obs.	1670	1670	1670	1674	1670	1670	1670	1674

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

Note: The estimation results are based on the data covering 19 advanced economies (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and United Kingdom) between 1901 and 2016.

This becomes further visible in the strongest and most persistently significant effects which are related to the "polity hypotheses", proxied through countries' legal origin: relative to Common-law countries, all other jurisdictions show less fiscal homeownership support, with Scandinavian countries being the least supportive, French and German jurisdictions in between. For instance, being a Scandinavian country reduces the probability of not charging a tax on imputed rent or a capital gain tax by roughly 75–80%. The countries with German legal origin are likewise less likely to free their homeowners from the tax on imputed rent by about 30% and from capital gain tax by slightly more than 50%. With respect to the English legal origin, all other legal origins provide by 10–20% less attractive taxation treatment to the homeowners. The one indicator for which the relationship is reversed is mortgage deductions which have had a long history in Scandinavian countries and also explains their very high levels of household indebtedness, exceeding Anglophone countries' ones (Anderson and Kurzer 2019).

Appendix A in Supplementary material shows a number of different specifications for robustness. In particular, we used alternative measures of social expenditure (such as the more housing-specific proportion of the social housing stock) which uses a subsample of countries and shows as well a complementary relationship with the neutrality index (Table A1 in Supplementary material). Using the political position of the executive (such as the extended left government index of Scheve and Stasavage 2009), however, does not reproduce the above partisan finding based on the party seat shares (Table A2 in Supplementary material). These tables also include findings on the level of the two composite neutrality and attractiveness indices which reflect the average effects of their individual components and generally point in the direction of the results based on individual components. The time of introduction and logic of index components, e.g., exempting capital gains or mortgage payments, can be very different: the former requires a capital gains tax, the latter requires a pre-existing income tax, for instance. For this reason, we prefer to present and interpret the regression effects on individual homeowner taxation items rather than the aggregate indices which sometimes tend to average out different effect sizes. Finally, the above analysis focused only on comparable advanced democracies, not least for reasons of data availability. Using less variables, we can extend both fixed- and random-effects analyses to 30 countries, including more developing countries. The results in Tables A4 and A3 in Supplementary material confirm our main findings even in this large sample.

Discussion and conclusion

The welfare state has mostly been described through the lens of the visible social security system with its focus on labour and income maintenance. This is certainly the largest part of government welfare spending, readily available in numerous measurements and at the core of party politics. Welfare states have not only created their constituencies but also a paper industry of scholarly work devoted to understanding their rise and variations over time and countries. This has led to an established set of theoretical expectations and well-known typologies.

In the shadow of this classical welfare state and with the rise of modern tax systems, however, welfare by other means and, in particular, by fiscal exemptions has gained momentum, not least because classical welfare has come under attack in very visible politics (Pollard 2011). Fiscal exemptions, by contrast, with their technicalities and measurement difficulties have long remained below the radar of politics and welfare research. This is where this article makes a first contribution by zooming in on one of its major items: homeownership welfare.

The descriptive analysis reveals that fiscal homeownership policies have become less widespread until the 1980s but have grown ever since, whereas the tax system had become biased in favour of homeowners already by the 1980s. Fiscal support for homeowners is closely tied to financial market liberalisation and rather comes at the cost of labour market regulation. In the regulatory landscape, it rather pertains to the centre-right which has been in support of mortgage deductions. This evidence rather casts doubts on the initial welfare hypothesis: homeownership welfare does not correlate strongly with social security welfare, it works, if at all, with a different partisan logic, and rather correlates with policies contributing to "asset-based welfare", i.e., using mortgage and homeownership policies to replace conventional welfare.

Moreover, we find that the explanatory expectations from conventional welfare research often do not hold up when translated into fiscal homeownership welfare. First, the logic of industrialism – more economic development, more welfare –, if identified at significant levels at all, can even be reversed. Homeownership welfare is not necessarily bought as a luxury by higher GDP levels but can follow a tax stimulus logic, countercyclical with the business cycle. Moreover, smaller states, much as for traditional welfare, also have more homeownership welfare. The fundamentals hypothesis is further supported by the positive effects of information and taxation capacity on homeownership welfare: it requires modern state infrastructure to put fiscal homeownership support in place.

While we do find some effect of these fundamentals, there are also clear polity effects: how tax systems and their exemptions are set up is, perhaps unsurprisingly, very much dependent on a countries' general legal structure. The grouping of countries by legal origin also largely correlates with ones by welfare tradition or varieties of capitalism. We find that, contrary to traditional welfare outcomes, it is Anglophone countries that make for the most comprehensive homeownership welfare states, whereas the universal Scandinavian welfare states have the least comprehensive fiscal homeownership welfare with the exception of mortgage deductions, which helps to understand why Scandinavian countries are among the most privately indebted ones in the world. The explanatory logic for traditional welfare thus does not easily travel to understanding fiscal homeownership welfare.

This may have to do with the extent to which this kind of welfare is tied to the tax system and the use made of it. It is also different from traditional welfare as it often targets people who are already paying taxes and aspire to property, which then are rather the haves and not the have-nots in a society. As tax progressivity can be turned around, these subsidies can have regressive redistribution effects and are rather part of middle-class politics. This might explain why no strong left-wing partisan effect can be found.

The existence or absence of fiscal exemptions for homeowners is obviously only a first step in shedding light on the hidden welfare state. There are not only direct transfers to homeowners, which still have to be measured across countries and time. There is also no assessment of how large the fiscal exemptions actually are. We know from previous work on individual countries such as France or the US that they have only kept growing over time (Howard 1999; Pollard 2011). Moreover, the OECD has only recently started to quantify different fiscal measures favouring homeownership for selected countries in 2018, and the numbers range from below 1% to more than 1% of GDP in Anglophone and some Scandinavian countries (OECD 2020). Cursory country evidence suggests that mortgage interest rate deductions are among the largest budget items for homeowners and even if a country does tax imputed rents, it might still bear a large homeownership welfare state in absolute terms. This and the nonfiscal transfers might help to understand why some high-homeownership countries are not associated with a strong support for homeownership welfare. If homeownership is largely financed through family transfers, for instance, a country like Italy can have high homeownership rates without scoring high on the mortgage deduction item. The index itself proxies the comprehensiveness of fiscal homeownership measures, but further research would need to pin down how much fiscal income is lost by states through every type of fiscal exemption.

In future research, the individual taxation indices can also be used to assess the impact of ownership taxation policies on housing market consequences starting with homeownership rates themselves, but including also macroeconomic outcomes such as the growth of mortgage indebtedness or the risk of house price inflation. Welfare through fiscal exemptions also concerns other areas than the housing market and homeowners. It may include farm or business owners, commuters, households with children, etc. They all have in common that they only concern entities, which can be taxed, and are thus rather a relief for property owners, than the have-nots addressed by poverty welfare, for instance. Given the often invisible politics around these indirect budget items, this study also lays some groundwork for contributing to fiscal transparency that modern democracies should strive for.

Supplementary material. To view supplementary material for this article, please visit https://doi.org/10.1017/S0143814X2200023X

Data availability statement. Data Availability Statement: Replication materials are available in the *Journal of Public Policy* Dataverse at https://doi.org/10.7910/DVN/56CXO3

Acknowledgements. The authors thank Tobias Niemeyer for his excellent research assistance as well as Bruno Bises.

Conflict of interest. Alan Durning, Anne Laferrère, Ernesto Rezk, and Antonio Scialà for their kind advice and confirm that the article involves no interest conflicts.

References

Abiad A, Detragiache E and Tressel T (2008) *A New Database of Financial Reforms*. International Monetary Fund.

Adema W, Fron P and Ladaique M (2014) How Much Do OECD Countries Spend on Social Protection and How Redistributive Are Their Tax/Benefit Systems? *International Social Security Review*, **67**(1): 1–25.

Anderson KM and Kurzer P (2019) The Politics of Mortgage Credit Expansion in the Small Coordinated Market Economies. *West European Politics*, **43**: 366–389.

Ansell BW (2012) Assets in Crisis: Housing Preferences and Policy in the Credit Crisis. *Swiss Political Science Review*, **18**(4): 531–537.

Armour J, Deakin S and Siems M (2016) *CBR Leximetric Datasets*. https://doi.org/10.17863/CAM.506.

Armour J, Lele PP, Mollica V, Siems MM and Deakin S (2006) *CBR Creditor Protection Index for the UK, the US, Germany, France, and India*. Center for Business Research.

Arundel R and Ronald R (2021) The False Promise of Homeownership: Homeowner Societies in An Era of Declining Access and Rising Inequality. *Urban Studies*, **58**(6): 1120–1140.

Atterhög M (2005) *The Effect of Competition and Ownership Policies on the Housing Market*. Ph.D. Thesis, KTH.

Barrios S, Denis C, Ivaskaite-Tamosiune V, Reut A and Vazquez Torres E (2019) Housing taxation: a new database for Europe. JRC Working Papers on Taxation and Structural Reforms 2019-08, Joint Research Centre (Seville site).

Beck T, Demirgüç-Kunt A and Levine R (2003) Law and Finance: Why Does Legal Origin Matter? *Journal of Comparative Economics*, **31**(4): 653–675.

Bengtsson B (2006) Sverige – kommunal allmännytta och korporativa särintressen. In *Varför så olika? Nordisk bostadspolitik i jämförande historiskt ljus*. Malmö: Égalité, 101–158.

Beramendi P and Rueda D (2007) Social Democracy Constrained: Indirect Taxation in Industrialized Democracies. *British Journal of Political Science*, **37**(4): 619–641.

Blackwell T and Kohl S (2019) Historicizing Housing Typologies: Beyond Welfare State Regimes and Varieties of Residential Capitalism. *Housing Studies*, **34**(2): 298–318.

Blanchard O and Perotti R (2002) An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output. *The Quarterly Journal of Economics*, **117**(4): 1329–1368.

Börsch-Supan A and Stahl K (1991) Do Savings Programs Dedicated to Home-Ownership Increase Personal Savings?: An Analysis of the West German Bausparkassen System. Journal of Public Economics, 44(3): 265–297.

Botero JC, Djankov S, La Porta R, Lopez de Silanes F and Shleifer A (2004) The Regulation of Labor. *The Quarterly Journal of Economics*, **119**(4): 1339–1382.

Botero JC and Ponce A (2011) Measuring the Rule of Law. The World Justice Project – Working Paper Series.

Brambor T, Goenaga A, Lindvall J and Teorell J (2020) The Lay of the Land: Information Capacity and the Modern State. *Comparative Political Studies*, **53**(2): 175–213.

Crouch C (2009) Privatised Keynesianism: An Unacknowledged Policy Regime. *The British Journal of Politics and International Relations* **11**(3): 382–399.

Deakin S, Lele P and Siems M (2007) The Evolution of Labour Law: Calibrating and Comparing Regulatory Regimes. *International Labour Review*, **146**(3–4): 133–162.

Djankov S, McLiesh C and Shleifer A (2007) Private Credit in 129 Countries. *Journal of Financial Economics*, **84**(2): 299–329.

Doling J and Ronald R (2010) Home Ownership and Asset-Based Welfare. *Journal of Housing and the Built Environment*, **25**: 165–173.

Döring H and Manow P (2020) Parliament and government composition database (ParlGov) An infrastructure for empirical information on parties, elections and governments in modern democracies. Development version. http://www.parlgov.org/.

Emmenegger P, Kvist J, Marx P and Petersen K (2015) Three Worlds of Welfare Capitalism: The Making of a Classic. *Journal of European Social Policy*, **25**(1): 3–13.

Fatica S and Prammer D (2018) Housing and the Tax System: How Large Are the Distortions in the Euro Area?*. Fiscal Studies, 39(2): 299–342.

Figari F, Paulus A, Sutherland H, Tsakloglou P, Verbist G and Zantomio F (2012) Taxing Home Ownership: Distributional Effects of Including Net Imputed Rent in Taxable Income. IZA Discussion Paper No. 6493.

Freedom House (2020) Freedom in the World 2020. https://freedomhouse.org/.

Guardino M and Mettler S (2020) Revealing the "Hidden Welfare State": How Policy Information Influences Public Attitudes about Tax Expenditures. *Journal of Behavioral Public Administration*, **3**(1): 1–15.

Gwartney J and Lawson R (2003) The Concept and Measurement of Economic Freedom. *European Journal of Political Economy*, **19**(3): 405–430.

Hadziabdic S and Kohl S (2021) Is the Left Right? The Creeping Embourgeoisement of Social Democracy through Homeownership. *European Journal of Political Research*, **Online first**, 1–22.

Haffner MEA (1992) *Eigen woning in de EG: fiscale en overige financiële instrumenten. Volkshuisvestingsbeleid en Bouwmarkt 18*, Delft: Delftse Universitaire Pers.

Häusermann S (2018) Social Democracy and the Welfare State in Context: The Conditioning Effect of Institutional Legacies and Party Competition. In Manow P., Palier B. and Schwander H. (eds.), *Welfare Democracies and Party Politics: Explaining Electoral Dynamics in Times of Changing Welfare Capitalism*. Oxford: Oxford University Press, 150–170.

Howard C (1999) *The Hidden Welfare State: Tax Expenditures and Social Policy in the United States*. Princeton University Press.

Howell D (2005) *Fighting Unemployment: Why Labor Market "Reforms" Are Not the Answer. Den Tredje Arbetslingen (The Third Work Principle)*, Stockholm, Sweden: Arenagroup.

Kemeny J (1992) *Housing and Social Theory*. London: Routledge.

Kholodilin KA (2020) Long-Term, Multi-Country Perspective on Rental Market Regulations. *Housing Policy Debate*, **30**(6): 994–1015. https://doi.org/10.1080/10511482.2020.1789889.

Kholodilin KA and Pfeiffer L (2021) Measuring Unmeasurable: How to Map Laws to Numbers Using Leximetrics. DIW Discussion Paper 1933. https://www.diw.de/de/diw_01.c.812775.de/publikationen/diskussionspapiere/2021_1933/measuring_unmeasurable__how_to_map_laws_to_numbers_using_leximetrics.html.

Kohl S (2020) The Political Economy of Homeownership: A Comparative Analysis of Homeownership Ideology through Party Manifestos. *Socio-Economic Review*, **18**(4): 913–940.

Kohlhase R (2011) *Die Entwicklung des Bausparwesens in der Bundesrepublik Deutschland in der Zeit zwischen 1949 und 1990. Eine institutionenökonomische Analyse*. Köln: Dissertation.

La Porta R, Lopez-de Silanes A, Shleifer F and Vishny R (1998) Law and Finance. *Journal of Political Economy* **106**(6), 1113–1155.

La Porta R, Lopez-de Silanes F, Shleifer A and Vishny R (1999) The Quality of Government. *The Journal of Law, Economics, and Organization*, **15**(1): 222–279.

Lele PP and Siems MM (2007) Shareholder Protection: A Leximetric Approach. Journal of Corporate Law Studies, 7(1): 17–50.

Lepers E (2021) *Fiscal Policy As Credit Policy: Reassessing the Fiscal Spending vs. Private Debt Trade-Off*. CITYPERC Working Paper 4.

MacLennan D, Muellbauer J and Stephens M (1998) Asymmetries in Housing and Financial Market Institutions and EMU. *Oxford Review of Economic Policy*, **14**(3): 54–80.

Morel N, Palier B and Palme J (2012) Beyond the Welfare State As We Knew It. In Morel N., Palier B. and Palme J. (eds.), *Towards A Social Investment Welfare State? Ideas, Policies and Challenges*. Policy Press, 1–30.

Myles J and Quadagno J (2002) Political Theories of the Welfare State. Social Service Review, 76(1): 34–57.

Nicoletti G, Scarpetta S and Boylaud O (1999) *Summary Indicators of Product Market Regulation with An Extension to Employment Protection Legislation*. OECD, ECO Working Paper.

Nikolai R (2012) Towards Social Investment? Patterns of Public Policy in the OECD World. In Moriel N., Palier B. and Palme J. (eds.), *Towards a Social Investment Welfare State*. Bristol: Policy Press, 91–116.

Norris M (2016) Varieties of Home Ownership: Ireland's Transition from a Socialised to a Marketised Policy Regime. *Housing Studies*, **31**(1): 81–101.

Obinger H, Starke P, Moser J, Bogedan C, Gindulis E and Leibfried S (2010) *Transformations of the Welfare State: Small States, Big Lessons*. Oxford: Oxford University Press.

OECD (2020) Tax relief for home ownership. OECD Affordable Housing Database. http://oe.cd/ahd.

Pistor K, Raiser M and Gelfer S (2000) Law and Finance in Transition Economies. *Economics of Transition*, **8**(2): 325–368.

Pollard J (2011) L'action publique par les niches fiscales – l'exemple du secteur du logement. In Bezes P. and Siné A. (eds.), *Gouverner (Par) Les Finances Publiques*. Paris: Sciences Po Les Presses, 263–297.

Schelkle W (2012) A Crisis of What? Mortgage Credit Markets and the Social Policy of Promoting Homeownership in the United States and in Europe. Politics and Society, 40(1), 59–80.

Scheve K and Stasavage D (2009) Institutions, Partisanship, and Inequality in the Long Run. World Politics, 61(2): 215–253.

Schmitt C, Lierse H, Obinger H and Seelkopf L (2015) The Global Emergence of Social Protection: Explaining Social Security Legislation 1820–2013. Politics and Society, 43(4): 503–524.

Schwartz HM (2009) *Subprime Nation. American Power, Global Capital, and the Housing Bubble*. Ithaca: Cornell University Press.

Seelkopf L, Bubek M, Eihmanis E, Ganderson J, Limberg J, Mnaili Y, Zuluaga P and Genschel P (2021) The Rise of Modern Taxation: A New Comprehensive Dataset of Tax Introductions Worldwide. *The Review of International Organizations*, **16**: 239–263.

Seelkopf L and Starke P (2019) Social Policy by Other Means: Theorizing Unconventional Forms of Welfare Production. Journal of Comparative Policy Analysis: Research and Practice, 21(3): 219–234.

Stephens M (2003) Globalisation and Housing Finance Systems in Advanced and Transition Economies. Urban Studies, 40(5–6): 1011–1026.

Stephens M (2016) Using Esping-Andersen and Kemeny's Welfare and Housing Regimes in Comparative Housing Research. Critical Housing Analysis, 3(1): 19–29.

Sveinsson JR (2000) *Society, Urbanity and Housing in Iceland*. Gävle: Meyers.

Van Gunten T and Kohl S (2020) The Inversion of the 'Really Big Trade-Off': Homeownership and Pensions in Long-Run Perspective. *West European Politics*, **43**(2): 435–463.

van Weesep J and van Velzen R (1995) A Comparative Study of Financial Housing Instruments in Selected Industrialized Countries: Inventory and Prospects. In Expertenkommission Wohnungspolitik (ed.), *Materialband zum Gutachten* Wohnungspolitik *auf dem Prüfstand*. University Utrecht, 1–149.

Wiedemann A (2021) *Indebted Societies: Credit and Welfare in Rich Democracies*. Cambridge: Cambridge University Press.

Wilensky HL (1975) *The Welfare State and Equality: Structural and Ideological Roots of Public Expenditure*. Berkeley: University of California Press.

William Martin I and Prasad M (2014) Taxes and Fiscal Sociology. *Annual Review of Sociology*, **40**: 331–345.

Wolswijk G (2009) Fiscal Aspects of Housing in Europe. In Arestis P., Mooslechner P. and Wagner K. (eds.), *Housing Market Challenges in Europe and the United States*. New York: Palgrave Macmillan, 158–177.

Wooldridge JM (2015) *Introductory Econometrics: A Modern Approach*. Cengage Learning.

Cite this article: Kholodilin KA, Kohl S, Korzhenevych A, and Pfeiffer L (2023). The hidden homeownership welfare state: an international long-term perspective on the tax treatment of homeowners. *Journal of Public Policy* **43**, 86–114. https://doi.org/10.1017/S0143814X2200023X