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Falling through the social safety net? Analysing non-take-up of *minimum income benefit* and *monetary social assistance* in Austria

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1 Introduction and scientific objectives

The project aims to measure and analyse the target efficiency of *minimum income benefit* ('Bedarfsorientierte Mindestsicherung') and its predecessor *monetary social assistance* ('offene Sozialhilfe: Leistungen zur Sicherung des Lebensunterhalts'), the benefits of last resort and most relevant in terms of non-take-up in Austria. The main reason for the change from *monetary social assistance* to *minimum income benefit* in 2010/11 was to combat poverty but also to facilitate access to the benefit. The reform in particular aimed at tackling high levels of non-take-up through changes in the benefit structure and the application procedure.

A key performance criterion of social protection systems is whether benefits reach their target groups. Means-tested programmes, however, tend to be characterised by a certain extent of access problems. Empirical evidence for several EU-countries – in the vast majority, similar to our analysis, based on tax-/benefit microsimulation using representative micro-household data – suggests that non-take-up of means-tested benefits is a widespread problem (Eurofound 2015; Matsaganis et al. 2014).

However, a variety of related research shows that non-take-up analysis has to deal with measurement errors that might distort the empirical results (see for example Frick/Groh-Samberg 2007; Hernandez/Pudney 2006; Matsaganis et al. 2010). For several reasons, the simulation of potential or theoretical benefit eligibility can be error-prone and/or the distribution of incomes earned or benefits received reported in the underlying micro-household data, can differ from the situation in reality, which leads to biased estimates of benefit take-up. The latter represents a particular problem when data on incomes and benefits are survey-based, since respondents are likely to misreport related information.

The Austrian case, however, offers a unique opportunity to test and significantly reduce potential measurement errors related to reported earnings. In 2012, the collection of the Austrian EU-SILC data has been changed from survey to register data. SILC data for 2008-2011 (originally based on survey data) was calculated back on the basis of register data which allows for a more accurate assessment of non-take-up rates. This, in combination with the replacement of *monetary social assistance* by *minimum income benefit*, provides an interesting case to study the access to benefits in Austria. This angle of the study is accompanied by an additional qualitative approach to assess the take-up gap in depth based on specific information gathered through expert interviews. The results based on the quantitative analysis and the expert reviews were discussed in the context of the empirical and theoretical literature both on the EU- and the Austrian national level.

The current study contributes to the literature in three ways. First, it offers insights into the target efficiency of the benefits of last resort in Austria by a quantitative up-to-date assessment of the size (both in terms of eligible households and benefit payments) and social determinants of non-take-up for *minimum income benefit* in 2015[1] and for *monetary social assistance* in 2009. Secondly, it analyses trends and changes in non-take-up behaviour as well as its social determinants (including also the situation back in 2003 based on previous research) by investigating in particular the effects of the policy change. Finally, the study contributes to the methodology of assessing non-take-up rates by comparing results based on register data with results based on survey data. This allows us to substantially disentangle the effect of the reform from a potential underlying measurement error effect. The overall results of the report provide a policy impact assessment of the introduction of *minimum income benefit*.

2 Literature Analysis

2.1 Policy context and state of the art

Related to means-tested benefits, non-take-up is becoming increasingly widespread as a phenomenon and considered as a central concept within public policy analysis (Warin 2014, 1). A key performance criterion of social protection systems is that benefits reach their target groups efficiently and effectively. Adequate targeting of social benefits also has major implications for equity and social justice. In case of a social assistance scheme, if the eligible persons do not receive the benefit (for any reason), it may imply that persons in need fall short of a basic social safety net and financial resources to increase their standard of living.

In the context of the financial crisis and budget austerity, the issue of targeting has become increasingly relevant. The OECD, in its 2011 report on inequality calls for "well-targeted income support policies", although without clearly specifying what form and degree this should take (OECD 2011, 40). The European Commission has made "ensuring fairness, combating poverty and promoting equal opportunities" a priority in its integrated guidelines underpinning the Europe 2020 strategy (Eurofound 2015, 1ff). It has launched a 'Social Investment Package', also calling for

[1] Due to the extension of the project time span from originally April 2017 to April 2019, in order to allow for a maximum actualisation of research the year of analysis for minimum income benefit was changed from 2013 (based on EU-SILC data 2014) to 2015 (based on EU-SILC data 2016).

better targeting and conditionality: Support should be better targeted to those in need at the times they need it (European Commission 2013).

Recently, the European Foundation for the Improvement of Living and Working Conditions has completed a research project on 'Access to Benefits in Times of Crisis' which focuses on monetary benefits for groups in vulnerable situations, documenting and assessing initiatives aimed at reducing non-take-up, and at increasing efficiency of application procedures for administrative agencies and applicants (Eurofound 2015). Organisations like the IMF and the World Bank have been long-term advocates of targeted benefits, specifically in the form of means-tested social safety nets. This implies that there is an efficiency argument in favour of targeting. These policy priorities, however, often seem to ignore the costs of designing and maintaining such schemes, and more importantly, that targeted benefit schemes are more likely to fail to reach all those who are eligible. The design of effective policies basically requires information on the extent and distribution of these 'systemic inefficiencies'.

2.2 Empirical estimates of non-take-up rates

Compared to universal transfers, means-tested programmes tend to be characterised by a certain extent of access problems, although there are still significant gaps in knowledge. Empirical evidence for several EU-countries as well as Switzerland – in the majority of cases similar to our analysis based on tax-/benefit microsimulation – suggests that especially non-take-up of social-assistance-type benefits can be considered a widespread problem. As a rule, the non-take-up measured in terms of claimants or caseload is higher than in terms of payments, as households are more likely to claim benefits in case of higher amounts entitled to. Evidence suggests not only that those gaps are of considerable magnitude but also that the problem is of persistent nature (see Table 1).

Table 1: Estimates of non-take-up of social assistance benefits in Europe

Country	Benefit	Year	Claimants	Payments
Austria	Subsistence Support (HLU)	2003	56% (49-62%)	48%
Belgium	Minimum guaranteed income (Leefloon) aged 18-65	2005	62% (57-76%)	45%
Bulgaria	Guaranteed minimum income	2007	> 60% (41-68%)	
Czech Republic	Social allowances (Sociální Doplatek)	1996	37%	
	Material need benefit (sociální dávky hmotné nouze)	2010/11	72%	
Germany	Subsistence Support (HLU)	2002	67%	57%
	Social assistance (Grundsicherung) for employable, for people 65+ and in cases of permanent earning incapacity	2007	35-42%	
		2007	41/46%* (42-50%)	
		2008	34-43%	
Finland	Social assistance (Toimeentulotuki) by families of working age	2003	51% (40-50%)	
	Social assistance (toimeentulotukea)	2010	55%	
France	Minimum guaranteed income (Revenu Minimum d'Insertion)	2001	35%	
	Active solidarity minimum income (revenu de solidarité active, RSA)	2010	50-64%	
Hungary	Regular social assistance (rendszeres szociális segély)	2003	43-45%	
Lithuania	Social assistance (Socialinė Pašalpa)	2011	68%	43%
Luxembourg	Minimum guaranteed income (revenu minimum garanti)	2007	59-71%	
Netherlands	Supplementary minimum income (aanvullende bijstand)	2003	68%	
Poland	General social assistance scheme (Pomoc Społeczna)	2005	24/57%*	
Portugal	Minimum guaranteed income (Rendimento Mínimo Garantido)	2001	28%	
Slovakia	Benefit in Material Need (pomoc v hmotnej núdzi)	2009	79%	
Sweden	General social assistance (Ekonomiskt Bistånd/Socialbidrag)	2001	31%	
Switzerland	Social Assistance Kanton Bern	2012	26%	
United Kingdom	Income Support (and income-related Employment and Support Allowance)	2009/10	17% (11-23%)	13%
		2013/14	19-23%	

Note: * Persistent/temporary non-take-up

Source: Bruckmeier et al. 2013, 5; Eurofound 2015, 12f; Hümbelin 2016, 1; Matsaganis et al. 2014, 29ff.

2.3 Determinants of (non-)take-up

2.3.1 Theoretical models

The economic and sociological literature (see, for example, Anderson/Meyer 1997; Blank/Ruggles 1996; Dimmel/Fuchs 2014; Engels 2001; Eurofound 2015; Hernanz et al. 2004; Kayser/Frick 2001; Riphahn 2001) provide theoretical models of the determinants of (non-)take-up. A basic hypothesis is that in the sense of a cost-benefit equation, a household will apply for a certain social transfer if the anticipated benefit exceeds the anticipated costs. It stresses the direct and indirect costs of applying, including both objective barriers and subjective motives.

The relative weight of the factors depends on the specific programme and may vary from country to country and individual to individual. For descriptive purposes, we group them into four categories. However, some of them might also be classified under more than one category or in other categories.

- *Pecuniary determinants* in the sense of a rational cost-benefit equation: the focus of this category is on the level of benefits and the expected duration of receipt. A renouncement to claim will take place if the expected benefit amount is too low and/or the expected duration of the benefit spell is too short to offset costs (claiming is costly in terms of time and effort; see below). On the other hand, without (any) other material resources a person in need will hardly be able to 'decide' not to claim.

- *Information costs* about benefit and eligibility regulations as well as application procedures: collecting, understanding and completing application procedures imply costs. Entitled persons may abstain from taking-up if the application procedures are too complex or disorganised. This includes different degrees of lack of information or misperceptions about the benefit up to being not aware of the benefit at all or at least the eligibility for it, false information and lacking access to administrative support (Eurofound 2015, 1ff). Uncertainties about the application outcome may lead people to abstain from claiming, in particular persons on the margins of benefit entitlement (Hümbelin 2016, 27).

- *Administrative costs* related to (the duration of) the administrative process, e.g. queuing, filling forms, need to report detailed information to the welfare agency, checks on the willingness to accept suitable job offers, obligations in the framework of integration measures, etc. (Bruckmeier et al. 2013, 8) and/or lack of resources such as time, ability to find one's way through the system, or ability to travel to the welfare or employment office (Eurofound 2015, 1ff). Frequently it takes time until an application is submitted and processed. If the expected eligibility spell is short or there are concrete expectations about future incomes

(e.g. expectation to take up a new job relatively quickly), potential claimants may be induced to not participate.

- *Social and psychological costs* including stigmatisation: these intangible costs include the overall perception of state aid as degrading. In addition, the targeting of benefits to specific groups may expose them to stigmatisation. The acting of welfare officials towards claimants may also be perceived as humiliating, particularly if the administration acts as a fraud controller, too. Thus, social barriers and (perception of) stigma can be both linked to the conditions tied to a benefit and the application procedure (Eurofound 2015, 1ff).

However, it would be misleading to depict non take-up only as a consequence of deficiency, passivity, disadvantage or domination. It is also about the freedom of individuals to express their indifference, their disagreement and their rejection of the system. It can be affected by such a wide range of factors, from self-esteem, confidence in the system, attitudes towards social security benefits and individual concerns to social recognition, and personal moral beliefs (Frick/Groh-Samberg 2007, 34; Warin 2014, 8).

In addition, non-take-up is not only influenced by the actions and decisions of eligible individuals but also by (the accuracy of) administrative decisions (e.g. errors in evaluation procedures, discretionary decisions based on loose programme rules, responses to individual circumstances (Hümbelin 2016, 27). There might also be deliberate policies by governments to restrict access to benefits (Matsaganis 2014, 28f). The potential resulting rejection of actually eligible persons is termed as 'secondary' non-take-up (van Oorschot 1991).

2.3.2 Empirical evidence on covariates of non-take-up

The empirical evidence on covariates of non-take-up shows that rational motives or the expected net utility from claiming play an important role. Non-take-up is higher for lower degrees of need or deprivation. This can be measured as the social assistance benefit level entitled to and the expected duration of a claim, for example expecting long-term unemployment vs. expectation of a short spell of the financial bottleneck, more optimistic prospects. For households (just) below the eligibility threshold, the costs of claiming often do not pay off the utility (Bargain et al. 2010, 13; Bruckmeier/Wiemers 2011, 21; Bruckmeier et al. 2013, 12; Frick/Groh-Samberg 2007, 40ff; Hümbelin 2016, 27; Wilde/Kubis 2005, Summary).

In terms of claiming costs, concrete types of transactions or administrative costs are probably important (Currie 2004, 2). While general information costs do not seem to play a very decisive role (Bruckmeier/Wiemers 2011, 21), other stable factors seem to act in favour of claiming costs especially in situations in which benefit

eligibility is not definite, e.g. owning one's home, being self-employed, etc. (Bargain et al. 2010, 13).

Some analysts found that stigma and related psychological barriers play a crucial role (Frick/Groh-Samberg 2007, Abstract/40f; Wilde/Kubis 2005, Summary) while others came to the opposite conclusion (Bruckmeier/Wiemers 2011, 21; Currie 2004, 2). Differentiated analyses of regional differences in take-up suggest that social expectations and attitudes towards receipt of social assistance are of importance. Independent of attitudes and economic structure, there seems to be an effect of population density, where also (lacking) anonymity could play a role. However, the effect diminishes with increasing population and thus, rather seems to explain the difference between very small and medium-sized municipalities. In addition it was found that municipalities with right-wing conservative political preferences (controlled for economic structure and population density) feature higher rates of non-take-up (Hümbelin 2016, 1/26f).

There is also a longitudinal or dynamic factor in the sense of a strong impact of the (individual) history of eligibility and take-up as well as benefit reforms on current (non)-take-up. Non-take-up seems to be a composite effect of personal attitudes related to claiming and the degree of need for support in order to maintain minimum living standards (Frick/Groh-Samberg 2007). In addition, analyses for the years 1996-2003 in Finland found that claiming behaviour has changed in post-recession years. However, the decline in recipients is not a direct consequence of lower unemployment but more likely due to a change in take-up patterns in the senses of an increasing stigma of relying on social assistance during economic upturns (Bargain et al. 2010, 13). In terms of benefit reforms, Bruckmeier/Wiemers (2011, 20) suggest for Germany that for eligible households, in relation to their claiming decision, it took about a year to adapt to the new Hartz IV policy system in 2005.

2.4 Negative consequences of non-take-up

According to the theoretical models, non-take-up occurs when the anticipated benefit falls short of perceived claiming costs. If such costs are the consequences of non-transparent and complex schemes, poor information or similar institutional barriers, they imply a failure in the design or implementation of the programme (Eurofound 2015; Kayser/Frick 2001). The outcomes of high benefit non-take-up can be considered as problematic in several respects (see, for example, Engels 2001; Eurofound 2015; Hernanz et al. 2004; Kayser/Frick 2001):

- Low participation rates may distort the intended welfare impact of targeted social transfers. The welfare goals of benefit programmes are not entirely reached; there is a failure in the provision of a safety net for persons in need (as

the targeted benefits often do not reach the target group), in reducing poverty and in labour market or social reintegration (Bargain et al. 2010, Abstract). In addition, non-take-up may cause greater social and economic costs in the long run, as for example the individual path towards indebtedness and precarious financial circumstances may lead to health problems or reduced equal opportunities for children (Eurofound 2015, 1ff; Hümbelin 2016, 27).

- Non-participation causes unjustified disparities among eligible clients. This becomes a serious problem if the 'decision' is at least partly involuntary, i.e. if some households are discouraged from claiming because of objective or subjective barriers (e.g. if only the better-informed claim and, thus, possibly not those who would benefit most).
- Finally, non-take-up reduces the capacity to anticipate both social outcomes and financial costs of policy reforms, notwithstanding that claiming behaviour is influenced by possible reforms, too, and leads to interpretation problems of recipients' statistics: the receipt of a certain benefit cannot be considered as a reliable indicator for deprived circumstances, if it mirrors only the observable part.

However, there is also the view that non-take-up does not necessarily represent a non-optimality of the benefit systems in force. For example, the role of administrative hassle is interpreted as a screening device to exclude those with higher permanent income (like self-employed) and to target those with the most urgent (and long-term) needs for assistance. It is argued that estimates would show that the Finnish system tends to perform relatively well in this respect (Bargain et al. 2010, 14).

2.5 Policies to improve take-up

Approaches to address non-take-up may need to apply multiple strategies simultaneously (Eurofound 2015, 1ff) and may include changes in the drawing-up of laws, in the implementation of the rules, in the attitude of the administrations and in the communication about the existing measures, etc. (Boccadoro 2014, 22f).

As information and administration barriers often play an important role, a few relatively simple measures could be very effective. In general, these could consist, for example, in providing the required information for potential beneficiaries about the existence of benefits and the application procedures, in a public debate about claiming conditions and means-testing, in simplifying the application process and making it more comprehensible as well as in arranging the screening of applications in a more transparent and objective way (Bruckmeier/Wiemers 2011; Engels 2001; Hernanz et al. 2004).

In terms of administrative procedures there should be simple, transparent, stable and readily available benefit criteria. Benefits established at local level are at risk when they are part of a complex, fragmented benefit structure (Eurofound 2015, 1ff). Interactions between regulations of different programmes (Hernanz et al. 2004, 4) and between the welfare and the tax system in terms of (dis)incentives should be considered. One-stop shops were successfully introduced in several OECD countries, where individuals who apply for one benefit are automatically informed about other programmes. Receiving one benefit typically makes it more likely that the same person will apply for additional programmes (Boccadoro 2014, 22f). There could also be a liaison between the public administration (social housing, health insurance providers, etc.), local service providers and NGOs, as well as trade unions and employers for better information and guiding through the application process (Eurofound 2015, 1ff).

In any case there should be active support within the application process. Social workers, or any other official person who is already in contact with the potential beneficiary, could assist in filling in application forms (Boccadoro 2014, 22f). Information can also be gathered by penetrating new social networks. Online application procedures could not only reduce barriers but also reduce administrative costs (Eurofound 2015, 1ff). If suitable, take-up could be enhanced even by automatic enrolment (Currie 2004, 2). The institution that has access to the relevant data to judge entitlement may be in the best position to manage payments. Otherwise, databases may be linked with each other or administrative systems are made more proactive by notifying people who are likely to be entitled.

Decoupling applications from social welfare (offices) can provide a solution to stigma. The design of social security systems should take into account indifference, disagreement and rejection of the system by people when defining social needs. There is an argument for the evaluation of both the social and political consequences of public decisions on benefit provision which would place the interests of service users, particularly those on the margins of society, at its centre (Warin 2014, 8).

3 Policy background

3.1 Country context

Austria can be categorised as a Corporatist welfare regime (Esping-Andersen 1990) with a traditionally high importance of social-insurance based benefits and generous universal benefits. Social-insurance related benefits (incl. pension,

unemployment, health and accident benefits) accounted for 56% of monetary social transfers in 2015. This was followed by 17% for civil servant retirement pay, 13% for universal benefits (e.g. family and care allowances), 4% for entitlements related to labour legislation (mainly continuation of payments for sick workers) and 3% for occupational pensions. Expenditures for means-tested benefits made up for only 5% of all monetary social transfers (residual: other benefits) (BMASK 2017, 155/165).

Important means-tested benefits in Austria consist not only of *monetary social assistance/minimum income benefit* but also of *minimum pension top-up*, *unemployment assistance* and *housing allowance*. However, given their status as benefits of last resort, *monetary social assistance* and its successor *minimum income benefit* are the most relevant benefits in terms of non-take-up in Austria.

Compared to other European countries, the Austrian minimum income scheme can be characterised as "simple and non-categorical scheme but with rather restricted eligibility and coverage" (ESPN 2015, 7). Due to the extensive roll-out of social-insurance-related and universal benefits, the relatively low unemployment rate in the international context and the unlimited provision of *unemployment assistance* ("Notstandshilfe") after the expiration of *unemployment benefit* ("Arbeitslosengeld"),[2] the number of recipients in relation to the total population is relatively low.

3.2 *Minimum income benefit* vs. *monetary social assistance*

As benefits of last resort, *minimum income benefit* and its predecessor *monetary social assistance* aim to provide a subsidiary safety net for those in need. There is a legal entitlement for persons who do not have sufficient means for subsistence and housing needs from own resources (incomes or property), resources of their (nuclear) family (maintenance obligations), other prior-ranked entitlements (such as social insurance benefits, etc.) or allocations by third persons (demand covering voluntary donations, etc.). The receipt of the benefit is conditional upon an income- and wealth-based means-test as well as on the willingness and availability to work if the person is of working age (with some exceptions, such as disability, care for frail elderly or children below three years of age, etc.). The Federal States (together with the municipalities) are responsible for implementation and organisation, the funding comes from general taxes.

[2] In the majority of EU countries there is a direct fall back into social assistance after expiration of unemployment benefit.

Within the time period September 2010 until October 2011, *monetary social assistance* was replaced by *minimum income benefit* in all nine Federal States of Austria. In principle, the new *minimum income benefit* represents an enhancement of *monetary social assistance* with specific features to ease access to the benefit. In an interstate agreement between the Federal Government and the Federal States nationwide uniform standards were defined, which were to a large extent also considered by the Federal States when elaborating their laws on *minimum income benefit* (BMASGK 2018, 85). Important objectives of the reform were harmonisation and modernisation of the most important regulation areas across the Federal States, increased legal certainty and intensified strategies to combat poverty and social exclusion (BMASK 2012, 6ff; Stanzl 2013, 251; Stanzl/Pratscher 2012, 16ff). These objectives should be reached by means of the following measures:

- In order to correspond with the minimum standards of *minimum pension top-up*, minimum standards were increased (in 2015, for a single person EUR 827.82 and for a cohabiting couple EUR 1,241.73 per month). Thereof, 25% are defined as a basic housing allowance and additional 'appropriate' housing allowances can be provided by each Federal State.

- The streamlining furthermore included the eligibility criteria with respect to the applied income- and wealth-based means-test (incl. a six months' period of grace for wealth that cannot be liquidated at short notice) and a clearer definition of groups excluded from the general obligation to take up employment.

- In addition, administrative processes have been made more transparent in order to improve the legal certainty of the application process). This included reducing the legal decision period for applications to three months, the introduction of compulsory written notifications and the implementation of measures for an effective emergency relief.

- Finally, a higher priority has been given to the (re-)integration of beneficiaries into the labour market by granting also access to labour market measures provided by the public employment service (PES) that used to be exclusively available to recipients of unemployment benefits.

Even though the described measures may already make the whole process more predictable and transparent, additional measures have been implemented to tackle non-take-up and to reduce stigmatisation through simplified application procedures and low-barrier access to services:

- Instead of the municipalities the locally competent district administration – in larger towns, the magistrate – is responsible for applications and pays out the benefit (Dimmel/Pfeil 2014, 642; Dimmel/Pratscher 2014, 944). In addition, the offices of the PES should serve as a 'One-Stop-Shop' for recipients of (low)

unemployment benefits who may already apply for topping-up *minimum income benefit* at the very same office.

- Maintenance obligations have been restricted to the nuclear family (spouse, parents for their minor children). At the same time the obligation to pay back benefits to the authorities by former benefit recipients once a certain income is earned, has been strongly relaxed (BMASK 2012, 6ff; Stanzl 2013, 245ff).
- Finally, recipients formerly without health insurance are now covered by the legal health insurance scheme and are entitled to use the electronic insurance card like other insured persons and do not need to apply for a stigmatising sickness certificate anymore.

Taking all reform changes into account, *minimum income benefit* introduces relatively uniform minimum standards, accelerates the application process and reduces maintenance obligations by relatives (Dimmel/Pratscher 2014, 972; Stanzl 2013, 245f). Thus, we expect to find a decrease in non-take-up through the reduction of access barriers and de-stigmatisation of the benefit.[3]

3.3 Statistics on recipients and expenditure

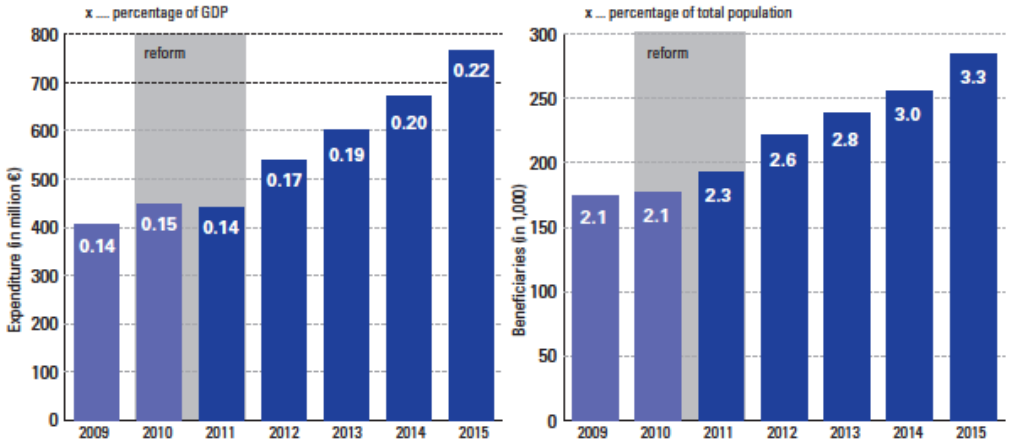
- In 2003, 103,000 persons (1.3% of the population) in 63,000 households (1.9% of all households) received *monetary social assistance* at least for one month. The yearly expenditure for standard benefits and housing allowances amounted to EUR 235 million (0.10% of GDP) (Pratscher 2005, 339).
- Previous to the change to *minimum income benefit*, in 2009 174,000 persons (2.1% of the total population) in 102,000 households (2.8% of all households) received *monetary social assistance*. The yearly expenditure amounted to EUR 407 million (0.14% of GDP) (Pratscher 2011).

[3] Due to the deferred availability of EU-SILC micro-data we can only analyse the situation as regards *minimum income benefit* in 2015 but not later. Thus, the analysis is not affected by legal developments after 2015. However, for the sake of completeness it should be mentioned that the period of validity of the interstate agreement between the Federal Government and the Federal States concluded in 2010 terminated by the end of 2016 due to its tie to the period of fiscal equalisation. An agreement on a subsequent framework regulation on *minimum income benefit* was doomed to fail due to serious strategic differences of the negotiating parties (e.g. related to benefit ceilings for multi-person households, the introduction of qualifying periods, etc.). Thus, since 2017 laws related to *minimum income benefit* can again be elaborated without consideration of a common framework of an interstate agreement by the Federal States (BMASGK 2018, 85). In November 2018, the Federal Government presented a draft for a nationwide elementary law on *minimum income benefit* which is still in its appraisal phase.

- In 2015, 284,000 persons (3.3% of the total population) or 168,000 households (4.4% of all households) received *minimum income benefit*. The yearly expenditure amounted to EUR 765 million (0.22% of GDP) (Pratscher 2016).

Thus, since the last years of *monetary social assistance* in 2009/10, a substantial increase in recipients and expenditure can be observed (see Figure 1).

Figure 1: Expenditure for minimum standards and housing allowances (left-hand side) and beneficiaries (right-hand side) of *monetary social assistance* (2009/10) and *minimum income benefit* (2010/11-2015)



Source: Authors' calculations based on Statistik Austria 2019.

There is a high concentration of recipients in Vienna, but with a decreasing share: in 2003 65% of all recipients were located in the capital, in 2009 58% and in 2015 56%. There is also a high share of households (in 2015 around 70%) in which incomes from other sources (unemployment benefits, maintenance payments, employment income) are topped up by *monetary social assistance/minimum income benefits* (www.statistik.at). The reasons are the relatively high share of precarious employment and corresponding low earnings of clients as well as low prior-ranked unemployment benefits in the case of unemployment.

4 Research design and methodology

An increase in take-up is one explanatory model for the rising number of recipients and the rising expenditure on *minimum income benefit*. However, additional or alternative explanatory models, like general economic and labour market developments (e.g. increases in unemployment rates or in precarious employment, which might lead to increased material needs), have to be considered. Furthermore, given the fact that benefit levels were on average increased with the introduction of *minimum income benefit*, there might be also more households entitled to the benefit than before. It is difficult to disentangle the impact of each of these factors on the receipt of *minimum income benefit*.

Thus, the current study

- reviews and assesses to what extent policy measures and their implementation as well as institutional processes promote effective take-up of *minimum income benefit*, and how effective the implementation of the reform was;
- assesses changes in the extent and distribution of non-take-up of *minimum income benefit* compared to *monetary social assistance* and disentangles the effect caused by the benefit reform from a potential underlying measurement error effect as far as possible;
- identifies and describes the prevailing gaps between eligibility and take-up, and analyses their variation across different social groups, and
- investigates the barriers these groups still face in accessing the benefit.

4.1 Quantitative analysis

4.1.1 Simulation of non-take-up

For the quantitative analysis of non-take-up we use the tax-/benefit microsimulation model EUROMOD/SORESI. It contains the Austrian part of the EU-wide model EUROMOD (Sutherland/Figari 2013) with specific adaptations to the tax-/benefit system in Austria (Fuchs/Gasior 2014). The areas of policies covered include social security contributions, income tax and cash transfers. For the current study the model has been adjusted with the detailed policy regulations for *minimum income benefit* in 2015 and *monetary social assistance* in 2009 for all nine Federal States. The model uses Austrian cross-sectional EU-SILC data as underlying micro-household-data.

Defining of needs

In a first step, the theoretical eligibility – i.e. the income needs of a household – is assessed based on the socio-demographic characteristics of each household member and by taking the region-specific legal regulations and administrative rules of the programmes into account (see Annex). The basic monetary need of each household member is increased by additional special needs (related to age, disability status, presence of children in the household, etc.). The sum of the individual needs is the total income need of the household which is complemented by additional needs for housing and heating. Housing costs are assessed up to the household-specific maximum amount stipulated by each Federal State or up to the actual housing costs observed in the data (the lower limit is relevant).

Defining allowable incomes/offsetting expenditure

The income situation of a household is assessed in a second step. Starting with the gross incomes reported in EU-SILC (employment income, self-employment income, and other 'market' incomes incl. pensions), simulated social insurance contributions and income taxes (according to each income type) are deducted and cash transfers are added to the net market incomes. For a better effigy of reality, except for family allowance and child tax credit all monetary transfers are taken directly from the data. This furthermore avoids an increase in the scope for errors as the simulation of other cash transfers would add the problem of non-take-up of prior-ranked benefits (Bargain et al. 2010, 6).

According to specific means-test regulations in the respective Federal States, the household disposable income is adjusted for deductible incomes (e.g. transfers like family allowance, child tax credit, care benefit, etc.) as well as deductible expenditure in the form of maintenance payments. If the household's adjusted disposable income is below the calculated total household need, the household is considered eligible for *minimum income benefit/monetary social assistance* in terms of the means-test related to incomes.

Wealth Test

In practice, the eligibility for the benefit is not only based on the income situation but also on the assets of the household. Unfortunately, the underlying EU-SILC micro-data does not contain information on wealth. Thus, non-take-up rates are estimated by using a proxy for the wealth test: We define households with incomes from interests, dividends and capital investments as not eligible if these incomes

exceed the stipulated thresholds in the Federal States (see Annex) when assuming a certain interest rate.[4]

Simulated potential eligibility put into relation to reference figures for actual recipients/expenditure

The size of non-take-up is estimated by comparing proportions of households that potentially fulfil the entitlement criteria in the simulation model with proportions of actually benefit-receiving households. Non-take-up is defined as 100 minus the ratio between the number of households receiving the benefit and the total number of households simulated as potentially eligible. Furthermore, the aggregated amount of the simulated benefits allows assessing the fiscal impact of non-take-up by putting it into relation to the actual benefit expenditure. The information on the number of actually receiving households and the amount of actual expenditure can be derived either from official external statistics or from benefit receipt reported in the EU-SILC survey data.

In 2003, 2009 and 2015 a comparison of reported receipt of *monetary social assistance/ minimum income* benefit in EU-SILC with official statistics on recipients and expenditure shows strong under-representation of both receivers (46-63%) and effected payments (31-74%) in EU-SILC. There are various reasons for misreporting of programme participation in the survey. According to Statistics Austria (Heuberger 2018) the under-representation in the SILC data is mainly due to under-coverage of the target group in the sample but also due to non-reporting because of stigma.[5] In addition specific classification errors in terms of different social-assistance-type benefits may occur by respondents (see also below).

Following this comparison, non-take-up rates based on the actual number of recipients from administrative records might provide a more accurate estimation. Using corresponding information from the data would lead to a higher estimation of non-take-up.

However, for the analysis of the determinants of non-take-up, SILC data (households with reported benefit receipt) is used as reference data: In the official statistics on recipients of *monetary social assistance*/*minimum income benefit* only very limited breakdowns by socio-demographic variables are available. In addition, we want to account for interactions between the various characteristics of a

[4] Based on empirical data (Statistik Austria 2018b; 2014b; 2008), for 2003 and 2009 we assumed an interest rate of 4%, for 2015 we assumed an interest rate of 1%.

[5] Even in the SILC-data based on register data, information on actual receipt of *minimum income benefit*/*monetary social assistance* (receiving households, annual amounts) is based on questionnaires as the Federal States do not provide corresponding register data so far.

household correlated with the participation decision in multiple regression analyses.

Table 2: Micro- and macro-information on receipt of *social assistance/minimum income benefit*: reported EU-SILC data vs. external statistics

	2003		2009 survey/ register data		2015	
	House-holds (in 1,000)	Expendi-ture (in million €)	House-holds (in 1,000)	Expendi-ture (in million €)	House-holds (in 1,000)	Expendi-ture (in million €)
EU-SILC	29	72	67/64	269/256	93	563
External	63	235	102	407	168	765
Coverage	46%	31%	66/63%	66/63%	55%	74%

Notes: EU-SILC data, external statistics: 2003 and 2009: *Social assistance* permanent and one-time benefits (incl. housing allowances), 2015: *Minimum income benefit* (incl. housing allowances). External statistics households: each person/needs unit that received the benefit at least one time during the year.

Source: Pratscher 2005, 2011, 2016; Statistik Austria 2006; micro-datasets EU-SILC.

4.1.2 Measurement and simulation errors

Several analyses on the simulation of non-take-up (see for example Frick/Groh-Samberg 2007; Hernandez/Pudney 2006; Matsaganis et al. 2010) point out that the reliability depends on the availability of all parameter information required in the claiming process and the accuracy of reported income/wealth in the underlying micro-data. Given that the regulations are quite complex, household needs and income/wealth tests cannot be simulated in all details. The simulation of potential eligibility for *minimum income benefit*/*monetary social assistance* might furthermore be error-prone if reported incomes/wealth and benefits diverge from the situation in reality. Finally, differences might also occur due to the behaviour of programme administrators (e.g. in the case of discretionary decisions), a human component that cannot be controlled for.

The above might lead to two biases in the non-take-up analysis: the simulation of non-eligible households as eligible (over-estimation of non-take-up) or the simulation of eligible households as non-eligible (under-estimation of non-take-up).

Potential errors related to simulated needs

- Structural socio-demographic- and income information in EU-SILC as well as information on receipt of *minimum income benefit/monetary social assistance* are only available at the household level and hence only allow measuring income and needs of the entire household. Thus, in the microsimulation model we have to use the household as the unit of observation. However, households are only a proxy for benefit units which constitute the assessment unit for *minimum income benefit/monetary social assistance* in practice. A benefit unit usually consists of the family head, the spouse and children (in some Federal States with the restriction that they are below 18-25 years of age). Additional persons in households usually constitute benefit units of their own. In relation to German SOEP-data, Frick/Groh-Samberg (2007, 27) state that around 10% of recipients of social assistance live in households that comprise of more than one benefit unit. A similar relationship can be assumed for the Austrian EU-SILC data.

- In terms of citizenship, basically Austrian citizens, EU and EEA citizens, other citizens if equated to Austrian citizens on the basis of state treaties or actual practices, approved refugees, etc. are entitled to *monetary social assistance*/*minimum income benefit*. In addition, the right to permanent residence in Austria is another fundamental requirement for eligibility. As in the SILC data there is no corresponding information whether these criteria are satisfied, we cannot consider these pre-conditions. Thus, for households included in the SILC data we assume that there is no reason for exclusion from *monetary social assistance*/*minimum income benefit* with regard to citizenship and/or the right to permanent residence.[6]

- Potential top-up benefits (e.g. for persons with special needs, disabilities, etc.) are partly not considered due to non-identification in the dataset or discretionary decisions in practice.

- In the Federal States of Burgenland, Styria, Tyrol and Vorarlberg an upper limit for accepted housing costs is outlined only in terms of 'reasonable actual costs' in 2003 and 2009 (*monetary social assistance*). Thus, upper limits are assumed by implementing (moderate) upper limits regulated in Vienna.

Potential errors related to reported incomes, expenditures and wealth

- There might be a measurement error in terms of under-reporting/over-reporting of incomes (only relevant for survey data for 2003 and 2009) and in terms of

[6] As the share of third-country nationals among simulated recipients is more or less equal to the share among actual recipients, it can be assumed that this type of error is negligible.

sampling and weighting factors (see Annex related to coherence of EU-SILC data), as take-up estimates are sensitive to observations from the lower end of the income distribution.

- As monthly income is not available in the data, the eligibility assessment in the model is only based on average monthly incomes. However, *monetary social assistance/minimum income benefit* is assessed on a monthly basis in practice. Thus, only average annual or persistent eligibility can be simulated, while in reality this might be only the case in some months of the year (Bruckmeier/Wiemers 2011, 9f/12f). On the other hand, using annual income can rule out eligibility completely although the household might be entitled on a short-term basis during some months of the year. Erroneous classifications may result especially for households with self-employed, temporary unemployed, etc. featuring income fluctuations during the year (Bruckmeier et al. 2013, 13).

- Even in the register SILC data for 2009 and 2015 information on social assistance benefits and *minimum income benefit* is not provided from registers but still from the declarations of the survey respondent. For 2015, *minimum income benefit* has to be simulated. In the case of reported benefits from continued social assistance (coverage of certain social services or benefits for disabled) and one-time social assistance (support in special life circumstances) in 2015, it can be assumed that these benefits would not count for the means-test of *minimum income benefit* as they are determined for the coverage of different life circumstances (e.g. social services vs. income support). In 2003 and 2009 *monetary social assistance* (from both continued and one-time payments) has to be simulated. In the case of reported receipt of other benefits against social exclusion (which cover small additional benefits provided by the municipalities, e.g., special heating allowances), it can be assumed that these benefits would not count for the means-test of *monetary social assistance* as they are again determined for the coverage of different life circumstances. Thus, all benefits against social exclusion recorded in the data are deducted from disposable income of the corresponding household and are not taken into account in the means-test within the simulation of *minimum income benefit* (2015) or *monetary social assistance* (2003, 2009). However, according to Statistics Austria (Heuberger 2018) there might be mix-ups of continued or one-time social assistance benefits with *minimum income benefit* by respondents in 2015 as well as of other benefits against social exclusion with *monetary social assistance* by respondents in 2003 and 2009.

- There is no full consideration of exemption limits in case of employment incomes of benefit recipients as the fulfilment of conditions for entitlement (long-term unemployment and/or long-term receipt of the benefit) is not always observable in the data.

- While effective maintenance payments are recorded, information on potential entitlement to maintenance from the part of other persons outside the household is not available in the survey data.
- Apart from maintenance payments, deductible expenditures stipulated in some of the Federal States (e.g. for safeguarding of an adequate old-age provision, payments of retained amounts in the framework of the legal health insurance, regular expenditure due to sickness) within the means-test for *monetary social assistance/minimum income benefit* could not be considered due to non-coverage in the survey data.
- From recorded incomes from capital and properties (renting, leasing) a corresponding wealth level is approximated under the assumption of a certain interest rate. If the calculated wealth level is lower than the amount of exemption stipulated in the Federal States it is assumed that the wealth test has been passed. However, this kind of reported income is generally substantially downward-biased in surveys, albeit to a lesser extent for low-income households. In addition, for 2003 and 2009 the Federal States of Burgenland ("small cash amounts"), Styria, Tyrol and Vorarlberg ("individual case") did not stipulate a concrete exemption amount. Thus, the respective exemption amounts were assumed by calculating an average from the stipulated amounts in the other Federal States.
- Finally, wrongly reported actual rents and heating costs in the data can also lead to simulation errors.

Summary: Potential simulation/measurement errors and their impact

Based on the descriptions above, Table 3 summarises the types of potential simulation/measurement errors and their possible impact on the estimation of participation rates:

Table 3: Potential simulation/measurement errors and their impact

Potential errors related to simulated needs	Impact
Approximation of benefit units by households	-
Simulation of benefits for non-EEA citizens in all Federal States	+
No consideration of specific additional needs in the individual case (e.g. for persons with special needs, disabilities, etc.)	-
Assumption of upper limits for housing costs in Federal States, where only "reasonable actual costs" are stipulated in 2003 and 2009	+/-

Potential errors related to reported incomes, expenditure and wealth	
Measurement error in terms of under-reporting/over-reporting of incomes (only 2003, 2009 survey data) and in terms of sampling and weighting factors	+/-
Incompatible timing of reported incomes (yearly) and needs assessment (monthly)	-
Treatment of recorded (other) social assistance benefits in the means-tests	+
No full consideration of exemption limits in case of employment incomes	-
No information in the survey data on potential maintenance entitlements against persons outside the household	+
No consideration of deductible expenditure apart from maintenance payments	-
Use of proxy for means-test as no information on assets in the data	+/-
Measurement error in terms of under-reporting/over-reporting of actual rents and heating costs	+/-

Note: +: leads to over-estimation of non- take-up; -: leads to under-estimation of non-take-up; -/+: both directions possible

4.1.3 Checks

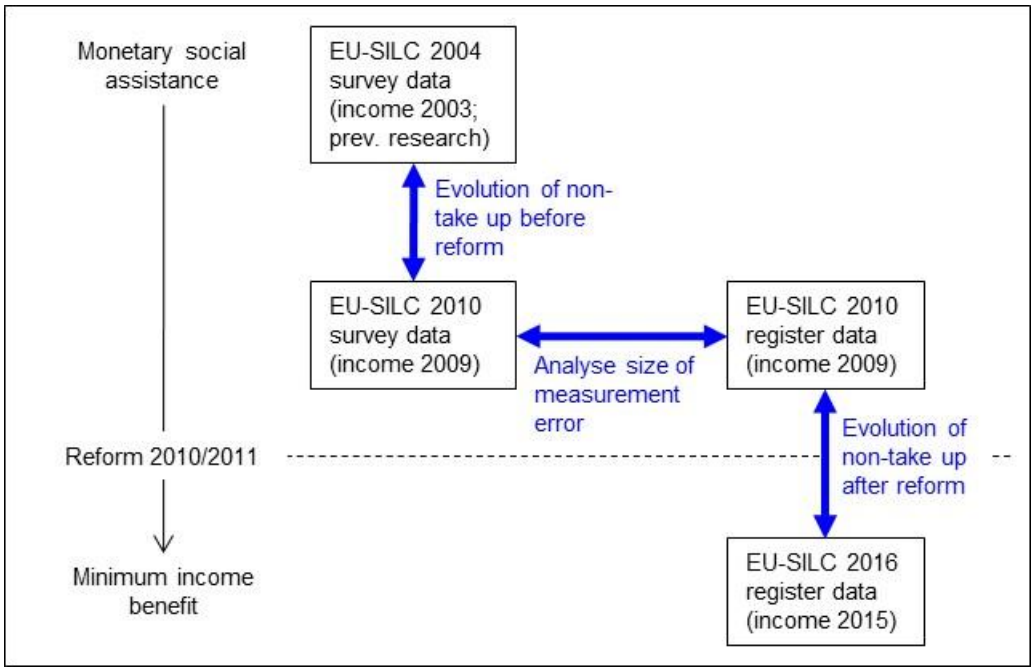
Register vs. Survey Data

We make use of the fact that the underlying EU-SILC micro-data for Austria was changed from survey to register data in 2012. SILC data for 2008-2011 (originally based on survey data) was calculated back based on register data. Before 2008, EU-SILC was based on survey data only, while it is solely based on register data from 2012 onwards. Register data refers to information on incomes (with the exception of self-employment income and *monetary social assistance*/*minimum income benefit*) while some auxiliary information is still gathered through interviews, particularly actual housing costs and duration of activity status over the year which may still introduce measurement errors.

2009 is the last year with an Austrian-wide implementation of *monetary social assistance*. Thus, we chose to compare the situation in 2015 (*minimum income benefit*; EU-SILC 2016 based on register data as latest available data wave) with the situation in 2009 (*monetary social assistance*; EU-SILC 2010 based on register as

well as survey data) and, in addition to our previous research, with 2003 (*monetary social assistance*; EU-SILC 2004 based on survey data).

Figure 2: Overview of analyses and datasets



By comparing results for different years based on register and survey data, the study contributes to a better assessment of the measurement error and as such to a better estimation and understanding of the non-take-up of benefits of last resort. In particular, the use of register data (comparison 2015 with 2009) allows for a relatively unbiased evaluation of the benefit reform in terms of non-take-up, whereas the comparison between the register and the survey data results for 2009 allows for a quantification of a significant part of potential measurement errors related to reported incomes (see Figure 2).

In addition, the research team carried out scientific standards, checks, controls and sensitivity analyses at several stages of the simulation process to consider potential simulation and/or data errors. The analysis followed appropriate approaches documented in the literature (see for example Frick/Groh-Samberg 2007; Hernandez/Pudney 2006; Matsaganis et al. 2010).

Beta-error

As a further assessment step we investigated the so-called Beta-error rate. It is defined as the share of households not calculated as eligible in the simulation model in all households with reported benefit receipt in the survey data. In general, simulation models perform best when Beta-error rates are low.

However, benefit receipt might simply be reported incorrectly in the data (e.g. miss-classification of transfers by respondents) (Bargain et al. 2010, 7f; Frick/Groh-Samberg 2007, 22f). As regards non-take-up analysis for Germany it was shown that Beta-error households comprise of more than one needs unit in about 30% of all cases (Frick/Groh-Samberg 2007, 26f).

Sensitivity analyses

In contrast to the Beta-error, the (remaining) potential measurement and simulation errors are not directly observable. A possibility to achieve perception of this type of errors is to estimate participation rates (as well as Beta-error rates) in several calculations or scenarios with multiple measurements of the resources that determine the potential eligibility of households.

Thus, we assessed take-up rates based on several calculations related to simulated needs by assigning eligibility to households whose allowable incomes fall short of the corresponding parameters (minimum standards, housing and heating need) increased or decreased by 5 and 15%.[7]

For a robustness check related to the proxy for the wealth test, in an alternative scenario we define households as not entitled if they privately own a home or freehold flat (independent from a potential loan repayment). For these households an above-average benefit non-take-up can be observed in practice due to the fear that the authorities make an entry in the land register for safeguarding reasons or even worse, the home or flat has to be sold before being able to receive the benefit.[8] In a third scenario we also present the results for a base scenario in which the wealth test is omitted.

4.1.4 Determinants of (non)-take-up

Proxies

To investigate the social determinants of non-take-up or the probability of non-take-up related to individual and household characteristics, multiple regression analyses are applied. The probability to participate can also be translated into a function of household characteristics which correlate with the (non-)take-up:

[7] Using register data (2009 and 2015), there is no need to adjust for potential measurement errors in reported incomes. These types of measurement errors are already addressed in the comparison of survey and register data for 2009.

[8] However, in the majority of cases, in practice the home or flat is judged as reasonable for the own housing need and is not burdened in the land register for six months.

- Household *i* takes up at time *t* if expected utility derived from receipt of *monetary social assistance*/*minimum income benefit* minus claiming costs exceeds utility from non-participation (Kayser/Frick 2001).

As the direct observation of most of these explaining factors is constrained by the availability of respective information in the data, several proxies for hypotheses based on theoretical models of take-up (rational cost-benefit equation: expectations related to benefit level and eligibility duration; claim if information, administration and psychological costs are relatively low or offset by the expected benefit) were applied.

The indicator *relative poverty gap* is a proxy for pecuniary determinants in the sense of the utility from claiming or the material urgency of the respective household.[9] There are additional proxies for expected benefit level and expected duration of benefit receipt which illustrate the household's expectations towards the future or are associated with a less/more permanent need for income support, e.g. by reflecting labour market chances. For example, those with lower education status, unemployed**,** single parents, households with children, pensioners**,** disabled or persons with a chronic health problem, etc. might be more likely in need of assistance for longer periods of time and higher amounts (Bargain et al. 2010, 11; Dahan/Nisan 2007, 23; Frick/Groh-Samberg 2007, 34f).

Affecting also direct information and application costs, a particular group less likely to participate might be households with migration background as, for example, these households face more language barriers and more uncertainty of actual granting of the benefit (Bargain et al. 2010, 11f). On the other hand, application costs may be lower for households renting their home as they might be more likely in need of assistance for longer periods of time (Kayser/Frick 2001). At the same time ownership might be connected with potential fears to be obliged to liquidate a home or freehold flat in case of claiming (Hümbelin 2016, 26f).

Social and psychological costs depend on attitudes towards social benefits by household members themselves as well as on perceived stigmatisation (by persons in the neighbourhood as well as government officials). This may differ across gender, age groups as well as across community size (larger towns provide more anonymity)[10] and across family types (perceiving less stigma if the benefit is

[9] It is calculated as the simulated amount of minimum income benefit/monetary social assistance a given household is eligible for (level of benefit), controlling for own incomes, as percentage of simulated total needs (ranging from 0 to 100%).

[10] However, differences in community size or between urban and rural areas are complex to interpret: 1. Individual attitudes towards social security affect the behaviour. 2. Attitudes in the social environment point to which extent negative attributions by neighbours and friends are to be expected. 3. Dominant preferences in a municipality will have an impact on the personal equipment and organisational arrangement of social agencies. 4. There are also effects of the economic

foreseen for more household members, in particular also to meet children's needs, etc.). Persons already in touch with a benefit agency (receivers of unemployment benefits, etc.) might feature lower marginal stigma and transaction costs (Bargain et al. 2010, 11f).

Some variables may serve not only as proxies of utility or material urgency, but for claiming costs as well. In some cases, the assumed effect works in the same direction. However, for example for retired persons it might be assumed that the impact on utility (higher duration of needs) and costs (higher stigma) work in the opposite direction. Likewise, low-educated persons might expect longer durations of needs, but at the same time information costs might be higher (Bruckmeier/Wiemers 2011 16/18; Frick/Groh-Samberg 2007, 35f).

Regression models

A probit model is used to calculate the probability of non-take-up related to individual and household characteristics. For 2009 we use the simulation model based on register data. The focus and thus the sample are limited to the take-up decision of those with simulated eligibility in the base scenario without wealth test (2003) and in the scenario with incomes from capital and properties as proxy for the wealth test (2009 and 2015). The dependent dummy variable indicates whether receipt of *social assistance*/*minimum income benefit* in the SILC data is reported (0) or not (1=non-take-up). The analysis is carried out on the household level as the benefit is granted on that level. On the individual level, the individual characteristics of the head of the household defined as the main earner are taken as explanatory variables. Because of the small sample size not more than four categories are used for non-metric variables. For the multiple analysis those variables that showed the highest statistical impact in one-to-one analyses were chosen.

The concept of endogeneity refers to the fact that an independent variable in the regression model is potentially correlated with unobservable factors in the error term (Kayser/Frick 2001; Millimet 2001). In terms of unobserved factors, e.g. the general motivation to work might have an influence on the level of the benefit entitlement (Bruckmeier/Wiemers 2011, 14). As the employment status is most relevant in this respect, removing the corresponding information from the list of explanatory variables in an additional probit model should provide some evidence on the robustness of the coefficients.

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structure (Hümbelin 2016, 26f; see also above). In addition, households in rural areas might also rely on home production and mobilise social networks, lowering the utility.

Finally, as an approach for dealing with possible biases related to the potential self-selection of non-employed and other relevant groups into the group of eligible households, we estimate both eligibility and take-up in a Heckman-style selection model. The model is based on the full sample (including non-eligible households), the dependent variable in the eligibility selection is a dummy (1=eligible, 0=otherwise). In the previous study for 2003 we added additional instrumental variables (subjective health status; colour TV-set in the household) to the full set of explanatory variables (only the poverty gap is excluded as a perfect predictor of eligibility). For 2009 and 2015, for methodological reasons we decided to run the eligibility selection only with a selected number of significant explanatory variables.

The dependent variable in the non-take-up regression is again a dummy (1=non-take-up, 0=otherwise). While for 2003 the regression was run with the full set of explanatory variables, for 2009 and 2015 the variables related to age, number of children below 18 years, household size, marital status and chronic health problems were excluded from the list of explanatory variables for reasons of multi-collinearity or lacking explanatory power.

4.2 Qualitative analysis: expert interviews

By using a purely quantitative approach on the basis of tax-/benefit microsimulation it is not possible to prove causalities in relation to non-take-up and to identify the latent variables behind the proxies in the equations. Thus, following also the suggestion by Eurofound (2015), we complement the quantitative methods with a qualitative approach in order to gain deeper insights into the patterns and reasons behind non-take-up.

The expert interviews provided an in-depth understanding of the evolvement of non-take-up and its social determinants since the last years of *monetary social assistance* (2009/10) until today (dependent on the available SILC data at the time of research: *minimum income benefit* in 2015). We investigate the efficiency of the reformed policy measures and institutional processes following the reform change. Furthermore, the interviews explored how the experts explain the non-take-up focusing on factors that are expected to have contributed to a decrease and characterise population groups that are specifically affected by non-take-up. Finally, during these interviews we were able to investigate what non-take-up means in practice – for both the intended beneficiaries and the authorities providing the benefit – as well as whether the benefit serves the intended purpose.

The expert interviews were based on a semi-structured interview guide to ensure the coverage of all relevant aspects:

1 Are the quantitative estimations for non-take-up in 2009 (*monetary social assistance*) and 2015 (*minimum income benefit*) and the resulting evolvement plausible and how do you comment on these estimations?

2 Are significant correlations with non-take-up plausible and how do you comment on these estimations?

3 What are in your opinion the major reform elements that contributed to the estimated decrease of the non-take-up rate (2009 vs. 2015)?

4 Did *minimum income benefit* (in 2015) in principle reach its reform targets? Which kind of problems do still exist?

5 Why were certain population groups still not reached despite the reform? Which groups are primarily concerned? What should be done to include also these groups?

We carried out three face-to-face interviews and one telephone interview, one with an experienced university professor in Social Law (in particular related to benefits of last resort), one with a leading representative of a relevant administrative body in Vienna and two with experts from organisations representing the interests of beneficiaries:

- University of Salzburg: Dr. Walter J. Pfeil, University Professor for Labour and Social Law, Head of Department 'Labour and Business Law', 17.12.2018;[11]
- City of Vienna, MA 40 (Social Affairs, Social and Health Law): DSA Peter Stanzl, MAS, Head of Department 'Reporting, Strategy and Communication', 3.12.2018;
- Austrian Poverty Network: Mag.a Martina Kargl, socio-political consultant, coordinator and co-author of the comparing matrix for the *minimum income benefit* in all nine Federal States, 11.1.2019;
- Diakonie Österreich: Mag. Martin Schenk, Deputy Director, Department 'Social Policy', social expert, 20.12.2018.

[11] Originally it was planned to carry out an interview with a responsible representative of the Federal Ministry for Labour, Social Affairs, Health and Consumer Protection but it was refused.

5 Quantitative and qualitative results

5.1 Non-take-up rates 2003, 2009 and 2015: trends and changes

For an overall comparison of non-take-up rates in 2003 and 2009 (*monetary social assistance*) as well as 2015 (*minimum income benefit*) based on both survey (2003, 2009) and register data (2009, 2015), we use the scenario with incomes from capital and properties as a proxy for the wealth test, as this scenario comes closest to the situation in practice.

For 2003, 124,000 households are simulated as eligible for *monetary social assistance* with an entitlement to 385 million EUR as compared to 63,000 households receiving 235 million EUR according to external data. Thus, the estimated non-take-up in terms of caseload amounts to 61,000 households (49%) and 150 million EUR (39%) in terms of expenditure (Fuchs 2007).

Using survey data for 2009 (as in 2003), 175,000 households are simulated as eligible compared to 102,000 households actually receiving (estimated non-take-up rate of 42%). Yearly benefits of actual claiming households amount to 407 million EUR, while non-applicants abstain from 271 million EUR (40% of the simulated 678 million EUR). Thus, non-take-up has remained relatively stable (although caseload declined, but this decline is not statistically significant).

If the same analysis is carried out using register data, the prevalence of non-take-up increases to 53% (216,000 simulated households) and 51% (830 million EUR of simulated expenditure). Non-take-up rates seem to be significantly under-estimated when using survey data. This is a first indication of the size of the measurement error which will be further assessed in the following sections.

After the policy reform, 241,000 households are simulated as eligible for *minimum income benefit* in 2015 with an entitlement to 1,093 million EUR (based on register data), which makes up for an estimated non-take-up of 30% for both the number of households (168,000 households actually receiving) and expenditure (actual expenditure of 765 million EUR). Comparing these results with those from the 2009 register data indicates clearly that the reform has led to a significant increase in participation rates. The estimates suggest that non-take-up rates both for caseload and expenditure went down by around 20 percentage points.

Table 4: Overview non-take-up (NTU) 2003, 2009 and 2015 (scenario with incomes from capital and property as proxy for wealth test)

	2003 (survey data)		2009 (survey data)		2009 (register data)		2015 (register data)	
	Case-load (in 1,000)	Expen-diture (in mil-lion €)	Case-load (in 1,000)	Expen-diture (in mil-lion €)	Case-load (in 1,000)	Expen-diture (in mil-lion €)	Case-load (in 1,000)	Expen-diture (in mil-lion €)
External	63	235	102	407	102	407	168	765
Simulated	124	385	175	678	216	830	241	1,093
NTU	49%	39%	42%	40%	53%	51%	30%	30%
CI (95%)	41-56%		36-**47**%		**48**-57%		23-**37**%	

Source: Authors' calculations based on EUROMOD/SORESI; Fuchs 2007; Pratscher 2005, 2011, 2016; Statistik Austria 2006.

The interviewed experts confirm the quantitative finding that take-up rates have increased after the introduction of *minimum income benefit*. One important objective of the reform was to make the benefit more accessible. Due to the related measures it is quite likely that the participation increased (Kargl 2019; Schenk 2018; Stanzl 2018). However, also the composition of the target group could have partly changed to even more households with urgent material need as long-term unemployment has risen during the period under review (Kargl 2019). This development could also partly explain the increase in take-up.

5.2 Reform elements that contributed to the estimated increase in take-up

According to the interviewed experts, several reform elements contributed to the estimated decrease of the non-take-up rate between 2009 and 2015. Their relative share can hardly be evaluated but in their entirety, they clearly eased the access to the benefit:

The abolishment of the duty to pay back benefits received in case of later employment does not only contribute to the increase of the participation rate but eliminates also a negative incentive to take up employment. However, in Vienna the duty was never executed even before the reform (Pfeil 2018; Schenk 2018; Stanzl 2018).

Although regress outside the core family was not realised in most of the Federal States already before the reform (Pfeil 2018; Stanzl 2018), its limitation represents a

major improvement which was also frequently reported in the media (Kargl 2019; Schenk 2018). However, in all Federal States (in Vienna only after a corresponding recommendation by the court of audit in 2017) clients were urged to claim for maintenance payments as compensation. In particular, grown-up children were forced to prosecute their parents in case of lacking ability for self-preservation, although between parents and grown-up children there is only an obligation for maintenance under certain circumstances. As many persons concerned do not know they rather abstain from a benefit application than that they would have to take their parents to court (Kargl 2019). The measure and its 'compensation' in sum possibly even led to a restriction of access to the benefit (Pfeil 2018).

The provision of health insurance in form of an electronic insurance card avoids additional stigmatisation as *minimum income benefit* recipients are now treated equally with other insured persons. Before, a special sickness certificate in yellow colour was issued for benefit recipients on demand (Kargl 2019; Pfeil 2018; Schenk 2018).

Related to the standards within the claiming process there is evidence that the emergency relief does not operate well in practice. However, the deadline for decisions of three months is kept for legal reasons which might support that claimants do not resign too quickly within the claiming process. The obligation for administrative decisions to be issued in written form is rather important for appeals against decisions, but not so much in terms of take-up (Schenk 2018). The obligation for claims to be made in written form might have led to an additional barrier for some clients (e.g. migrants) but helped in terms of securing a transparent claiming process (Pfeil 2018; Stanzl 2018).

Minimum income benefit can be applied for at the district headquarters, which provides more anonymity than offices of municipalities (Stanzl 2018). As further important measures in terms of implementation provisions, discretionary decisions and administrative errors were restricted and the legal conformity was increased. Computer programmes primarily introduced to relieve the staff now automatically calculate the precise benefit entitlement. In particular in Vienna, there exists a (non-public) guide with a collection of instructions which should secure a uniform execution in practice. In case of assumed erroneous decisions the claimant him/herself or an NGO can appeal at the social welfare offices. However, in all Federal States there are still district headquarters with problematic execution practices (Kargl 2019).

On the part of the social welfare offices, low threshold-access is secured by active information provision and counselling, training of civil servants, discussions with stakeholders and NGOs, checks, whether clients understand language and content of benefit descriptions and information as well as the improvement of corresponding websites which partially feature own benefit calculators (Schenk 2018). If all necessary documents are available, by and large Vienna provides the

possibility of an electronic application without the need of much personal contact with the administration. However, documents still have to be presented in person for producing a copy (Schenk 2018). The measures clearly represent an advantage for 'fitter' and more educated clients (Stanzl 2018). However, for disadvantaged clients, who need more advice and guidance as well as personal support by social workers, the claiming process may have become even more difficult, as there is less time for the individual case due to the increase in the number of recipients of *minimum income benefit* (Schenk 2018).

The minimum standards within *minimum income benefit* must not be undercut and represent a binding benefit level. The minimum standards provided by *monetary social assistance* could be both exceeded and undershot in practice (Kargl 2019). In Vienna, also a subsequent increase of minimum standards for children took place (Stanzl 2018).

In the agreement between the Federal Government and the Federal States the regulation of exemption amounts in case of taking up employment while receiving the benefit is quite complex. However, more favourable regulations are permissible in the Federal States and were broadly discussed in public. The newly created exemption amounts in Lower and Upper Austria ("re-entry bonus") are relatively generous (up to one third of the income from work) but are subject to additional conditions (duration of six months unemployment and / or receipt of *minimum income benefit*). In Salzburg and Tyrol, there has long been a model for exemption amounts (differentiated between full-time and part-time employment) even without additional conditions (Pfeil 2018). All in all, there is still a rather poor framework (low level of exemption amounts, considerable pre-conditions) which leads to an only marginal use in practice (Stanzl 2018).

In all Federal States a largely uniform exemption amount related to assets was created. Related exemption amounts existed in the Federal States already before the reform (for example, to finance a modest funeral) (Pfeil 2018), somewhat higher in Vienna (Stanzl 2018). Overall, there is no great impact of asset allowances related to take-up, since many applicants are either without assets (cash, savings account) or possess building loan contracts or life insurances which anyway exceed the exempted amount. Housing- or flat ownership is more relevant. Here the situation (after six months of benefit receipt, potential entry of the authority into the land register) has hardly improved. The entry in the land register was already previously only carried out in exceptional cases (Pfeil 2018; Schenk 2018). However, the standardisation and codification of exemption amounts related to employment incomes and assets may facilitate access to the benefit on the psychological level (Pfeil 2018).

The planned one-stop shop at the PES offices was never implemented. The possibility of submitting the benefit application at the PES offices was only realised in Vienna. But even there it was just a 'letterbox'. For a completed claim the clients

still had to pay a visit to both the PES and the social welfare office. Outside Vienna, recipients of low unemployment benefits were still referred to the social welfare offices for a potential top-up by *minimum income benefit* from the outset. However, the PES consultants were instructed to make clients aware of *minimum income benefit* and make application forms and information folders available. If at all, the measure was only successful in terms of take-up in Vienna and in the first phase after the policy reform (Kargl 2019; Pfeil 2018; Schenk 2018; Stanzl 2018).

The new access for *minimum income benefit* recipients to labour market measures provided by the PES (placement and support), albeit with significant regional differences, improved the chances of successful employment integration. The reform element could have facilitated access to *minimum income benefit* for those clients interested in taking up employment. Other clients were possibly additionally deterred. However, some pressure was exerted by the social authorities in terms of employment integration of clients already before the reform (Pfeil 2018).

The general coverage of the benefit reform in the media (in particular also in the boulevard) and the public discussions may have contributed to the increase of participation rates. Previously the benefit system was partly not known at all, especially in rural areas. In addition, an (initial) promise was disseminated that *minimum income benefit* represents an improvement compared to *monetary social assistance* (Kargl 2019; Schenk 2018; Stanzl 2018).

5.3 Distributional impact of non-take-up

To illustrate the effects of non-take-up of the benefits of last resort on poverty and income distribution, we compare the at-risk-of-poverty rate[12] and the Gini coefficient based on two scenarios:

(1) actual non-take-up: situation derived from EUROMOD/SORESI without simulation of *monetary social assistance*/*minimum income benefit* vs.

(2) assumption of full take-up: situation derived from EUROMOD/SORESI with simulation of *monetary social assistance*/*minimum income benef*it

For the analysis we use adjusted poverty lines. For all years of observation (2003, 2009 and 2015) and relatively independent of the type of micro-data used (survey vs. register data in 2009) both the at-risk-of-poverty rates and the Gini coefficients would drop by about 0.5 to one percentage points under the assumption of full take-up of *monetary social assistance/minimum income benefit*.

[12] As poverty line the 60%-median is used.

Thus, it can be concluded that poverty rates and Gini coefficients drop substantially under the assumption of full take-up in all years of analysis, independent of the benefit of last resort in place and the use of survey or register data.

Table 5: At-risk-of-poverty rates and Gini coefficients without and with the assumption of full-take-up of *monetary social assistance/minimum income benefit* in EUROMOD/SORESI; 2003, 2009 and 2015

	Poverty rate %	Gini
2003 (survey data)		
EUROMOD/SORESI with *monetary social assistance* according to SILC-data	12.2	0.253
EUROMOD/SORESI with *monetary social assistance* simulated (incl. other social assistance payments according to SILC-data)	11.1	0.245
2009 (survey data)		
EUROMOD/SORESI with *monetary social assistance* according to SILC-data	11.5	0.257
EUROMOD/SORESI with *monetary social assistance* simulated (incl. other social assistance payments according to SILC-data)	10.5	0.251
2009 (register data)		
EUROMOD/SORESI with *monetary social assistance* according to SILC-data	14.3	0.279
EUROMOD/SORESI with *monetary social assistance* simulated (incl. other social assistance payments according to SILC-data)	13.2	0.271
2015 (register data)		
EUROMOD/SORESI with *minimum income benefit* according to SILC-data	13.5	0.266
EUROMOD/SORESI with *minimum income benefit* simulated (incl. *monetary social assistance* according to SILC-data)	12.8	0.259

Source: Authors' calculations based on EUROMOD/SORESI.

5.4 Checks and variations

To account for possible measurement errors is of great importance since they may distort the simulation of entitled households. Thus, we compare incomes based on survey vs. incomes based on register data for 2009, look at Beta-error rates and incomes of different groups in the simulation process and provide a sensitivity analysis in terms of variations in parameters underlying the simulation process.

5.4.1 Comparison of incomes based on survey vs. register data for 2009

If we look at persons in households simulated for *monetary social assistance* in the base scenario (without wealth test) in 2009 according to register data and compare their household income situation to that according to survey data, we clearly see that household income according to survey data is much higher than according to register data (related to the mean around 1.8 times). This huge difference explains why estimations of non-take-up are much higher when using register data.

If we go a step further and look at the personal income of the heads in eligible households, there is clear evidence that in particular incomes from employment are highly over-reported in the survey data. There, the mean of employment incomes is more than five times higher compared to register data.

On the contrary, if all persons in the SILC data are considered, the average disposable household income is slightly higher when using register data. This result can also be found when looking solely at employment income of all household-heads in the data.

Table 6: Comparison of disposable household incomes and incomes from employment of household-heads between survey and register data for 2009

Income type	Survey data		Register data	
	HHs simulated as eligible to *social assistance*** according to register data (n=480)	All HHs (n=6,188)	HHs simulated as eligible to *social assistance*** according to register data (n=480)	All HHs (n=6,188)
Household disposable income/month in €*	1,394	3,042	768	3,084
Equivalised disposable income/month in €*	1,131	1,928	639	1,954
Employment income (heads)/month in €	507	1,826	91	1,946

Notes: Non-weighted means/month; HHs: households

* Without simulated and recorded *social assistance* benefits; the latter are exactly the same in both datasets as their origin is always a questionnaire to respondents.
** Base scenario without wealth test.

Source: Authors' calculations based on EUROMOD/SORESI.

The analysis therefore provides evidence that the incomes – in particular employment incomes – of those at the lower end of the income distribution are

highly over-reported in the survey data. This might result from a general over-estimation of the income situation or from shame to indicate the true income situation or from a wrong classification of the type of income by the respondents or by the interviewers.

5.4.2 Beta-error and incomes of different groups in the simulation process

The Beta-error is defined as simulation of households as non-eligible for a benefit as a share of those which report participation in the data (2003, 2009: *monetary social assistance*; 2015: *minimum income benefit*). It amounts to about one third in each year of analysis (with the exception of the analysis for 2009 based on register data: here about 40%) and is, with the exception of 2003, always a bit higher in the scenario with incomes from capital and properties as proxy for the wealth test compared to the base scenario (without wealth test), as less households are simulated as eligible when the wealth test is taken into account.

Table 7: Beta error rates and median equivalised disposable income of persons living in households with Beta-error compared to persons living in other households in the simulation process

	2003	2009 (survey data)	2009 (register data)	2015
Beta-error				
Scenario with incomes from capital and properties as proxy for wealth test	32%	31%	40%	35%
Base scenario (without wealth test)	32%	30%	39%	32%
Median equivalised disposable income/month in EUR (simulated: base scenario without wealth test)				
Simulated and reported benefit receipt (2003: simulated benefit receipt)	518	514	445	643
Non-take-up (2003: reported benefit receipt)	892	804	657	705
Beta-error	975	1,267	1,183	1,370
Neither simulated nor reported benefit receipt (2003: all)	1,414	2,001	2,071	2,279

Note: Non-weighted.
Source: Authors' own calculations based on EUROMOD/SORESI; Fuchs 2007.

To further check the plausibility of the simulation in the light of the Beta-error, we look at the median disposable equivalised income for each group of interest in the simulation process (each time, base scenario without proxies for the wealth test). In 2003 persons living in households simulated as potentially eligible to *monetary social assistance* feature a much lower disposable income than persons living in households for which receipt of *social assistance* is reported in the SILC survey data. The difference is even more pronounced compared to persons living in households with Beta-error (Fuchs 2007).

For 2009 (*monetary social assistance*) and 2015 (*minimum income benefit*) we can go into even more detail and compare the incomes of persons in households both simulated as entitled to and reporting benefit receipt, of persons in households simulated with non-take-up, of persons in Beta-error households and of persons in households neither with simulated entitlement nor with reported receipt. For all three datasets (2009 based on survey and register data, 2015 based on register data), the lowest incomes are featured by those being both simulated and reported recipients of the benefit, followed by non-take-up households, Beta-error households and finally those with neither simulated entitlement nor reported receipt.

It can be concluded that for all simulation years and underlying datasets households with Beta-error feature a relatively high disposable income. Both indicators together suggest that simulated needs are not too high and point rather to an underestimation of non-take-up.

5.4.3 Sensitivity analysis and proxies for wealth

For the sensitivity analysis in terms of variations in underlying parameters we only look at the simulations based on register data (2009 and 2015) as we found already in the comparison of simulations results for 2009 that simulations based on survey data are strongly biased, especially by reported employment incomes in low-income households.[13]

For 2009, in the scenario with incomes from capital and properties as proxy for the wealth test we estimate a non-take-up rate of 53% for caseload and 51% for expenditure with a Beta-error rate of 40%. In the alternative scenario with home ownership as proxy for the wealth test non-take-up rates increase by five and in the base scenario (without wealth test) by more than ten percentage points, while Beta-error rates remain relatively stable.

[13] Using register, data we can abstain from variations of incomes. For a sensitivity analysis related to simulation results for 2003 (based on survey data) see Fuchs 2007.

Changes in simulated needs within the “incomes from capital and properties”-scenario affect both non-take-up estimations and Beta-error rates. However, relatively large effects on participation rates and in Beta-error rates can only be observed in the case of an extensive variation (+/- 15%) of the underlying parameters.

If the estimates related to an increase or decrease of needs by 5% are used as plausible simulation boundaries, the estimated range of households with non-take-up lies between 49% and 58% and the estimated non-take-up related to expenditure between 45% and 56%. The estimated range of households with non-take-up is also confirmed by the range that would result from using the 95%-confidence interval (48-57%; see Table 4).

For 2015, starting with the “incomes from capital and properties”-scenario (caseload and expenditure 30%, Beta-error rate 35%), the alternative scenario with home ownership as proxy for the wealth test increases non-take-up rates by about ten percentage points, the base scenario (without wealth test) by 14 (expenditure) to 18 (caseload) percentage points. Again, Beta-error rates remain relatively stable.

Again, changes in simulated needs within the “incomes from capital and properties”-scenario cause relatively large effects on participation rates only in case of an extensive variation (+/- 15%). Stronger changes in Beta-error occur within the minus 5%-variation and in the 15%-variations.

If the estimates related to an increase or decrease of needs by 5% are used as plausible simulation boundaries, the estimated band width of households with non-take-up ranges from 22% to 38%. Again, this is confirmed by the statistical confidence interval on the 95%-level (23-37%; see Table 4). If the former limits are applied to the expenditure level, the non-take-up is located between 23% and 36%.

For both 2009 and 2015, estimated non-take-up rates are lower when using incomes from capital and properties as proxy for the wealth test compared to the alternative related to home ownership. Compared to the base scenario without wealth test, non-take-up rates are reduced by more than ten percentage points. Thus, the approximation of the wealth test with incomes from capital and properties by applying interest rates according to empirical evidence seems to be relatively strict.

In addition to the comparison using the 95%-confidence interval for non-take-up in terms of caseload, also the sensitivity analyses in terms of a variation of simulated needs by 5% suggest that both caseload and expenditure non-take-up-rates have substantially decreased due to the replacement of *monetary social assistance* by *minimum income benefit*.

Table 8: Sensitivity analysis: robustness check wealth test, variations in simulated needs; 2009 (register data), 2015

	Non-take-up case-load in %	Non-take-up expen-diture in %	Beta-error rate in % (non-weighted)
2009 (register data)			
Scenario incomes from capital and properties as proxy for wealth test	53	51	40
Robustness check wealth test			
Scenario not eligible if home owner	58	56	42
Base scenario (without wealth test)	65	62	39
Variations in simulated needs (based on "incomes from capital and properties"-scenario)			
Needs +5%	58	56	39
Needs +15%	63	63	33
Needs -5%	49	45	40
Needs -15%	37	31	48
2015			
Scenario incomes from capital and properties as proxy for wealth test	30	30	35
Robustness check wealth test			
Scenario not eligible if home owner	41	40	34
Base scenario (without wealth test)	48	44	32
Variations in simulated needs (based on "incomes from capital and properties"-scenario)			
Needs +5%	38	36	35
Needs +15%	48	46	27
Needs -5%	22	23	42
Needs -15%	-2	6	50

Source: Authors' own calculations based on EUROMOD/SORESI.

5.5 Determinants of (non)-take-up

5.5.1 Probit model

The results of the probit model support the hypothesis of pecuniary determinants: higher entitlements measured by the poverty gap have a significant positive effect on take-up in 2003 and 2009. This is confirmed by the finding that, except for 2015, non-take-up rates are higher in terms of caseload than in terms of expenditure suggesting that as a trend participation is higher if higher amounts can be claimed (see Table 4).[14] In case there is only entitlement to relatively low top-up amounts, the claiming costs do not pay off also from a rational point of view (Schenk 2018).

Further, not surprisingly, in all years of observation households with an unemployed or inactive head are significantly more likely to participate compared to households with employed heads. Claiming costs pay off in the light of an increased perception of need (longer periods of time and higher amounts). To make ends meet these households may even have no other choice. In addition, as already depending on welfare they may be better informed on their entitlements and hence additional information costs might be low. Besides, the self-assessment related to later earnings potential may be low. On the other hand, working poor often abstain from claiming for top-up social assistance benefits as partly they might not even know that they would be entitled to. In addition, in the public discourse there is rather an either/or debate on employment and benefit claims (Schenk 2018).

In 2015 also lower-educated heads feature a higher take-up. Higher-educated persons have a different social background: As it is the case for employed persons (see above) the financial need might rather represent short-term financial crises which can be bridged by other means, e.g. family resources. In addition, a claim for *monetary social assistance*/*minimum income benefit* might be less compatible with their self-perception and the regulations related to the liquidation of wealth might be more relevant (Schenk 2018; Kargl 2019).

Households renting their flat feature a significant higher probability for take-up in 2009 and 2015. Persons owning their house or flat might fear that the authorities make an entry in the land register for safeguarding reasons or, even worse, the home or flat has to be sold before being able to receive the benefit. In addition, heads with a chronic health problem are significantly more likely to participate in the same years. They might simply have no other choice for income provision (Schenk 2018; Stanzl 2018).

[14] However, simulated households and expenditure are compared to external statistics on recipients and expenditure, whereas in the regression analyses benefit receipt according to SILC data is used as reference for simulated figures.

On the part of proxies for social and psychological costs in 2003, the dummy variable for living in Vienna shows the expected significant positive impact on take-up, which represents a multi-factorial syndrome. First it supports the hypothesis that the anonymity of living in a big town reduces stigma. In addition, social assistance receipt is more common, and information might be more easily accessed. In smaller municipalities or rural regions there is less access to information as the density and accessibility of counselling facilities where a potential entitlement could be reviewed are significantly lower. Finally, there are more households with home-owners who might fear that properties are secured in the land register (Kargl 2019).

Furthermore, in 2009 a retired head is less likely to participate compared to employed heads which could also be attributed to higher perceived stigma. Elder persons rather try to make ends meet without claiming (Kargl 2019; Schenk 2018; Stanzl 2018). Another reason for their lower take-up might be a lower poverty-gap (see above). For example, recipients of minimum pension top-up are only entitled to housing benefits within the framework of *monetary social assistance*/*minimum income benefit* which is also not well-known (Kargl 2019).

Finally, in 2009 also family composition (lone parents compared to singles) positively impacts a household's decision to participate. Here, beside lower application costs (expected longer eligibility spell) and higher maintenance responsibilities (Schenk 2018), less perceived stigma and a higher acceptance probability by officials might support the decision to take up. At the same time, household heads separated from their partner (married or divorced; compared to unmarried heads) show a higher probability for non-take-up, while household heads living together with their partner (married or in partnership, again compared to unmarried heads) show a higher probability for take-up in 2015.

The Pseudo R-squared and hence the explained total variance of (non)-take-up amounts to about one third in 2003 and 2009 and to 15% in 2015.

Table 9: Covariates of (non)-take-up; probit model

	2003	2009R	2015
Relative poverty gap	-.012*	-.013***	-.003
Age	-.083	-.008	-.001
Type of household (ref. single adult)			
Lone parent	-.526	-1.469**	.259
Adults w/o children	*7.270*	-1.341	.020
Adults with children	-.339	2.547	4.491
No. of children <18 years	.233	-.288	-.110
Household size		.262	.103
Main earner male (ref. female)	-.539	-.206	.050
Marital status (ref. unmarried)			
Married/in partnership and living together		.827	-.902*
Married/divorced and separated		1.720*	-.486
Widowed		-3.260	-4.239
Home owner (ref. no)	0.809	1.136*	.818*
Country of birth (ref. Austria)/2003: Migration background (ref. no)	0.121		
EU		.234	.325
3rd country		-.543	-.072
Size of municipality/2003: Vienna (ref. not Vienna)	-.930**	-.110	-.118
Education (low-high)/2003: education (ref. middle vocational)		.206	.233**
Compulsory or lower	-.748		
High school diploma	.428		
University	-.254		
Chronic health problem (ref. no)/ 2003: disabled (ref. no)	.239	-1.116***	-.327*
Employment status (ref. employed)			
Unemployed	-1.425**	-.830**	-.817***
Inactive	-1.751***	-.685*	-.644**
Pensioner	-.292	.979*	-.106
Constant	5.794***	2.859***	1.165**
Observations	146/178	344	301
Pseudo R2 corr.	.34/.39	.35	.15
Model: Probability > chi2	.003***	.000***	.004***

Notes: Marginal effects of all specifications; non-weighted

* Significant at 10%-level; ** significant at 5%-level; *** significant at 1%-level;

Coefficients: positive sign: higher probability non-take-up; negative sign: higher probability take-up; Individual variables refer to the main earner in the household

Relative poverty gap: for a given household = (simulated needs - allowable incomes)/simulated needs*100; for eligible households always >0 (simulated needs > allowable incomes) and <= 100 (in cases of no allowable incomes at all);

Home-owner: dummy variable: any type of home-ownership (house or flat);
Migration background (2003): dummy variable indicating any type of migration background;
Vienna (2003): dummy variable
Education: highest education achieved; in 2009 and 2015 used as a 'metric' variable since a strong linear relationship can be observed
Italics (Adults w/o children in 2003): perfect matching: keeping variable and perfectly predicted observations has no effect on the likelihood or estimates of the remaining coefficients; difference only in pseudo R2 and no. of observations: left: keeping variable, right: excluding variable;
Additional variables in 2003: age²; child < 2 years (ref. no); No. of unemployment months (2003): all not significant
2003: base scenario without wealth test; 2009, 2015: scenario with incomes from capital and properties as proxy for the wealth test

Source: Authors' own calculations based on EUROMOD/SORESI.

5.5.2 Reduced probit model (control for potential endogeneity of employment status)

Removing the employment status from the list of explanatory variables in the probit model, a lower education status (compulsory or lower compared to middle vocational) turns significant also in the estimation for 2003. Besides, households renting their home now also feature a significant higher probability for take-up.

As additional proxy for application costs, migration background now shows a significant impact in 2009. In the concrete case, heads born in third countries feature a higher take-up than heads born in Austria. Due to the more frequent lack of alternative resources third-country nationals should be more dependent on *monetary social assistance/minimum income benefit*, which seems to outweigh potential information deficits (Stanzl 2018). In addition, elder persons have now a significantly higher probability for non-participation as the status as pensioner was dropped with the employment status variable. On the other hand, living separated from the partner (married or divorced, compared to singles) loses significance for higher non-take-up.

Finally, in 2015, the positive effect of living in bigger municipalities (in addition to 2003) on take-up becomes significant when employment status is excluded.

As expected, the Pseudo R-squared and hence the explained total variance of (non-) take-up drops. It amounts to about 20% in 2003 and 2009 and to 10% in 2015.

Table 10: Covariates of (non)-take-up; probit model excl. employment status

	2003	2009R	2015
Relative poverty gap	-.010*	-.016***	-.004
Age	-.075	.016**	.007
Type of household (ref. single adult)			
Lone parent	-.434	-1.630***	.440
Adults w/o children	*6.494*	-.476	.221
Adults with children	-.001	2.833	4.648
No. of children <18 years	.215	-.028	-.021
Household size		.070	-.049
Main earner male (ref. female)	-.050	-.299	-.014
Marital status (ref. unmarried)			
Married/in partnership and living together		.731	-.796*
Married/divorced and separated		.838	-.492
Widowed		-3.732	-4.096
Home owner (ref. no)	1.191*	1.110**	.786*
Country of birth (ref. Austria)/ 2003: Migration background (ref. no)	.016		
EU		.390	.505
3rd country		-.649**	-.040
Size of municipality/2003: Vienna (ref. not Vienna)	-.701*	-.073	-.161**
Education (low-high)/2003: education (ref. middle vocational)		.128	.228**
Compulsory or lower	-.762*		
High school diploma	.256		
University	.034		
Chronic health problem (ref. no)/ 2003: disabled (ref. no)	.103	-1.154***	-.453**
Constant	4.179***	2.050***	.762
Observations	146/178	344	301
Pseudo R2 corr.	.21/.27	.19	.10
Model: Probability > chi2	.073*	.000***	.003***

Notes: Marginal effects of all specifications; non-weighted

* Significant at 10%-level; ** significant at 5%-level; *** significant at 1%-level;

Coefficients: positive sign: higher probability non-take-up; negative sign: higher probability take-up; Individual variables refer to the main earner in the household

Relative poverty gap: for a given household = (simulated needs - allowable incomes)/simulated needs*100; for eligible households always >0 (simulated needs > allowable incomes) and <= 100 (in

cases of no allowable incomes at all);
Home-owner: dummy variable: any type of home-ownership (house or flat);
Migration background (2003): dummy variable indicating any type of migration background;
Vienna (2003): dummy variable
Education: highest education achieved; in 2009 and 2015 used as a 'metric' variable as a strong linear relationship can be observed
Italics (Adults w/o children in 2003): perfect matching: keeping variable and perfectly predicted observations has no effect on the likelihood or estimates of the remaining coefficients; difference only in pseudo R2 and no. of observations: left: keeping variable, right: excluding variable;
Additional variables in 2003: age²; child < 2 years (ref. no); No. of unemployment months (2003): all not significant

Source: Authors' own calculations based on EUROMOD/SORESI.

5.5.3 Heckman selection model

For all years of observation almost all explanatory variables included show a significant effect on the sample selection into eligibility.

Compared to the probit model (including employment status), the Heckman model produces qualitatively similar results in terms of sign and significance of coefficients related to the take-up decision: Relevant predictors of take-up are still a lower poverty gap (pecuniary determinants); unemployment and inactivity, a lower education status and renting instead of owning the home (proxies for lower application costs) as well as living in bigger municipalities (lower psychological barriers) and a lone parent status (both lower application costs and lower psychological barriers).

However, the effects for employment status turn non-significant to a limited extent (unemployed, inactive in 2015; pensioner in 2009; each time compared to employed). The same applies to renters vs. home owners in 2015. On the other hand a lower education becomes significant in terms of participation in 2003 and 2009 as well as living in bigger communalities in 2015.

The Pseudo R-squared and hence the explained total variance of (non-)take-up in 2009 and 2015 (no reference figure for 2003) drops compared to the probit model but is almost equal compared to the reduced probit model. It amounts to 19% in 2009 and to 8% in 2015.

Table 11.a: Heckman selection model on eligibility

	2003	2009R	2015
Age	-.027*	-.056***	.006
Age²	.000*	.001***	-.000
Type of household (ref. single adult)			
Lone parent	-.024		
Adults w/o children	-.366***		
Adults with children	-.445***		
No. of children <18 years	.200***	.051	.105***
Main earner male (ref. female)	-.045		
Home owner (ref. no)	-.379***	-.763***	-.896***
Country of birth (ref. Austria)/ 2003: Migration background (ref. no)	.047		
EU			
3rd country			
Size of municipality/2003: Vienna (ref. not Vienna)	.031		
Education (low-high)/2003: education (ref. middle vocational)		-.208***	-.103***
Compulsory or lower	.236**		
High school diploma	-.000		
University	.340**		
Chronic health problem (ref. no)/ 2003: disabled (ref. no)	-.207*		
Employment status (ref. employed)			
Unemployed	.665***	1.049***	1.220***
Inactive	.547***	.983***	1.231***
Pensioner	-.137	.432***	.363***
Subjective health status (ref. middle)			
good	-.095		
bad	.272*		
Colour TV set in hh (ref. no for fin. reasons)	-.453***		
Constant	-1.200***	.003	-1.519***
Observations	4,510	6,183	5,996
Model: Probability > chi2	**	***	***

Table 11.b: Covariates of (non)-take-up; Heckman

	2003	2009R	2015
Relative poverty gap	-.011*	-.002***	-.000
Age	-.065		
Type of household (ref. single adult)			
Lone parent	-.512	-.135**	-.042
Adults w/o children	*7.799*	.053	-.043
Adults with children	-.135	-.029	.083
No. of children <18 years	.141		
Main earner male (ref. female)	-.509	-.017	.022
Home owner (ref. no)	.884	.175**	.127
Country of birth (ref. Austria)/ 2003: Migration background (ref. no)	.054		
EU		.045	.036
3rd country		-.058	-.030
Size of municipality/2003: Vienna (ref. not Vienna)	-.862*	-.012	-.034*
Education (low-high)/2003: education (ref. middle vocational)		.076***	.071*
Compulsory or lower	-.769*		
High school diploma	.514		
University	-.241		
Chronic health problem (ref. no)/ 2003: disabled (ref. no)	.228		
Employment status (ref. employed)			
Unemployed	-1.576**	-.407***	-.236
Inactive	-1.811***	-.309***	-.176
Pensioner	-.172	-.058	-.016
Constant	5.981***	1.290***	.854
Observations	4,510	6,183	5,996
Pseudo R2 corr.		.19	.08
Model: Probability > chi2	**	***	***

Notes: Marginal effects of all specifications; non-weighted

* Significant at 10%-level; ** significant at 5%-level; *** significant at 1%-level;

Coefficients: positive sign: higher probability non-take-up; negative sign: higher probability take-up; Individual variables refer to the main earner in the household

Relative poverty gap: for a given household = (simulated needs - allowable incomes)/simulated needs*100; for eligible households always >0 (simulated needs > allowable incomes) and <= 100 (in cases of no allowable incomes at all);

Home-owner: dummy variable: any type of home-ownership (house or flat);
Migration background (2003): dummy variable indicating any type of migration background;
Vienna (2003): dummy variable
Education: highest education achieved; in 2009 and 2015 used as a 'metric' variable as a strong linear relationship can be observed
Italics (Adults w/o children in 2003): perfect matching: keeping variable and perfectly predicted observations has no effect on the likelihood or estimates of the remaining coefficients;
Additional variables in 2003: age²; child < 2 years (ref. no); No. of unemployment months (2003): all not significant

Source: Authors' own calculations based on EUROMOD/SORESI.

In sum, the fact that the majority of coefficients does not change substantially when employment status variables are removed in the probit model and that coefficients do hardly change in the Heckman Selection model provides evidence that the estimates are quite robust and that endogeneity does not pose a substantial issue in the estimation of the correlates of non-take-up.

5.6 Evaluation and outlook

Related to the question whether the reformed *minimum income benefit* in principle met its targets the interviewed experts provided a mixed response: Although the aims of the reform in terms of facilitating access to the benefit were not fully achieved, compared to *monetary social assistance*, overall there were obviously some improvements, e.g. the abolition of the regress outside the core family, the new procedural regulations, average increases in the benefit levels or new regulations related to the liquidation of wealth (Kargl 2019). Furthermore, there has been some positive impact in the perception of the benefit and the number of complaints related to (incorrect) administrative practices declined (Pfeil 2018). However, over time administrative processes became similar to those of *monetary social assistance* and a similar stigmatising effect resulted both in practice and in the media discourse (Schenk 2018).

In more detail, the following still existing problems were mentioned:

- An emergency aid is still not realised, the support starts only after the three months of the legal decision period. Persons in need still have to wait for weeks until the payment of the benefit is processed (Schenk 2018).
- *Minimum income benefit* still lacks the reconnection of its benefit levels to real living costs. Needs for nutrition, clothing as well as social and cultural participation remain partly uncovered (Kargl 2019).
- In many cases actual housing costs are not fully covered (Kargl 2019). The most generous regulations in terms of housing allowances within *minimum income benefit* were implemented in Salzburg, Tyrol and Vorarlberg (Pfeil 2018) where

high local housing costs were at least partially covered. On the other hand, partly deadweight effects occurred as landlords increased rents for low-quality apartments knowing that they will be covered by the social welfare offices (Schenk 2018). The interaction of housing cost coverage within *minimum income benefit* and within (general) housing allowances provided by the Federal States (off-setting?, accumulation?, exclusion?, etc.) is still not transparent (Pfeil 2018).

- Despite unification of legal regulations across Federal States (minimum standards, etc.) and substantial investment in training of civil servants, unjustified implementation differences are still to be observed between Federal States and even between neighbouring political districts.
- For a modern understanding of social welfare, the concept of maintenance obligations of parents for their grown-up children is problematic, since there are often conflicts within families – even before the request for maintenance is placed.
- The One-Stop-Shop, which would be quite useful to reduce non-take-up, remained only a term on paper and was never realised in practice (Schenk 2018).

Certain groups of potential clients are still difficult to reach and heavily concerned by non-take-up even after the reform. For example, the difference in access rates between urban areas and the countryside still exists as the share of rented housing in the urban areas is significantly higher. In the countryside, with a majority of home-owners, the potential take-up barrier of the entry of the authorities in the land register still remains (Schenk 2018). While this type of problem seems to be not easily resolvable within a means-tested benefit programme, other shortcomings could be tackled by additional administrative measures.

In particular for low-educated and deprived clients, there is still a lack of easily understandable low-threshold information. This relates mainly to administrative procedures (e.g. the sequence of the claiming process) and the principle of subsidiarity (e.g. regulation related to asset liquidation). Printed information (in brochures, etc.) is not always of avail due to partially complicated language and expressions. At the same time the internet is not available for all clients or only specifically used – using social media is different from looking for concrete information on the claiming process. It would be important to disseminate information in a clear and simple language – both related to diverse national languages as well as to the technical terms used. Additionally, more support would be needed in completing benefit applications. NGOs are not able to cover the full demand and many clients do not know that there exist back offices at the social welfare offices, where civil servants can be asked for tailored support (Kargl 2019).

Overall, there is an overload of the reformed benefit with diverse groups of clients resulting in an increasing number of recipients. For example, it is problematic to

top-up low employment incomes or unemployment benefits with *minimum income benefit*, since both a certain stigmatisation and/or information deficit is (still) associated with it (Stanzl 2018). Hence, many people concerned do not claim the potential top-up amount (Schenk 2018). Thus, analogous to minimum pension-top-up, a potential top-up amount – both in addition to low employment incomes or low unemployment benefits – could be granted within the system of unemployment insurance.

Likewise, for families with children, a means-tested topping-up family benefit in addition to universal family benefits could be considered.

In terms of coverage of housing costs, a complete separation of housing benefits from *minimum income benefit* and the solely provision of extended (general) housing allowances by the Federal States could be discussed.

All these measures would increase the acceptance of such top-up benefits, both among entitled clients and the general population, and thereby ensure better accessibility and higher take-up. Finally, they would also save administrative costs and enable better political governance (Stanzl 2018).

6 Conclusions

A key performance criterion of social protection systems is whether benefits reach their target groups. Means-tested programmes, however, tend to be characterised by a certain extent of access problems. Empirical evidence for several EU-countries – the vast majority similar to our analysis based on tax-/benefit microsimulation using representative micro-household data – suggests that non-take-up of means-tested benefits is a widespread problem.

The main reason for the change from *monetary social assistance* to *minimum income benefit* in Austria in 2010/11 was to combat poverty but also to facilitate the access to the benefit. The reform in particular aimed at tackling high levels of non-take-up through changes in the benefit structure and the application procedure. Benefit reforms are likely to change participation rates which direct the research interest to the outcome of institutional changes (Kayser/Frick 2001; Riphahn 2001, 20).

Thus, the main aim of this report was to investigate the functioning and relevance of the safety net of 'last resort' in Austria by providing up-to-date estimates on the size and determinants of non-take-up of the reformed *minimum income benefit* in 2015 and of *monetary social assistance* in 2009. Furthermore, comparing the situation in 2009 with the situation in 2003 (previous research) enabled us for the

first time to look also at trends and changes in non-take-up behaviour related to *monetary social assistance* for Austria.

The study furthermore contributes to a better understanding of measurement errors usually discussed but not empirically assessed in this stream of literature. The possibility to estimate the non-take-up situation in the last year of *monetary social assistance* in 2009 based on survey data and register data at the same time, allowed us to disentangle the size of non-take-up from a potential measurement error effect in reported incomes. In addition, the role of other potential simulation errors is addressed by several standard checks and sensitivity tests.

Beyond the quantitative research, expert interviews provided a social impact assessment of the policy reform. Exploring the issue with a qualitative approach has contributed to an improved understanding of the design and effects of social policies.

For 2003, the estimated non-take-up of *monetary social assistance* in terms of caseload amounts to 49% and 39% in terms of expenditure. Using survey data for 2009 (as in 2003), non-take-up remains relatively stable (expenditure 40%), although caseload declined (42%); this decline, however, is not statistically significant. If the same analysis is carried out using register data, the prevalence of non-take-up increases to 53% and 51% which shows that non-take-up rates seem to be significantly under-estimated when using survey data. A detailed analysis of the underlying survey and register data revealed that the incomes – in particular employment incomes – of those at the lower end of the income distribution are highly over-reported in the survey data.

After the policy reform estimated non-take-up rates for *minimum income benefit* in 2015 amount to 30% for both the number of households and expenditure. Comparing these results with those from the 2009 register data clearly indicates that the policy reform has led to a significant increase in participation rates. This result is also confirmed by various alternative scenarios tested in the sensitivity analysis. Further checks for all simulation years revealed that the level of simulated needs and the use of proxies for the wealth check do not run the risk of over-estimating non-take-up.

The interviewed experts confirm the quantitative finding that participation rates have increased with the introduction of *minimum income benefit*. The most important reform elements for the estimated decrease of the non-take-up rate between 2009 and 2015 as mentioned by the experts were: the provision of health insurance in form of an electronic insurance card; the fact that *minimum income benefit* can be applied for at the district headquarters, which provides more anonymity than the offices of the municipalities; improved low threshold access to the benefit on the part of the social welfare offices; minimum standards within

minimum income benefit which represent a binding benefit level; and the general coverage of the benefit reform in the media and in public discussions.

The distributional impact of the targeting problems is substantial: For all years of observation (2003, 2009 and 2015) and relatively independent of the type of micro-data used (survey vs. register data in 2009) both the at-risk-of-poverty rates (using adjusted poverty lines) and the Gini-coefficients would drop by about 0.5 to one percentage point under the assumption of full take-up of *monetary social assistance/minimum income benefit*.

The determinants of (non-)take-up were assessed in a probit regression model. The analyses show relatively stable and significant impacts of pecuniary determinants (higher poverty gap), suggesting that participation is higher if higher amounts can be claimed. This is also confirmed by the finding that, except for 2015, non-take-up rates are higher in terms of caseload than in terms of expenditure. Additionally, personal characteristics related to lower application costs (non-employment, renting one's home instead of owning, chronic health problems) play an important role for the decision to take-up.

Different models (probit model excluding employment status; probit model vs. Heckman selection model) were adopted to control for possible endogeneity of independent variables. The estimates turn out to be quite robust, although some explanatory variables feature minor changes in resulting coefficients. While characteristics related to lower psychological barriers (living in bigger communities) as well as a lower education as a further proxy for lower application costs gain in importance for take-up, other proxies for application costs like renting one's home and non-employment show a mixed or slightly decreasing effect. Again, most of the quantitative results were confirmed by the interviewed experts.

Related to the question whether the reformed *minimum income benefit* in principle met its targets the interviewed experts provided a mixed response. The reformed social net of last resort clearly features improvements such as the abolition of the regress outside the core family, the new procedural regulations and the new regulations related to the liquidation of wealth (in addition to measures already mentioned above). However, some aims of the reform in terms of facilitating access to the benefit were not fully achieved. While the public discourse led to a more positive perception of the benefit and the number of complaints related to (incorrect) administrative practices declined at least shortly after the reform, stigmatising effects have steadily intensified in the following years and administrative processes started to become similar to those of *monetary social assistance* again.

In terms of still pending improvements, according to the experts there is an overload of the reformed benefit with diverse groups of clients resulting in an increasing number of recipients. For example, it is problematic to top-up low

employment incomes or unemployment benefits with *minimum income benefit*, since both a certain stigmatisation and/or information deficit are (still) associated with it. Hence, many people concerned do not claim the potential top-up amount. Thus, analogous to minimum pension top-up, a potential top-up amount – both in addition to low employment incomes or low unemployment benefits – could be granted within the system of unemployment insurance. Besides, for families with children, a means-tested topping-up family benefit in addition to universal family benefits could be considered. In terms of coverage of housing costs, a complete separation of housing benefits from *minimum income benefit* and the solely provision of extended (general) housing allowances by the Federal States could be discussed. According to the experts, all these measures would increase the acceptance of such top-up benefits, both among entitled clients and the general population, and thereby ensure better accessibility and higher take-up. Finally, they would also save administrative costs and enable better political governance.

The measurement error related to reported incomes in the data could almost completely be ruled out by using register data for 2009 and 2015 and by comparing survey data with register data in 2009. Despite further standard error checks and sensitivity analyses, some prevalent measurement errors (both related to simulated needs and information in the data), which do not allow a perfect simulation of eligibility, remain, e.g.:

- Approximation of benefit units by households;
- Incompatible timing of reported incomes (yearly) and needs assessment (monthly);
- No information in the survey data on potential maintenance entitlements against persons outside the household;
- Use of proxy for means-test as no information on assets is available in the data;
- Measurement error in terms of sampling and weighting factors;
- Measurement error in terms of under-reporting/over-reporting of actual rents and heating costs.

In addition to our trend analysis, future research could possibly draw on the longitudinal feature of the EU-SILC dataset. Longitudinal analyses allow for testing the dynamic nature of eligibility and (non-)take-up, e.g. becoming aware of being eligible followed by later transition from non-participation to claiming. Individual preferences and barriers as well as the degree of need are dynamic. A non-take-up decision in t-1 affects the degree of need in t+1, probably in a non-linear way as, e.g. permanent non-take-up might in the long run result in extreme poverty (Groh-Samberg/Frick 2009, 9f). Thus, analyses on the individual continuation of non-take-up would be very useful.

However, most panel data are problematic for (non-take-up) simulations. The EU-SILC provides only a rotating panel which limits both the time horizon and sample size. In addition, already after a few waves a certain sensitising of respondents for socio-economic problems can be presumed, which makes at least non-claiming due to lack of information relatively implausible and hence distorts the representativeness of the sample (Engels 2001, 13).

Possible improvements in all these directions remain a topic for future work, partly also for data providers.

7 Dissemination

In addition to this final report we published the main results of the project in a Policy Brief of the European Centre and as a EUROMOD Working Paper at the Microsimulation Unit of ISER/University of Essex, which allows visibility for a broad network of experts including the European Commission. Further publications in peer-reviewed scientific journals are intended. Finally, we will present the results at the EUROMOD Research Workshop, a discussion event for stakeholders and interested public in September 2019 in Milan.

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9 Annex

9.1 Basic methodology

For the quantitative analysis of non-take-up we use the tax-/benefit microsimulation model EUROMOD/SORESI. It contains the Austrian part of the EU-wide model EUROMOD (Sutherland/Figari 2013) with specific adaptations to the tax-/benefit system in Austria (Fuchs/Gasior 2014). The areas of policies covered include social security contributions, income tax and cash transfers. For the current study the model has been adjusted with the detailed policy regulations for *minimum income benefit* in 2015 and *monetary social assistance* in 2009 for all nine Federal States.[15]

The model uses Austrian cross-sectional EU-SILC data (wave 2004/incomes 2003/survey data, wave 2010/incomes 2009/survey and register data as well as wave 2016/incomes 2015/register data) as underlying micro-household data. The data is provided by Statistics Austria and includes additional variables with original non-aggregated income information. The sample is representative for the Austrian population in private households. The non-weighted number of all households in the samples as well as the number of simulated households entitled to *monetary social assistance*/*minimum income benefit* is as follows:

[15] The standard EUROMOD model only simulates the Viennese policy rules for *monetary social assistance/minimum income benefit* as modelling of policy rules for all nine Federal States would be too complex, in the standard SORESI model the respective information is just taken from the data.

Table A1: Non-weighted number of households

	All households	Households simulated Base scenario (without wealth test)	Households simulated Scenario with incomes from capital and properties as proxy for wealth test
SILC 2004 (incomes 2003)	4,521	178	154
SILC 2010 Survey (incomes 2009)	6,188	341	258
SILC 2010 Register (incomes 2009)	6,188	480	344
SILC 2016 (incomes 2015)	6,000	416	301

Source: Authors' own calculations based on EUROMOD/SORESI; Statistik Austria 2007, 2012, 2014a, 2017.

Depending on the specific regulations in the nine Federal States and the composition of corresponding households, the household needs (minimum standards/means of subsistence plus potential rent and heating allowances) within *monetary social assistance* (2003 and 2009)*/minimum income benefit* (2015) are simulated as far as possible. Within the simulation process information in the SILC data on offsetting incomes, proxies for the wealth test and actual housing costs is considered.

The analysis of the micro-output from EUROMOD/SORESI was carried out with the statistical programmes Stata and SPSS.

Monthly incomes stated in the report always refer to yearly income*1/12.

9.2 Coherence of EU-SILC data

9.2.1 EU-SILC 2016 (register data)

Distributions of gross incomes of the employed in EU-SILC vs. wage tax statistics hardly differ. Differences are to be observed especially on the margins of the distribution. In the bottom and upper area of the distribution, EU-SILC figures are below reference figures from wage tax. For example, incomes of the bottom decile in EU-SILC amount only to 67% of the bottom decile in the wage tax statistics. This is primarily due to differences in the group of persons covered in the two datasets as well as the sampling and weighting procedures in EU-SILC. Household incomes

recorded in EU-SILC are below those of national accounts. The difference in gross household incomes decreases from 9.4% to 2.5%, if incomes from assets (under-coverage "incomes from renting and leasing", "interests, dividends, investment income") are excluded in the comparison. Differences in disposable incomes amount to 7.1%. Related to housing a comparison with micro-census data (major source of Austrian statistics with a much bigger sample size) shows that the share of residential property is identical (around 49%). The shares of the three renting housing situations (municipality, cooperatives, other) differ slightly, but the total share is almost equal (around 42%). The median of monthly rent and operating costs is somewhat higher in EU-SILC (470 vs. 458 EUR). Larger differences can be observed in particular in low-occupied cells, for example for municipality flats in locations with less than 100,000 inhabitants (Statistik Austria 2017, 49ff).

9.2.2 EU-SILC 2010 (comparison of register and survey data)

The median of net household income is somewhat higher in the register data (+1.81%). The deviations are higher at the margins of the distribution. Low household incomes are lower, higher household incomes higher in the register data (register vs. survey data: 1st decile 15,723 vs. 16,954 EUR; median 39.720 vs. 39.014 EUR; 9th decile 77,437 vs. 73,867 EUR). For register data, employment income (highest share in total household income with slightly more than 50%) shows again a more unequal distribution, which is more pronounced than in case of household incomes (register vs. survey data 1st decile 1,757 vs. 3,640 EUR, median 16,965 vs. 17,500 EUR, 9th decile 34,904 vs. 33,600 EUR). On the one hand the higher number of recipients suggests a more complete coverage of incomes in the register data. On the other hand, there is the assumption that incomes from non-registered employments, incomes which are partly disbursed untaxed or tips are not covered by the wage tax register (Statistik Austria 2014a, 10ff).

9.2.3 EU-SILC 2010 (survey data)

There is a fair accordance of income distributions in EU-SILC in comparison with wage tax data. Larger deviations can be observed especially on the margins of the distribution: in EU-SILC low incomes are rather over-estimated (1st decile SILC = 123%) and higher incomes are rather under-estimated (9th decile SILC = 94%). Assumed reasons are recall problems, incorrect proxy-indications and the avoidance to indicate very low and very high incomes. In addition, in the survey data the margins of the income distribution are influenced by stronger random fluctuation. In the comparison with national accounts the difference in gross household incomes decreases from 12.2% to 7.3%, if incomes from assets are excluded (see above EU-

SILC 2016). Differences in disposable income between the two sources amount to 12.8%. Related to housing, at the core there is high accordance of EU-SILC and micro-census data. The share of residential property is identical (around 50%). The shares of the three renting housing situations (municipality, cooperatives, other) differ slightly, but the total share is almost equal (around 40%). There is a slight over-coverage of subletting relationships in EU-SILC. The median of monthly rent and operating costs is negligibly higher in EU-SILC (400 vs. 395 EUR). Larger differences can be observed in particular in low-occupied cells (see SILC 2016 above) (Statistik Austria 2012, 46ff).

9.2.4 EU-SILC 2004 (survey data)

In EU SILC 2004 incomes below the median are higher and above the median lower than in the wage-tax statistics 2003 (thus indicating a more equal distribution). The main reason is the generally poor coverage of very low und very high incomes in surveys. The comparison of reported household incomes in EU-SILC with the sector accounts of the national accounts 2003 results in an under-estimation of total household gross income by 21.4% (excluding incomes from assets: 10.0%) in EU-SILC, and of disposable incomes by 26.3%. Possible explanations for the differences are under-coverage of incomes, in particular from self-employment, and earnings undocumented by tax (Statistik Austria 2007, 23ff).

9.3 *Monetary social assistance*, 2003 and 2009

The programme under investigation represents the cash benefits within the 'open' social assistance, i.e. minimum standards for means of subsistence including permanent and temporary monetary transfers plus housing and heating allowances. It was granted to persons in private households. As a rule, there was a legal entitlement to the benefit. Except for the central principles, *monetary social assistance* regulated in nine different laws of the Federal States featured considerable differences in eligibility criteria and benefit design.

Monthly minimum standards were differentiated in a (somewhat higher) rate for singles and a (somewhat lower) rate for household heads plus rates for further household members. The corresponding needs – differing according to each Federal State and the support status – were composed of basic needs topped by special needs regulated in some of the Federal States (as a rule for people in pension age, disabled, etc.). Possible additional discretionary amounts, in particular concerning age, sickness, disability and special needs, were explicitly mentioned in the laws of most Federal States. Except for Vienna (only for those unfit to work), special

payments were available to recipients who received the benefit for more than three months (Pratscher 2011).

In five Federal States, maximum amounts for rent allowances related to the number of persons in the household were fixed. In the remaining Federal States housing costs were accepted up to a 'reasonable' amount. Some Federal States stipulated additional heating and clothing allowances. Partly, a total upper limit for minimum standards plus additional needs was determined.

The most relevant parameters for *monetary social assistance* in 2003 and 2009 are listed below:

Table A2: Minimum standards, rent allowances, heating allowances and clothing allowances according to Federal State and support status, 2003 in EUR

	Bgld.	Ktn.	NÖ	OÖ	Sbg.	Stmk.	Tirol	Vbg.	Wien
Single	400.0	398.0	467.3	506.4	394.0	472.0	398.9	447.7	390.33
unfit work	451.5	466.0		525.5					607.26
Head	331.0	328.0	410.3	460.0	355.0	431.0	341.3	375.8	380.55
unfit work	382.5	398.0		479.0					670.91
Other w/o FBH	241.5	240.0	213.7	273.8	227.5	288.0	237.4	239.7	195.47
unfit work	283.4			310.4					
Other with FBH	118.5	119.0	126.7	140.8	106.00	146.0	132.7	146.1	117.03
unfit work	160.4								
Rent allowance									
1 Person	reason-able actual costs	142.0	89.1 p.P. w/o FBH +38.3	96.8 on special grounds more	378	reason-able actual costs	reason-able actual costs	reason-able actual costs	242.36
2 Persons		187.0			480				242.36
3 Persons					610				256.65
4 Persons					698				256.65
5 Persons					785				279.98
6 Persons					872				279.98
7+ Persons					872				303.31
Special payments	2*1	2*1	2*1	4*0.5	4*0.5	2*1	2*1	2*1	2*1 only if unfit to work
Heating allowance	special payment	-	513/ year	220/ year	special payment	84.24/ year	extra	special payment	457.45/ year; not if unfit to work
Clothing allowance	special payment	-	special payment	up to 1.5*MS	special payment	-	extra	special payment	extra; not if unfit to work
Total upper limit	minimum pension top-up	MS+ RA	MS+ RA+ HA	MS+ RA+ HA+ CA	MS+ RA	MS+ (RA)+ HA (min. pension top-up	MS+ (RA)+ HA+CA	MS+ (RA)	MS+ RA+ HA+CA
Assets	small cash amounts	7*MS	5*MS	-	10*MS	Ind. case	Ind. case	Ind. case	if unfit to work 3.5*MS , others 1*MS

Notes: Oberösterreich defines increased minimum standards for all permanent recipients (related to age, health status, care for children <3 or relatives, etc.).
Except for Vienna all long-term recipients receive the payments 14 times a year (incl. 2 special payments).
FBH: family allowance; MS: minimum standard; RA: rent/housing allowance; HA: heating allowance; CA: clothing allowance
Source: Federal states' laws/decrees on *monetary social assistance*, inquiries to the offices of the governments of the Federal States; AK 2003; Pratscher 2005

Table A3: Minimum standards, rent allowances, heating allowances and clothing allowances according to Federal State and support status, 2009 in EUR

	Bgld.	Ktn.	NÖ	OÖ	Sbg.	Stmk.	Tirol	Vbg.	Wien
Single	473.6	506.0	532.3	569.5	464.5	540.0	459.9	514.4	454.0
unfit work	534.5	556.6		590.1					733.0
old		581.9							733.0
Head	391.9	379.5	467.5	514.7	418.5	492.0	393.5	432.0	352.0
unfit work	452.8	430.1		536.0					549.5
Other w/o FBH	285.9	379.5	257.3	333.9	268.0	329.0	273.7	275.5	352.0
unfit work	335.6	430.1		360.0					549.5
Other with FBH	140.3	151.8	144.3	160.4	155.5	166.0	152.9	159.8	135.0
10+ years		202.4							
unfit work	190.0								
Rent allowance									
1 Person	reason-	126.5	99.3	115.0	380	reason-	reason	reason-	272.0
2 Persons	able	151.8	p.P. w/o	on	484	able	-able	able	272.0
3 Persons	actual	177.1	FBH	special	637	actual	actual	actual	288.0
4 Persons	costs	202.4	+41.3	grounds	728	costs	costs	costs	288.0
5 Persons		227.7		more	819				305.0
6 Persons		227.7			910				305.0
7+ Pers.		227.7			910				322.0
Special payments	2*1	4*0.5	2*1	4*0.5	4*0.5	2*1	4*0.5	2*1	2*1 only if unfit to work
Heating allowance	special payment	177.10 / year	567.5/ year	350/ year	special payment	94.0/ year	extra	special payment	516/ year; not if unfit to work
Clothing allowance	special payment	-	special payment	up to 1.5*MS	special payment		extra up to 385/ year	special payment	extra; not if unfit to work
Total upper limit	min. pension top-up	MS+ RA+ HA	MS+ RA+HA	MS+ RA + HA+ CA	MS+ RA	MS+ (RA) +HA (min. pens. top-up)	MS+ (RA)+ HA+ CA	MS+ (RA)	MS+ RA+ HA+ CA
Assets	small cash amounts	7*MS	5*MS	-	10*MS	Ind. case	Ind. case	Ind. case	if unfit to work 3.5*MS, others 1*MS

Notes: Except for Vienna all long-term recipients receive the payments 14 times a year (incl. 2 special payments).
FBH: family allowance; MS: minimum standard; RA: rent/housing allowance; HA: heating allowance; CA: clothing allowance
Source: Federal states' laws/decrees on *monetary social assistance*, inquiries to the offices of the governments of the Federal States; AK 2009

9.4 *Minimum income benefit*, 2015

Minimum income benefit is provided by means of flat-rate cash benefits to secure subsistence cost and housing needs. The initial value for single persons and single parents was EUR 827.83 in 2015. The agreement between the federal government and the Federal States stipulates that the minimum standards for additional persons are a certain percentage thereof:

- 75% for adult persons living with other adult persons in a common household;
- 50% from the third entitled adult person;
- 18% for the first three minor children;
- 15% from the fourth child.

The minimum standards are basically granted twelve times a year and include a basic amount of 25% for housing needs (in 2015 EUR 206.96 for single-persons and single-parent households; EUR 155.22 for spouses). If the appropriate housing needs cannot be fully covered with these basic amounts, the Federal States may provide additional benefits. Based on the agreement, all Federal States have passed minimum income decrees. The implementation shows a number of Federal State-specific features (Pratscher, 2016):

- Higher minimum standards: In Upper Austria, higher minimum standards apply than those laid down in the agreement between the federal government and the Federal States. The included basic amount for housing is 18% (instead of the usual 25%).
- Special payments: In Vienna, persons who have reached the regular retirement age or who are classified as incapacitated also receive higher benefits by special payments. There are also special payments in Tyrol and – limited to minors – in Salzburg and Styria. In these three Federal States, the special payments depend on the length of the minimum income receiving period (entitlement from three months receiving duration onwards).
- Children's minimum standards: With the exception of Carinthia, all Federal States grant higher minimum standards for minor children than is provided for in the federal government/Federal States agreement: Burgenland 19.2% for all children; Lower Austria 23% for all children; Upper Austria (based on the higher initial value) 23% for the first three children and 20% for all other; Salzburg 21% for all children; Styria 19% for the first four children and 23% for all other; Tyrol and Vorarlberg (in each case based on subsistence needs without basic housing needs) 33% and 29% for all children; Vienna 27% for all children.

- Housing needs: Tyrol and Vorarlberg assume 75% of the initial value for means of subsistence and provide a more generous regulation for the housing need than the usual 25% share of basic housing need since the actual housing costs are covered to certain maximum limits. In Vienna and Styria, there is a legal right to additional benefits for housing. Salzburg also provides for additional benefits, without legal entitlement, and takes into account different regional housing costs, just like Styria. In Burgenland, in Carinthia, as well as in Lower- and Upper Austria, additional benefits for the purpose of covering housing needs (beyond the basic amount for housing) are on principle not granted. Differences in the minimum income benefit regulations also concern the extent to which general housing allowances (outside minimum income benefit) are taken into account in the means-test (only included in the means-test for housing need or also in the means-test for means of subsistence, etc.) and whether the basic amount for housing is reduced if housing costs are lower (cf. Pratscher 2016).

The most relevant parameters for *minimum income benefit* in 2015 are listed below:

Table A4: Minimum standards/incl. basic rent amounts, rent allowances and heating allowances according to Federal State and support status, 2015 in EUR

	Bgld.	Ktn.	NÖ	OÖ	Sbg.	Stmk.	Tirol	Vbg.	Wien
Single+LP	828/207	828/207	828/207	903/149	828/207	828/207	621/-	623/-	828/207
unfit work		911/207							828/112
Spouse	621/155	621/155	621/155	636/74	621/155	621/155	466/-	466/-	621/155
1 unfit work									621/84
2+ unfit work									621/56
3rd Adult	414/104	414/104	414/103	442/-	-	414/103	310/-	310/-	-
Adult. w. FBH	248/62	414/104	-	402/74	-	-		181/-	414/103
<18 w. FBH	159/-	149/37	190/48	208/-	174/-	157/39	205/-	181/-	224/-
from 4th		124/31		180/-					
from 5th						190/48			
Rent allowance	-	-	-	-	*	**	***	****	*****
1 Person					380	399	480	565	309
2 Persons					484	544	730	645	309
3 Persons					637	622	730	740	324
4 Persons					728	699	865	845	324
5 Persons					819	777	865+	915	344
6 Persons					910	855		990	344
7+ Pers.					1,001+	932			362
Special payments	-	-	-	-	<18 w. FBH 4*0.5 MS	<18 w. FBH 4*0.5 MS	4*€ 75 per Person	-	2*1 if unfit work
Heating allowance	140/ year	160-230 /year	120/ year	-	150/ year	-	-	150-270/ year	-
Total upper limit	MS incl. BRA + HA	MS incl. BRA + HA	MS incl. BRA + HA	MS incl. BRA	MS incl. BRA+ RA*+HA	MS incl. BRA + RA**	MS+ RA ***	MS+ RA + HA ****	MS incl. BRA+RA *****
Assets	5*MS per HH	5*MS p.P.	5*MS per HH	5*MS per HH	5*MS per HH	5*MS per HH	5*MS p.P.	5*MS per HH	5*MS per HH

Notes: *Stadt Salzburg: Sum of rent allowance and basic renting amount must not exceed maximum permissible housing costs; rent without general housing allowance is covered up to maximum limit
**Graz-Stadt: supplementary rent allowance for housing costs up to maximum amount, if housing costs under consideration of general housing allowance are not covered by the basic renting amount (upper limits incl. basic renting amount); housing costs incl. electricity and heating
*** Innsbruck Stadt: incl. operating costs, value added tax, heating and domestic hot water; maximum general housing allowance and rent allowance for housing costs: actual housing costs incl. heating till upper limit rent allowance
**** Maximum general heating allowance and rent allowance for housing costs: actual housing costs till upper limit; incl. operating and heating costs; Heating allowance: in case of proofed heating cost exceeding share for heating cost within minimum standard plus heating allowance of EUR 150, the heating allowance is increased by up to EUR 120
***** Upper limits rent allowance include basic renting amounts
In Sbg., Styria, Tirol all stipulated long-term recipients receive special payments
LP: lone parent; FBH: family allowance; MS: minimum standard; BRA: basic rent amount; RA: rent/housing allowance; HA: heating allowance; HH: household; p.P.: per Person
Source: Federal states' laws and decrees on *minimum income benefit*; inquiries to the offices of the governments of the Federal States; AK 2015; Armutskonferenz 2012; Mundt/Amann 2015.