Information costs and the non-take-up of social benefits: a detailed exploration of Belgian social assistance[1].

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ABSTRACT

In many European countries, about half of those eligible for means-tested social benefits, do not receive the benefits to which they are entitled. In the literature, a wide range of factors have been identified that potentially contribute to the non-take-up of social benefits. Particular attention has been paid to factors that relate to the claimants themselves, including the experienced or perceived costs associated with claiming benefits and negative attitudes towards claiming benefits. However, the theory on the conditions under which claiming costs matter is still underdeveloped, while the evidence on the relative importance of this broader set of factors is to a large extent indirect and based on proxy variables. In this paper, we measure individual and household (dis)incentives for taking-up social assistance benefits more directly, and evaluate to what extent they are associated with non-take-up of social assistance for people at active age in Belgium. To do so, we use a combination of register data and data from the TAKE survey, a new representative survey tailored to studying the determinants of non-take-up in Belgium. Combining both sources of information and detailed simulations of eligibility, we show that information costs are much better at predicting non-receipt of social assistance than process costs and stigma. While attitudes towards the receipt of benefits are of little consequence, optimism about future income seems to matter more, as does the level of material deprivation experienced by the household. We also explore under what conditions information costs matter most. While findings are not very robust, our data suggest that the importance of information costs is mediated by the level optimism about the future and changes in household composition that act as trigger events.

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1. Introduction

Individuals and households often do not receive welfare benefits to which they are entitled. Available estimates indicate that in many Western European countries, about half of those eligible for social assistance do not receive it (e.g. Fuchs, 2007; Domingo and Pucci, 2014; Bruckmeier and Wiemers, 2011; Amétépé, 2012; Dubois and Ludwinek, 2014; Marc et al., 2022). Despite its apparent universality, our empirical understanding of the reasons behind the non-receipt or non-take-up of benefits is still limited. A common idea in the literature is that claiming costs are an important determinant of non-take-up. In this paper, we contribute to a better understanding of the non-take-up of social assistance benefits by evaluating quantitatively to what degree and under which circumstances claiming costs are an important determinant of non-take-up. We find that information costs in particular are an important factor, although their association with non-take-up can be mitigated by trigger events, and is more outspoken among people who are pessimistic about the future.

While various explanations have been put forward in the international literature (cf. Janssens and Van Mechelen, 2022), the empirical evidence on the determinants of non-take-up is rather limited and mostly indirect. The lack of empirical evidence can at least partly be explained by the difficulty of acquiring reliable non-take-up estimates due to methodological challenges and high data requirements. For instance, in his important survey of stigma when claiming benefits, Baumberg (2016) has to focus on claimants vs. non-claimants without being able to distinguish between those eligible and those who are not. Conversely, specific information on the determinants of non-take-up is generally not available in household surveys or administrative sources used to calculate non-take-up figures. As a result, the causes of non-take-up are often measured indirectly, using socio-demographic variables (e.g. migrant status, educational level, household composition) that act as plausible proxies for the barriers applicants face when claiming benefits (e.g. Kayser and Frick, 2000; Aizer and Currie, 2004; Bruckmeier et al., 2019), or more directly through the use of field-experiments, which can manipulate some of the determinants, but usually only one at a time (e.g. Duflo et al., 2005; Hastings and Weinstein, 2007; Van Gestel et al., 2023).

Given their prominence in the theoretical and empirical literature, in this paper we focus on determinants related to (dis)incentives for taking up social benefits, so-called ‘claiming costs’.

In contrast to most of the literature, we use more direct measures of information costs, process costs and social stigma (cf. below). More in particular, we investigate the determinants of the non-take-up of means-tested social assistance for able-bodied individuals between 18 and 64 years old in Belgium, the ultimate rights-based safety net for those who live in precarious conditions (Van Mechelen and Marchal, 2013). To this end, we make use of the TAKE data[2], which combines for a random sample of low-income households detailed register data with data collected in face-to-face interviews tailored to measuring the size, characteristics, and determinants of the non-take-up of social benefits in Belgium.

Our analysis contributes to the existing literature on the determinants of non-take-up in several ways. First, we refine the theoretical argument about the role of claiming costs as a determinant of non-take-up by discussing its potential interaction with other determinants such as the level of needs and the occurrence of trigger events. Second, we provide some more direct empirical evidence on the determinants of non-take-up by using survey questions and instruments purposefully designed to measure the reasons behind non-take-up, combined with register data. This combination of data allows for combining a direct way of measuring claiming costs with a more accurate identification of non-take-up than what could be achieved on the basis of survey data or register data alone. While register data solve the issue of underreporting of means-tested benefits in surveys, the combination of survey and register data also allows us to assess eligibility more closely in line with how this is done by social workers working for the Belgian public administration in practice, who combine information from registers with information provided by claimants. Apart from showing the strength of the association between a broad range of incentives and inhibitors and non-take-up (such as the presence of children, material need, attitudes, etc.), our paper shows the added value of specific questions about claiming costs compared to the use of the usual socio-economic and demographic proxies. Third, to the best of our knowledge, we provide the first detailed analysis of the degree to which the relationship between information costs and non-take-up is mediated by a broad range of other determinants of non-take-up. Fourth, our analysis is the first empirical study on the determinants of non-take-up of social assistance in Belgium.

The paper is organized as follows: first, we provide a brief overview of the most important explanations of non-take-up in the literature, after which we present the explanatory factors included in our analysis and the theoretical expectations we set out to explore empirically.

[2] These data were collected in the framework of the TAKE project, a project set up to study the phenomenon of non-take-up of social benefits in Belgium. See the following link for more details: https://takeproject.wordpress.com/.

Next, we briefly discuss the Belgian social assistance benefit for able-bodied people at active age. Subsequently, we describe the data and methods used, including some limitations of our data and simulation model. Lastly, we present the main results, before concluding with some points for discussion and further research.

2. Literature and hypotheses: The determinants of non-take-up

While a formal unified theory of non-take-up does not exist, determinants of non-take-up have been identified at the individual level, the household level, the administrative level, the policy level and at the level of broader society. Janssens and Van Mechelen (2022) have recently brought the theoretical and empirical research together in a unified overview. Most research has focused on the individual barriers associated with claiming benefits, however, in the last two decades more attention has been devoted to the role of the administration and benefit design. Given that our data are restricted to the individual and the household level, as well as people's social networks, we limit the discussion below to these factors.

At the individual level, a first dominant way of thinking in the literature is to consider non-take-up as the result of a rational decision by potential claimants, who trade off the expected utility of receiving the benefit and the costs incurred to claim it. The utility of claiming depends on the expected duration and level of the benefit in comparison with the individual's needs, determined by his/her household situation, income, debts, wealth, health, etc. as well as the stability of his/her situation. As far as the costs are concerned, the standard practice is to distinguish between information costs, process costs and psychological and social costs associated with claiming (Janssens et al., 2021), which is broadly similar to learning costs, compliance costs and psychological costs identified in the literature on administrative burdens (cf. Halling and Baekgaard, 2024 and Moynihan et al., 2015).

In empirical studies on non-take-up, researchers start from the 'rational choice model' and estimate multivariate econometric models on household survey data, to study the relationship between observed variables and the probability of claiming (e.g. Blundell et al., 1988; Fry and Stark, 1987; Duclos, 1995). Often, by lack of specific data, socio-demographic variables serve as proxies for the level of costs associated with claiming, assuming that some groups can be expected to face higher costs, such as single parent households, families with a migration background, lower educated people, etc. (Kayser and Frick, 2000; Riphahn, 2001; Bargain et al., 2012; Tempelman and Houkes-Hommes, 2015). This approach however does not allow for distinguishing between various types of costs (e.g. information costs, process costs, …), and between the role of costs as opposed to other factors that might be at play (attitudes towards claiming benefits, discrimination on the part of the administration, or benefits such as the expected duration of eligibility). Finally, we are not aware of any formal test of whether these groups do, indeed, face higher claiming costs. With more refined data, one would expect that more direct indicators of claiming costs are positively associated with non-take-up, while indicators of need should be negatively associated with non-take-up, even after accounting for household composition, migration status, educational background etc. Furthermore, we expect that the importance of claiming costs is mediated by needs and expected benefits from applying. More in particular, from a cost-benefit perspective, one would expect that claiming costs are particularly important when needs or expected benefits are relatively low and less important when these are high. In other words, when needs are high, we expect that potential claimants are more willing to put in the additional effort even when faced with relatively high claiming costs. The same may apply to social workers and administrators as well, which would also contribute to lower non-take-up rates among people with higher needs.

Another factor that can alter the existing balance between the costs and benefits of claiming are trigger events. To the best of our knowledge, Van Oorschot (1991; 1996) was the first to introduce the notion of trigger events and defines them as sudden, disruptive events that induce people to (immediately) put in a claim. Trigger events can take the form of an (immediate) advice of someone in their network to claim a certain benefit or can be a need-related event (e.g. a sudden loss in income or increase in certain costs) which accelerates the need for (financial) support and consequently forces people to take up their entitlements. In our analysis, we make a distinction between triggers directly relating to needs (e.g. job loss or sudden increase in housing costs), and triggers relating to changes in the composition of the household, which may be an occasion at which people have to get in touch with an administration anyway, or when they are forced to reevaluate their financial situation. We expect that such trigger events may help to overcome the behavioural hurdles, including claiming costs, which are otherwise at play. Therefore, we expect to find a negative association between trigger events and non-take-up, and we expect the relationship between claiming costs and non-take-up to be weaker when trigger events are present compared to a situation in which a trigger event is absent.

In addition, personal characteristics of potential claimants may play a role in the decision to claim benefits or not. For instance, having an optimistic rather than a pessimistic outlook on one's future may shape non-take-up patterns. More specifically, we expect that people who are more optimistic about their future may be less inclined to apply for benefits, as they may be more positive about opportunities for increasing income from work soon. However, one could also expect an interaction between the level of optimism and claiming costs: people who are generally optimistic/pessimistic about their future may also be optimistic/pessimistic about the outcome of the application procedure for obtaining access to social assistance. This may imply that when perceived claiming costs are low, people's outlook on the future in terms of their future income will dominate the decision. So at low levels of claiming costs, we expect a clear difference between optimistic and pessimistic people. However, when perceived claiming costs are high, someone's level of optimism about the outcome of the application procedure may become a more important factor for deciding whether or not to apply. In other words, when claiming costs are high, we expect to see a much smaller difference between optimistic and pessimistic people, primarily because for pessimistic people the relation between non-take-up and claiming costs is stronger than for optimistic people.

Finally, someone's social network can be expected to shape individual (non-)take-up outcomes. There is an entire stream of literature that considers help-seeking as an inherently social process as individuals are inclined to activate informal networks (i.e. family, friends and neighbours, etc.) and formal networks (i.e. social organizations) when they are in need of help (e.g. Wasserman and Faust, 1994; Pescosolido, 1992). For example, in some cases the social network can provide correct information about the programme or offering support with administrative requirements during the application process (Bouckaert and Schokkaert, 2011). Therefore, having people who can help with the application procedure can not only contribute to perseverance for completing the application procedure and directly lower non-take-up, they could also mitigate the negative impact of perceived claiming costs. In contrast, when people within someone's informal network are able and willing to talk about money issues (and maybe provide financial support), we would expect a positive effect on non-take-up, in particular when perceived claiming costs are high.

3. Belgium's final safety net for able-bodied people at active age

The Belgian social assistance benefit is a rights-based minimum level of financial support that households can receive if their financial resources are below a pre-determined level, assessed in a means test by a social worker. The benefit serves as a benefit of last resort: applicants first have to exhaust their rights to other social benefits, such as unemployment benefits or benefits for people with a disability. Claimants have to apply for a social assistance benefit at the Public Centre for Social Welfare (PCSW) of the municipality in which they live. During the application process, the local welfare agency will carry out a social investigation to determine the applicant's eligibility, which involves face-to-face interviews and often a home visit by a social worker. If the applicant fulfils all the eligibility conditions, the PCSW will grant the person a monetary benefit which tops their incomes up to a pre-defined threshold.

The maximum, monthly amount awarded is 1,288 euro for those living alone, 1,741 euro for those living with at least one dependent person, and 859 euro for those living with (non-dependent) others (amounts applicable since May 2024). In 2022, each month about 1.3% (approximately 153,000 individuals) of the total population in Belgium received a social assistance benefit for individuals at active age[3]. However, as with other means-tested social assistance benefits in Europe, this benefit is prone to suffer from substantial levels of non-take-up. Based on the TAKE data, Goedemé, Janssens et al. (2022) estimate that, among households on very low incomes, between 40% and 51% (95% confidence) of those eligible do not take up social assistance.

4. Data and methods

4.1. Sample

For the purposes of this paper, we make use of data from the TAKE survey. This survey is unique to Belgium and was designed with the specific purpose for studying the extent, characteristics and determinants of non-take-up of means-tested benefits targeted at low-income households in Belgium. To the best of our knowledge, in the EU only France has recently implemented such a survey (Marc et al., 2022). In contrast to general purpose surveys where households at the lower end of the income distribution might not be sufficiently represented, the target population of the TAKE survey consisted of households receiving social assistance in 2017 as well as non-receiving households with a (very) low net taxable income in 2017, who were then followed for several years. In the analysis, we apply the same income threshold to both social assistance beneficiaries and others. This results in a random sample of 1,909 households representative of about the 8% poorest households in the population in terms of net taxable income. This also implies that the TAKE target population of low-income households comprises around 75% of Belgian social assistance recipients, meaning that the TAKE survey does not allow for extrapolating our results to the

[3] Official data from the responsible public administration, https://stat.mi-is.be/ (last consulted 13 December 2023).

entire population eligible for social assistance. More information on the target population, sampling frame and sample design can be found in Goedemé (2022). The TAKE data contain detailed records from the population, tax and social security registers as well as information from a face-to-face interview in the period 2019-2020[4]. More specifically, the person best informed about the household's financial situation (the 'main respondent') participated in an extended interview and other adult household members were invited to take part in a shorter interview. In this study, we limit the sample to the main respondents between 18 and 64 years (which restricts the sample to 1,356 people) old who were eligible for social assistance in 2019 (which further restricts our sample to 567 respondents). Limiting the sample to main respondents avoids the need to extrapolate responses about claiming costs and attitudes – that were only asked in the extended interview – to other household members. When accounting for item-non-response, this leaves a sample of slightly over 500 individuals.

The design and content of the questionnaires are described in more detail in Janssens et al. (2022), the fieldwork is described in Vergauwen et al. (2022), while matching of data and imputation of missing information is discussed by Bolland (2022). An important feature of the TAKE data is that information from the population, tax and social security registers was available for the entire gross sample, including both respondents and non-respondents, such that an elaborate non-response correction could be done, including with respect to non-take-up of social assistance (see Goedemé (2022) for details). The combined use of register and survey data to calculate non-take-up allows us to reduce some of the potential measurement error associated with measuring non-take-up (Goedemé and Janssens, 2020).

4.2.Methods

We first discuss the identification of non-take-up, and then elaborate on the strategy we use for assessing the determinants of non-take-up.

4.2.1. Simulation of eligibility and calculation of non-take-up

For the assessment of eligibility in our sample, we use an adapted version of the tax-benefit microsimulation model BELMOD (Federal Public Service Social Security, 2022). In a microsimulation model, the legal eligibility conditions for certain benefits are translated into formal expressions which allows the model to calculate for each individual in the underlying

[4] As the fieldwork had to be interrupted during the covid-19 pandemic, we include an indicator variable for interviews carried out after the first lockdowns in Belgium. As shown in Table 2, its contribution to explaining non-take-up is not significant.

dataset whether or not the person is entitled to a certain benefit (based on the available information on this person in the dataset). For the current study, the model has been adapted and further expanded in a way that the eligibility conditions could be programmed with more detail. To assess eligibility we use as much as possible the same administrative sources as the Public Centres for Social Welfare do when assessing eligibility, and complement this with survey data for information that in practice also has to be provided by applicants of social assistance. For a detailed description on how eligibility for social assistance was simulated, see Janssens and Derboven (2022).

Eligibility and take-up of social assistance are assessed with respect to the calendar year 2019. Take-up is available from the register data. An important note is that while we simulate eligibility for social assistance based on information for the entire year 2019, we assume take-up whenever someone received social assistance in at least one month in 2019. In practice, eligibility takes monthly fluctuations in income into account, while we work with yearly averages, implying some degree of error.

4.2.2. Descriptive statistics and regression model

In a first step, we look at the bivariate relationship between non-take-up and a broad range of individual and household characteristics. Characteristics include both those that are often used in the literature as a proxy of potential drivers of non-take-up (e.g. household composition, nationality,…), and those based on more specific questions related to the determinants of non-take-up mentioned in section 2. A detailed description of the variables and survey instruments used in this study can be found in the online supplementary material (Table A1). While many variables that we use for studying the determinants of non-take-up are similar to standard variables in European surveys (e.g. demographic variables, income variables and indicators of extreme material deprivation), we also included some relatively new scales, such as a scale of financial stress (Ponnet, 2014), as well as a recently developed scale to measure the cost of claiming benefits in a much more direct way (Janssens et al., 2021). The new instrument, the Claiming Costs Scale (CCS), consists of 9 Likert-type items which measure information costs, process costs and stigma related to claiming social assistance benefits, both for those taking up social assistance and for those who do not (for details, see Table A1 in the online appendix).

In a second step, multivariate probit regression models are estimated, with non-take-up as a binary dependent variable. We start by estimating a parsimonious model (Model 1) which includes the socio-demographic characteristics at individual and household level that are usually used as proxies of the various drivers of non-take-up. We then estimate a second model (Model 2), including the variables from Model 1 together with more direct measures of potential drivers of non-take-up. These includes several variables of need and vulnerability, such as disposable income (continuous), material deprivation (continuous), financial scarcity (continuous). In addition, we include two indicator variables of the presence of trigger events in the past year (yes/no). We distinguish between a needs-related trigger events (e.g. a sudden loss of income, or increase in certain costs) and a socio-demographic trigger events (e.g. a divorce, the birth of a child). Further, we include a direct measure of the attitudes (potential) claimants have towards claiming social benefits in general (three-item scale treated as continuous). To measure the relevance of the costs associated with claiming, we add the aggregate score of the Claiming Costs Scale, and also interact this score with a dummy variable that indicates whether the respondent knows the social assistance benefit or not. This is essential, because claiming costs can only be measured directly for those who indicate to know the benefit (after description by the interviewer). Also, we add three variables relating to the social network of the potential claimant: whether the potential claimant can receive help with applying from their network (yes/no); whether the claimant knows someone within their network who also receives a benefit (yes/no); and whether the claimant has one or more people in their network with whom they can talk about financial issues (yes/no). Finally, we include a variable that measures the degree of optimism about the claimant's own future (categorical).

Subsequently, in Model 4, we limit the sample to those with information on claiming costs (excluding those who do not know the social assistance scheme), to assess the relative strength of the association between the three subscales of the claiming costs scale and non-take-up. We keep the same covariates as in Model 2. We find that information costs appear to be the major driving force and we do not find a statistically significant association between process costs and stigma on the one hand and non-take-up on the other. Therefore, in Model 3 we re-estimate Model 2 while substituting the information costs scale for the aggregate claiming costs scale.

Next, we continue to explore the interaction between information costs and other inhibitors or incentives for take-up of social assistance. Given that the interaction can only be estimated for those with information on claiming costs, the sample is restricted to those who know the social assistance benefit (as in Model 4). We estimate the interaction between information costs and the respective relevant determinants in separate models, (one interaction effect in each model). For all models, we include the same covariates as in Model 2-4. The detailed results of the models with interaction terms can be found in Table A4 in the supplementary materials. Interaction effects are illustrated based on graphs depicting the predicted probability of non-take-up by level of information costs. With a pseudo R^2 ranging between 0.40 and 0.57, all estimated models appear to fit the data rather well.

5. Results

5.1. Bivariate results: the varying incidence of non-take-up

Table 1 shows the non-take-up rates (with their 95% confidence interval) for all variables included in the analysis[5]. The table tells us that the incidence of non-take-up is statistically significantly higher for higher educated people compared to lower educated people and for those employed compared to those unemployed or inactive. The difference in non-take-up by age, gender and nationality is not statistically significant. Further, non-take-up is (very) low among respondents in single parent households with children (especially for single parents having more than 2 children) and relatively high for those in households consisting of several adults without children. Homeowner households have very high non-take-up rates, whereas households who rent a social dwelling have very low non-take-up rates. Further, the incidence of non-take-up is significantly higher in Brussels than in Wallonia, while the difference in non-take-up between Brussels and Flanders is not statistically significant.

With regard to the potential drivers of non-take-up, in line with theoretical expectations we find that people who are materially deprived have (significantly) lower non-take-up rates than those who are not materially deprived. With respect to financial stress, the results are less unequivocal. In contrast, with respect to household income we find results that are contrary to our expectations with the highest non-take-up rates among those with the lowest household income. In addition, we find a slightly lower non-take-up rate for people who recently experienced a sudden change in their household situation (*trigger socio*) or income situation (*trigger need*) compared to those without any of these trigger events; however, for both types of triggers, the difference is not statistically significant. People with negative

[5] Here we focus on the distribution of the incidence, in Table A2 in the supplementary material the composition of those eligible, those taking up social assistance and those not taking up social assistance in relation to the various individual and household characteristics can be found.

attitudes towards claiming benefits, have, as anticipated, slightly higher non-take-up rates but t-tests show no statistically significant difference. The three indicators of social network effects all show the expected link with the incidence of non-take-up: receiving help for claiming social assistance and knowing at least three people who receive social assistance is associated with lower levels of non-take-up, while having someone to talk to about money issues is associated with higher levels of non-take-up. The difference in non-take-up rate for people who are optimistic versus pessimistic is in the expected direction, but rather small and not statistically significant. Finally, regarding claiming costs, we find that people with higher claiming costs, have higher non-take-up rates (significant differences between all categories). This seems however to be mainly driven by information costs, as we see a consistent difference in non-take-up rate for this subscale at different levels of costs. As regards process costs and stigma, there is an inverted U-shaped association between claiming costs and levels of non-take-up, with non-take-up being lowest at low levels of claiming costs, and highest at medium levels of claiming costs, although for stigma, the difference between medium and high levels is not statistically significant.

5.2 Multivariate analysis of non-take-up

Table 2 presents the outcomes of the multivariate probit models of the non-take-up of social assistance. It should be emphasised that the cross-sectional nature of the TAKE data does not allow us to establish a causal relationship between the client-level characteristics and non-take-up. We first discuss models 1-3.

As regards socio-demographic variables, we do not find a significant association with non-take-up in the case of gender, age and region (Models 1-3). Furthermore, we find that the level of education is significantly associated with non-take-up only if more direct measures of needs and claiming costs are excluded from the analysis (Model 1). In contrast, people living in a household with children generally have lower levels of non-take-up, and even more so when there are more than two children in the household. This association is also observed in models 2-3, although with less consistent results for single parent families compared to households with multiple adults but no children. A more consistent association between tenure status and non-take-up, as well as activity status and non-take-up is observed across Models 1-3. Those in employment and homeowners are predicted to have significantly and substantially higher non-take-up rates than those unemployed or not being a homeowner, respectively. In contrast, the difference between tenants in social housing as opposed to the private rental market disappears in models 2-3, suggesting that this difference is due to other factors such as varying levels of need or claiming costs. These results suggest that in some cases there are direct links between some socio-demographic characteristics and non-take-up, whereas in other cases (notably the level of education or tenure status), this may be the result of a spurious correlation.

In Model 2 and 3, more direct measures of potential drivers of non-take-up are added. In line with our expectations, we find that higher levels of material deprivation (as a proxy of needs) are associated with lower levels of non-take-up. Unsurprisingly, not knowing social assistance is strongly associated with non-take-up. As expected, we also find a significant positive association between claiming costs and non-take-up, although the association flattens off at high levels of claiming costs. As is illustrated in Figure 1, very high claiming costs are associated with twice as high a probability of non-take-up as very low claiming costs, but are trumped by simply not knowing the social assistance scheme. Figure 1 also shows that the association between information costs and non-take-up is considerably more pronounced (and approximately linear[6]) compared to aggregate claiming costs. Finally, we also find that having someone to help with filing a claim is associated with lower levels of non-take-up, as one would expect from the literature.

In contrast to our expectations, but consistent with the bivariate results, there is U-shaped association between disposable income and non-take-up within our sample of low-income households (see also Figure A1 in the online appendix). Furthermore, in contrast to our expectations we do not find a statistically significant association between most of the other factors that we singled out as incentives or inhibitors of non-take-up, including trigger events, attitudes towards benefit receipt and having someone to talk to about money or knowing people who take up social assistance. Similarly, there is no significant association with levels of optimism. It is noteworthy, though, that optimism is positively associated with non-take-up among those who do know social assistance (see Model 4).

Given that we expect an interaction between some of these factors and claiming costs, it is worthwhile to explore this relationship in further detail. As is shown in Model 4, at least with respect to Belgian social assistance for people at active age, this is particularly interesting in the case of information costs. In contrast to what we would expect from the literature, and from what we observe in a bivariate setting, we fail to find a significant (linear) relationship between either process costs or stigma and non-take-up when all three subscales are jointly

[6] Adding the square of information costs did not result in a significant coefficient or improved model fit.

included in the analysis. It is noteworthy that when we remove either information costs or process costs (or both) from the model, the regression yields the expected positive correlation between stigma and non-take-up (see models 5-7 from Table A3 in the supplementary material for the regression results). In what follows we focus on the interaction between information costs and several other factors (see Figure 2 below and Table A4 in the supplementary material for detailed results). We include each of these interactions in a separate model, while focusing only on those who know social assistance.

We expected that claiming costs would be particularly important when needs are relatively low and less important when these are high. This would imply a negative interaction effect between material deprivation and information costs. We do find a negative interaction between information costs and the level of material deprivation, but it is not statistically significant (Table A4, Model 8). Given that we include several indicators of need, we have re-run the regression without income and financial scarcity, but the interaction term with material deprivation remains insignificant (Table A4, Model 9). This is further illustrated in Figure 2, which suggests that at higher level of information costs, the gap in non-take-up between those confronted with severe material deprivation and those not deprived is larger than at low levels of material deprivation, although the difference is not statistically significant in our sample.

In addition, for those who experienced a trigger event in the past year, we expected that trigger events would moderate the effect of claiming costs. We already established that in our data trigger events are not significantly associated with non-take-up. However, at least with respect to socio-demographic trigger events (e.g. divorce, new child born, …) we do find a significant negative interaction with information costs: while information costs are strongly positively associated with non-take-up among those who did not experience a socio-demographic change, this association is nearly absent for those who did experience such a trigger event. This also implies that only at high levels of information costs, such trigger events are associated with a lower probability of non-take-up. Remarkably, we do not observe a similar pattern for needs-related triggers.

Furthermore, we expected a complex relation between optimism about the future and non-take-up, with optimism being positively associated with non-take-up at low levels of claiming costs, but much less so at high levels of claiming costs, as negative feelings about the future might then be primarily related to a negative outcome of the application procedure rather than job prospects. Figure 2 (middle right graph) appears to confirm this expectation.

However, not being optimistic seems to be associated with such a strong relationship between information costs and non-take-up, that at high levels of information costs, pessimistic people have a higher probability of not taking up social assistance than those who are optimistic about their future.

Finally, we expected that receiving help from family and friends regarding social benefits would help to mitigate the effect of claiming costs. We do find that non-take-up is significantly lower for those who receive help (in particular for those at low or medium levels of information costs), but do not find that receiving help with claiming benefits alters the relationship between information costs and non-take-up in a statistically significant way. In addition, for those able to discuss money-related topics with their surroundings, we expected this to have a positive effect on non-take-up, especially for high levels of claiming costs. However, we find that although having someone to discuss financial issues is associated with higher levels of non-take-up, indeed, we do not find that the effect is particularly large at higher levels of information costs.

6. Conclusion and discussion

In this paper, we study the relationship between individual and household level determinants of non-take-up of the social assistance benefit among people at active age in Belgium. To do so, we make use of a combination of newly collected survey and register data for a specific sample of low-income households in Belgium. This allows us to measure potentially relevant factors for explaining non-take-up more directly than what is often done in the literature with using socio-demographic proxies. In a multivariate context, we identify the relative contribution of different individual and household factors associated with non-take-up of social assistance in Belgium. We pay particular attention to the association between information costs and non-take-up and how this relation is mediated by several other factors that could determine the probability of non-take-up.

First, we find that activity status, household composition and tenure status of the potential claimant are significantly associated with the probability of non-take-up. Non-take-up is more common among employed people, households with no or only few children and homeowners. These findings are broadly in line with those from similar studies in other countries, such as Austria (e.g. Fuchs et al., 2020). While these findings may be helpful to design and target actions to better inform people about their rights, our analysis also shows the limits of using socio-demographic proxies for better understanding the mechanisms that drive non-take-up.

A more direct measurement of other factors that can be expected to be associated with non-take-up yielded additional insights.

Second, we find that claiming costs, when measured in a more direct way, are positively associated with non-take-up. For obvious reasons, this is particularly the case when people simply do not know the social assistance scheme. However, surprisingly we also found that in the case of Belgian social assistance at active age, information costs are particularly important for understanding non-take-up, while no straightforward association exists between process costs, stigma and non-take-up. This points, at least in the Belgian context of social assistance, to the priority that policy-makers could give to reducing information costs if they want to reduce non-take-up, as compared to stigma and process costs. For instance, they could follow the lead of one Belgian municipality (Geel) which has an online (anonymous) calculator that people can complete. If the calculator shows people have insufficient income for a decent living standard, they are invited to meet with a social worker to assess their eligibility for income support. However, policy efforts that reduce all claiming costs in one go, such as various measures of automating benefit access may be even more effective. For instance, there is a strong case for policies aimed at automatically identifying and contacting those who are potentially eligible for social assistance, so that citizens do not have to take the first step to claim income support (cf. Van Gestel et al., 2023 and Goedemé et al., 2022).

Third, we find that in some cases the relationship between information costs and non-take-up is mediated by other factors. While we observe a negative association between the level of material deprivation and non-take-up, as one would expect, we do not find strong empirical evidence that high levels of material deprivation diminish the association between information costs and non-take-up. Also in contrast to our expectations, we do not find that so-called trigger events are unequivocally associated with lower non-take-up. Only when socio-demographic changes in the household in the preceding year were interacted with information costs, we did find that when information costs are high, such a trigger event is associated with a lower probability of non-take-up. The main reason is that in that case, the association between information costs and non-take-up appears to be very weak. While we expected to find that information costs would also be mediated by the respondent's optimism about the future, we were surprised to find that being pessimistic is associated with a very strong positive correlation between information costs and non-take-up. This suggests that, when faced with high information costs, people's pessimism about the future is projected onto the likelihood of a successful application to social assistance, resulting in a higher probability of non-take-up than among people who are optimistic about their future. In contrast, at low levels of information costs, those who are pessimistic about the future have a lower probability of non-take-up than those who are optimistic about the future, presumably because the latter expect to increase their income through other channels soon. Finally, we find that social network factors are important for non-take-up, but we do not find strong evidence that they change the relation between information costs and non-take-up. All in all, this suggests that for many people, at least in the Belgian context, information costs are a relevant factor, independently of their specific situation. This reinforces the message that policy makers who want to reduce non-take-up should try to limit this type of claiming costs as much as they can. Furthermore, if confirmed in future research, the interaction between pessimism and non-take-up might be a relevant point of attention for social work practice.

There are several limitations to our study. First of all, even with rich datasets as ours, the identification of non-take-up is confronted with some simplification and errors, potentially blurring the patterns that we try to study. Second, in spite of having a sample design focused on studying non-take-up among low-income groups, the sample size was fairly limited which is an important limitation for identifying weaker, but existent, associations between several factors and non-take-up. Furthermore, the cross-sectional nature of the TAKE data does not allow us to determine the causal relationship between the individual and household-level factors and non-take-up; it is possible that the associations identified in our analysis could be influenced by confounding factors or reverse causation. Future longitudinal quantitative and qualitative studies could help to identify the causal pathways of the factors included in this analysis on non-take-up. Third, for several factors that we wanted to study, no extensively validated survey instruments are available, particularly with reference to studying the determinants of non-take-up. This also opens up important areas for future research. For instance, it would be useful to make an explicit distinction between being optimistic about the future in terms of increasing someone's income as compared to being optimistic about receiving benefits. In the Belgian context, a further exploration of why information costs show a strong linear association with non-take-up, but process costs and stigma do not, is warranted. As this is one of the first papers to explore in more detail how claiming costs are mediated by other factors in relation to non-take-up of social assistance benefits, assessing the robustness of our findings in other contexts or with respect to other social benefits is required. Fourth, we report on the relationship between a broad range of factors and non-take-up, but, within the context of this article, are not able to fully explore all findings and identify explanations for each of them. Our findings regarding the relationship between income and non-take-up, or the limited role of attitudes compared to claiming costs definitely require further validation and explanation which further research could delve into. Finally, in this paper we have focused on the individual and household level determinants of non-take-up while omitting how policy design and administration shape these determinants and have a direct impact on the size of non-take-up (e.g. Van Gestel et al., 2023). A more advanced analysis which integrates factors at the micro, meso and macro level would provide critical help in advancing insights into the relative importance of actions that governments can undertake to limit non-take-up.

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Tables

Table 1 - Non-take-up rates of social assistance by individual and household characteristics, 18-64y, TAKE survey's main respondents

Categorical variables	Non-take-up rate	95% CI
Male	47%	38-56%
Female	35%	26-43%
Age 18-29	43%	29-57%
Age 30-44	35%	24-45%
Age 45-64	45%	36-55%
No or primary education	13%	5-21%
Secondary education	40%	32-48%
Tertiary education	64%	51-77%
Employed	69%	59-77%
Unemployed	8%	2-15%
Other inactive	39%	29-49%
Belgian nationality	42%	34-50%
Foreign nationality	39%	29-49%
Single adult w/ no kid	47%	37-56%
Single adult w/ 1 or 2 kids	22%	9-35%
Single adult w/ more than 2 kids	2%	0-5%
Several adults w/ no kid	61%	47-75%
Several adults w/ 1 or 2 kids	34%	21-46%
Several adults w/ more than 2 kids	18%	7-29%
Home owner	80%	67-93%
Private tenant	40%	33-48%
Social housing	15%	5-25%
Brussels	50%	38-61%
Flanders	38%	31-46%
Wallonia	34%	24-43%
Interview before Covid	40%	33-46%
Interview during Covid	45%	31-59%
Low household income	76%	65-86%
Medium household income	24%	13-34%
High household income	40%	31-48%
Low material deprivation	90%	83-97%
Medium material deprivation	41%	31-50%
High material deprivation	23%	13-32%

Categorical variables	Non-take-up rate	95% CI
Low financial scarcity	34%	14-54%
Medium financial scarcity	19%	11-28%
High financial scarcity	58%	49-67%
No trigger need	44%	36-52%
Experienced trigger need	32%	20-44%
No trigger socio	43%	36-50%
Experienced trigger socio	34%	22-47%
Negative attitudes towards social benefits	49%	31-68%
Neutral attitudes towards social benefits	42%	32-51%
Positive attitudes towards social benefits	36%	26-45%
Do not receive help with social benefit	49%	40-57%
Receive help with social benefits	29%	21-38%
Don't know anyone who receives a social benefit/service	53%	42-64%
Know someone who receives 1 or 2 social benefits/services	51%	38-64%
Know someone who receives 3 to 5 social benefits/services	22%	15-28%
No one to talk about money	12%	3-22%
Can talk about money with someone	43%	37-50%
Pessimistic	39%	23-55%
Fairly optimistic	36%	29-43%
Very optimistic	47%	33-62%
Person does not know about SA	78%	65-90%
Person knows about SA	34%	28-41%
Low aggregate claiming costs	9%	2-15%
Medium aggregate claiming costs	39%	29-49%
High aggregate claiming costs	53%	44-62%
Low information costs	9%	0-20%
Medium information costs	24%	15-34%
High information costs	66%	57-74%
Low process costs	7%	1-13%
Medium process costs	56%	47-64%
High process costs	31%	20-42%
Low stigma	20%	10-30%
Medium stigma	44%	32-57%
High stigma	42%	35-50%

Notes: CI-Confidence interval. Continuous variables age, household income, material deprivation, financial scarcity, attitudes towards social benefits, knowing someone who receives social benefits/services, aggregate claiming costs, information costs, process costs, and stigma are transformed into categorical variables, with category 1 (low) being based on 20th percentile and category 2 (medium) on 60th percentile.

Table 2 - Probit estimations of non-take-up of social assistance, 18-64y, TAKE survey's main respondents

	Model 1	Model 2	Model 3	Model 4
Female (ref: no)	.096 (.196)	-.026 (.223)	.070 (.214)	-.071 (.246)
Age	-.031 (.054)	-.071 (.056)	-.044 (.059)	-.043 (.063)
Age^2	.000 (.001)	.001 (.001)	.000 (.001)	.000 (.001)
No or prim. educ. (ref: tertiary educ.)	-.727* (.321)	-.308 (.36)	-.435 (.368)	.094 (.388)
Secondary educ. (ref: tertiary educ.)	-.128 (.218)	.250 (.247)	.124 (.246)	.291 (.280)
Unemployed (ref: employed)	-1.784*** (.26)	-1.669*** (.282)	-1.667*** (.289)	-1.768*** (.292)
Other inactive (ref: employed)	-.616** (.213)	-.508* (.240)	-.648* (.245)	-.73** (.267)
Foreign nationality (no/yes)	.020 (.189)	-.097 (.228)	-.009 (.238)	-.071 (.250)
Single adult without children (ref: several adults without children)	-.117 (.217)	.238 (.277)	.204 (.287)	.221 (.312)
Single adult with 1 or 2 children (ref: several adults without children)	-1.007** (.297)	-.271 (.374)	-.511 (.351)	-.538 (.395)
Single adult with more than 2 kids (ref: several adults without children)	-1.921** (.602)	-1.044 (.602)	-1.353* (.660)	-1.546* (.740)
Several adults with 1 or 2 kids (ref: several adults without children)	-.526 (.263)	.195 (.313)	.083 (.324)	.062 (.336)
Several adults with more than 2 kids (ref: several adults without children)	-1.216** (.342)	-1.563** (.475)	-1.653** (.512)	-1.806** (.543)
Homeowner (ref: private tenant)	1.214*** (.231)	.697* (.279)	.890** (.292)	1.001** (.32)
Social housing (ref: private tenant)	-.712** (.249)	-.508 (.285)	-.265 (.285)	-.145 (.309)
Brussels (ref: Flanders)	.251 (.209)	.076 (.237)	.212 (.264)	.021 (.287)
Wallonia (ref: Flanders)	-.133 (.208)	-.267 (.248)	-.297 (.249)	-.613* (.283)
Interview during Covid (ref: no)	-.344 (.233)	.040 (.291)	.178 (.289)	.201 (.328)
Household income		-.002*** (.001)	-.002** (.001)	-.002** (.001)
Household income^2		.000*** (.000)	.000*** (.000)	.000** (.000)
Material deprivation		-.157* (.064)	-.157* (.064)	-.149* (.067)
Financial scarcity		.051 (.032)	.037 (.034)	.043 (.035)
Trigger need (ref: no)		.187 (.210)	.222 (.213)	.386 (.217)
Trigger socio (ref: no)		.118 (.222)	.326 (.233)	.284 (.227)
Positive attitudes towards social benefits		-.026 (.050)	-.051 (.050)	-.060 (.052)
Receive help with social benefits (ref: no)		-.616** (.207)	-.560* (.206)	-.548* (.229)
Know someone who receives social benefits/services (ref: no)		-.122	-.113	-.077

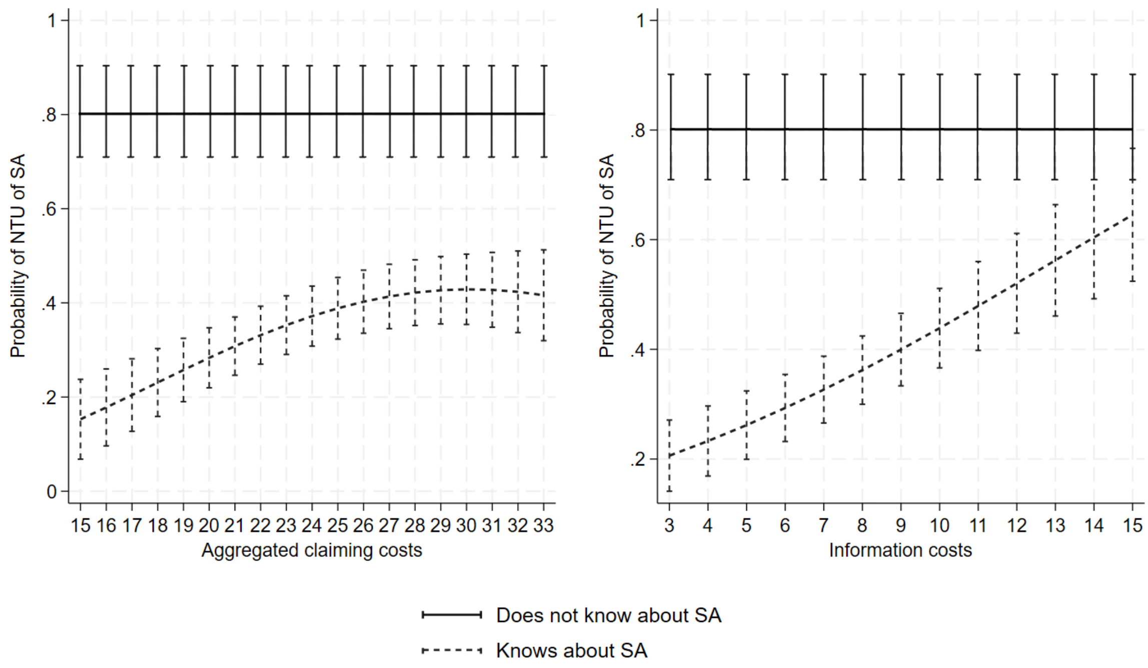
	Model 1	Model 2	Model 3	Model 4
		(.079)	(.080)	(.084)
Someone with whom one can talk about money (ref: no)		.572 (.322)	.617 (.325)	.749 (.369)
Fairly optimistic (ref: pessimistic)		.164 (.267)	.250 (.287)	.586 (.331)
Very optimistic (ref: pessimistic)		.286 (.302)	.557 (.312)	.860* (.373)
Person knows about SA (ref: no)		-8.107** (2.357)	-2.735*** (.417)	
Person knows about SA * Aggregate claiming costs		.491* (.185)		
Person knows about SA * Aggregate claiming costs²		-.008* (.004)		
Person knows about SA * Information costs			.208*** (.042)	
Information costs				.217*** (.042)
Process costs				.053 (.038)
Stigma				-.009 (.036)
Constant	1.805 (1.151)	3.790* (1.461)	3.696* (1.513)	-.203 (1.648)
Number of observations	542	510	512	461
Pseudo R-squared[7]	.40	.56	.57	.54

Notes: Standard errors are in parentheses. Model 4 is restricted to those who know social assistance.
* p<.05, ** p<.01, *** p<.001
Source: The authors' own calculations using the TAKE data.

[7] Results from linear probability models.

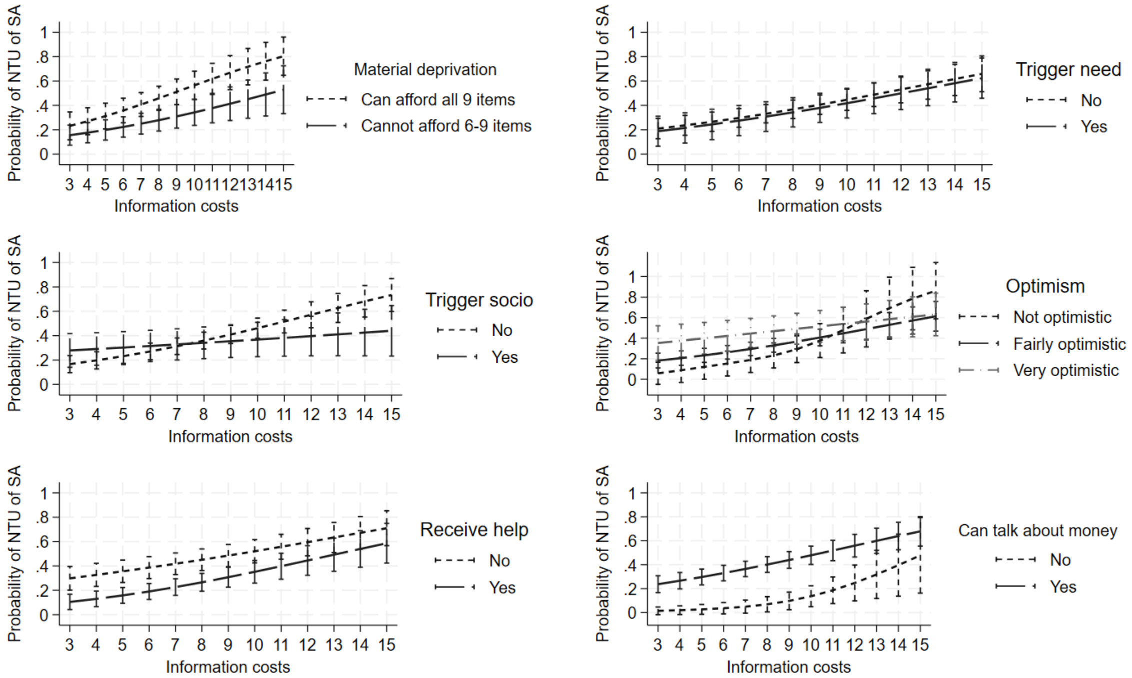
Figures

Figure 1 - Predicted NTU of social assistance (SA) by aggregated claiming costs & information costs, 18-64y, TAKE survey's main respondents



Notes: Predicted values obtained from model 2 (left-hand graph) & model 3 (right-hand graph).
Source: The authors' own calculations using the TAKE data.

Figure 2 - Predicted non-take-up of social assistance (SA) by information costs, 18-64y, TAKE survey's main respondents who know social assistance-



<u>Notes</u>: Predicted values obtained from model 8 (top left graph), model 10 (top right graph), model 11 (middle left graph), model 12 (middle right graph), model 13 (bottom left graph), model 14 (bottom right graph), for which the regression results are presented in table A4 in the supplementary material.
<u>Source</u>: The authors' own calculations using the TAKE data.