

# A FIRST COMPUTATION OF NON-TAKE-UP BEHAVIOUR IN THE 'LEEFLOON'

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## A FIRST COMPUTATION OF NON-TAKE-UP BEHAVIOUR IN THE 'LEEFLOON'

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**Abstract:** Using EU-SILC income data from 2005, we provide an estimate of non-take-up behaviour in the leefloon, i.e. the Belgian guaranteed income scheme for individuals aged between 18 and 65. Non-take-up is substantial with a non-take-up rate ranging between 57% and 76%. However, these figures should be interpreted with caution. Potential discretionary power of the local social service department in the awarding procedure and data problems limit the precision of our results. Nevertheless we claim that non-take-up behaviour is an important social phenomenon that should be taken into account in an accurate Flemish microsimulation model.

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## SAMENVATTING

De effectiviteit en herverdelende werking van middenengetoetste<sup>1</sup> sociale bijstand, zoals het leefloon of de inkomensgarantie voor ouderen in België, worden ondermijnd door twee gerelateerde problemen: niet-gebruik (non-take-up) door rechthebbenden en gebruik door individuen die er wettelijk gezien geen recht op hebben. Dit plaatst zowel de beleidsmakers als de ontwikkelaars van microsimulatiemodellen voor een uitdaging. Beleidsmakers worden geconfronteerd met een systeem van sociale bijstand dat zijn doelgroep niet bereikt en zijn rol als sociaal vangnet niet vervult. Microsimulatiemodellen, die armoede, herverdeling en inkomensongelijkheid willen meten, kunnen door problemen rond gebruik en niet-gebruik geen accurate resultaten presenteren. Indien er niet gecorrigeerd wordt voor deze problemen, loopt men het risico armoede te onderschatten en financiële kosten voor beleidshervormingen incorrect in te schatten. Wij argumenteren daarom dat een correctie voor niet-gebruik ingebouwd moet worden in een toekomstig Vlaams microsimulatiemodel.

Deze paper presenteert een eerste schatting om de problemen rond gebruik en niet-gebruik van het leefloon in kaart te brengen. De analyse is uitgevoerd op basis van EU-SILC inkomensgegevens uit 2005. Onze conclusie is dat er problemen bestaan rond gebruik en niet-gebruik van het leefloon en dat dit zelfs relatief belangrijke sociale fenomenen zouden kunnen zijn. Wij schatten dat een groep van 57% tot 76% van de rechthebbenden geen gebruik maakt van het leefloon (non-take-up rate), met een referentiewaarde van 65%. Dit is een erg hoge ratio, maar ligt in de lijn van eerdere schattingen voor o.a. Duitsland en Nederland. In vergelijking met andere OESO landen situeren we ons met deze non-take-up rate in de groep met de hoogste schattingen voor niet-gebruik. Daarnaast ramen we de groep van individuen die het leefloon ontvangen maar er eigenlijk geen recht op hebben op 24% van de totale groep van leefloontrekkers.

Deze cijfers dienen echter voorzichtig geïnterpreteerd te worden. Onze analyse wordt bemoeilijkt door drie beperkingen van de beschikbare gegevens: het aantal observaties waarmee we werken is erg klein; de kenmerken van de leefloontrekkers in onze steekproef zijn niet representatief voor de totale groep van leefloontrekkers; en tot slot beschikken we niet over alle noodzakelijke data en zijn de data waar we wel over beschikken niet altijd even betrouwbaar voor de lage inkomensgroep. Bovendien heeft het OCMW een zekere discretionaire bevoegdheid om bepaalde inkomens wel of niet in de middelentoets op te nemen, hetgeen moeilijk in een microsimulatiemodel ingebouwd kan worden. We beschouwen onze resultaten dan ook eerder als een indicatie voor mogelijke problemen rond gebruik en niet-gebruik van het leefloon, dan wel als een exacte schatting van de omvang van deze problemen.

In de toekomst zullen onze inspanningen zich richten op het ontwikkelen van een gedragsgestuurd model. We gaan verder dan het kwantificeren van de problemen rond gebruik en niet-gebruik en willen ook de individuen identificeren die op basis van hun kenmerken en gedrag het meest kans maken om tot één van deze groepen te behoren. Dit zal ons in staat stellen om beter de werkelijke armoede en inkomensverdeling in kaart te brengen en potentiële beleidswijzigingen te analyseren.

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<sup>1</sup> 'Middenengetoetst' betekent dat om recht te hebben op bijstand, het inkomen (of de middelen) van de rechthebbende onder een vastgelegde inkomensgrens moeten vallen.

## 1. INTRODUCTION

Virtually all developed countries and several developing countries have set up a wide range of welfare programs. The specificities and evolution of these social policies differ from country to country, but all systems share more or less the same three basic transfer mechanisms, albeit with differences in emphasis (Esping-Andersen, 1990). A first type of welfare transfers and social expenditures are unrelated to past contributions or current income and spring from the principle of universal rights of citizenship. Government spending on education and health care can be classified under this heading. A second transfer mechanism links benefits to past income or contributions; unemployment compensation and pensions serve as examples. The basic idea is to insure individuals against risks and to allow them to (partly) maintain the living standard to which they are accustomed. These first two types of transfer programs are universal. They are extremely important in the fight against poverty, because they keep many people out of poverty, even if they are not specifically directed to the poor. However, some individuals with a low earnings power and a disadvantaged social background are not sufficiently protected by these universal programs. Therefore, welfare states also implement a third type of transfer mechanism, a so-called safety net. Means-tested<sup>2</sup> guaranteed income schemes are the most typical example.

Welfare programs constitute an important part of any microsimulation model that aims to analyse and evaluate poverty, income distributions and redistributive policies. In this contribution, we will restrict our focus to the third category of welfare programs and more specifically to the *leefloon*, the Belgian guaranteed income scheme for individuals aged between 18 and 65. Any reliable future Flemish microsimulation model should incorporate the *leefloon* scheme as policy parameter.

MEFISTO is a newly developed microsimulation model for Flanders. The current version of MEFISTO is able to evaluate the *leefloon*, its effect on poverty and redistribution in society. Furthermore MEFISTO allows to simulate modifications to the eligibility rules, to the benefit level or to a combination of both, which makes it possible to analyse a wide variety of potential policy changes. There are however two major shortcomings in the current implementation of the *leefloon* in MEFISTO. First of all, in reality some discretion<sup>3</sup> is given to the local social service departments (*OCMW's*) in the awarding procedure. Discretionary power potentially leads to rules which differ between individuals or local social service departments. Discretionary judgments cannot be reproduced correctly by a microsimulation model, although some of their effects might be captured by a sensitivity analysis. In this

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<sup>2</sup> 'Means-tested' indicates that one of the conditions for eligibility is that the individual or household means, as computed by an administrative formula, fall below a needs-adjusted threshold.

<sup>3</sup> Local social service departments are able to take (partly) into account or disregard the income of parents or children in determining whether someone's income is low enough to get the *leefloon* (POD Maatschappelijke Integratie, 2002). Moreover Hermans (2005) observes different practices between local social service departments with respect to the 'willingness to work' requirement for the *leefloon*.

contribution, we do not enter into details on this subject. Secondly, most microsimulation models work with full take-up. This means that all those who are eligible for the social benefit, receive it; and vice versa, those who are not eligible, do not receive it. Applied research in other OECD countries suggests however that this assumption is untenable and that non-take-up rates of social assistance are substantial.

The main aim of this paper is to provide an estimate of non-take-up rates for the *leefloon* in Belgium on the basis of available survey data of the year 2005.<sup>4</sup> We will summarize in section 2 some of the evidence and show that non-take-up is an empirically relevant social phenomenon in many countries. In section 3 we explain the main features of the *leefloon* and sketch our computation method. Next we discuss our data (section 4) and our results (section 5). In section 6, we briefly go into the main determinants of non-take-up behaviour, which we will use in future research to develop a behaviour driven non-take-up model. Section 7 concludes.

## 2. THE NON-TAKE-UP CHALLENGE FOR MICROSIMULATION MODELS

### 2.1 Defining non-take-up rates

Most means-tested cash-benefit programs, such as the *leefloon*, require that individuals have to come forward voluntarily and have to meet several conditions in order to receive benefits (see section 3 for the eligibility conditions for the *leefloon*). The eligibility conditions imposed can be seen as a barrier or filter between the (needy) population and the social benefit intended to guarantee the subsistence level. This filter is at the origin of three interconnected ‘errors’ (Kleven and Kopczuk, 2008):

- *Incomplete take-up (type Ia error)*: Truly eligible individuals do not apply for social benefits.
- *Rejection errors (type Ib error)*: Truly eligible individuals apply for social assistance, but due to errors in the screening procedure, they are rejected.
- *Award errors (type II errors)*: Ineligible individuals apply for social assistance and due to errors in the screening procedure, they are accepted.

The combination of the first two errors (type Ia and type Ib) is defined as the non-take-up rate of a welfare program. In other words, it represents the ratio between the number of eligible individuals that do not receive the social benefit and the total group of eligible individuals.

It is important to see that the three errors are related to each other. Consider for example an increase in the benefit level of the welfare program. On the one hand, increased benefits will induce eligible individuals to take-up their entitlements which reduces type Ia errors. On the other hand, more ineligible individuals will also be tempted to apply, thereby increasing the

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<sup>4</sup> To the best of our knowledge, there does not exist an analysis of this kind based on detailed empirical data for Belgian guaranteed income programs.

risk of type II errors. More detailed screening procedures provide a second example. Additional requirements will allow to better distinguish between eligible and ineligible individuals, reducing both type Ib and type II errors. However, more detailed conditions also mean more time and effort to complete the application, which will discourage at least some truly eligible individuals to enter the award process and therefore increases the type Ia error.

This interconnection implies a trade-off between the different error types. Allowing one problem to aggravate might alleviate another and vice versa. Welfare program parameters (think of the benefit level, the complexity in procedures, sanctions, etc.) can be adjusted to weigh the different kinds of errors and to find a ‘desired’ equilibrium between them (Kleven and Kopczuk, 2008). The definition of the ‘desired’ equilibrium will involve ethical choices with respect to the importance given to the different error types.

## 2.2 Non-take-up as important social phenomenon

Applied research is predominantly directed at the problem of non-take-up (type I errors). An overview of empirical evidence in OECD countries suggests that targeted social assistance programs do not succeed in reaching their whole target population (Currie, 2004; Hernanz *et al.*, 2004; Matsaganis *et al.*, 2008). Many eligible and poor individuals do not make use of the social benefits and fall through the safety net. Table 1 collects some of the evidence. Most social assistance schemes are confronted with non-take-up-rates of well over 40%. Even studies that use administrative data, such as Bargain *et al.* (2007), are confronted with these high rates. Generally speaking, the Anglo-Saxon countries do somewhat better. These countries rely more on means-tested welfare programs and have paid more attention to the side effects of these programs. In the UK for example, the competent administrations compute and report non-take-up rates themselves, which is not the case in most other countries.

Possible benchmarks for Belgium are non-take-up rates in neighbouring countries. In this respect, we observe that non-take-up rates range between 30% and 50% for the UK and France and increase up to 60% or more for the Netherlands and Germany.

## 2.3 The challenge for policy evaluation

There are several reasons why policymakers, and by extension microsimulation model designers, should worry about non-take-up behaviour as well as leakage of public resources to ineligibles (Fuchs, 2007; Kayser and Frick, 2001). First of all, low take-up of welfare benefits may undermine the redistributive effectiveness of the welfare program and casts doubt on its function as safety net. Income distributions and poverty measures computed by microsimulation models which are not corrected for imperfect take-up, are overly optimistic and not in line with reality. In addition, if non-take-up is not entirely voluntary, non-participation by some individuals leads to fundamental inequities among eligible individuals in a similar economic situation. The inequities are even more manifest if we consider non-take-up by eligible individuals and take-up by non-eligible recipients. Finally, imperfect take-up leads to inaccuracies when anticipating the social outcomes and estimating the financial costs of policy reforms. Given the magnitude of non-take-up behaviour (see table 1), it is therefore essential to incorporate take-up behaviour in economic (microsimulation) models if one wants to gain insight in the real income distribution or poverty incidence in society.

TABLE 1: APPLIED RESEARCH ON THE NON-TAKE-UP OF SOCIAL ASSISTANCE

Study	Country	Name of program	Time period	Estimated non-take-up rate (type I error)
Warlick (1982)	USA	Supplementary Security Income	1974-1975	47%
McGarry (1996)			1984	44%
Davies (2001)			1993	46%
Blank (1997) – using survey data		Aid to families with dependent children (AFDC)	Mid 1970s to mid 1980s	30-40%
Blank (1997) – using administrative data			Mid 1970s to mid 1980s	10-20%
Moffitt (1983)			1976	55%
Bramley <i>et al.</i> (2000)	United Kingdom	Income support	1996	30-50%
DWP (2003) – administrative data			2000/2001	5-14%
Duclos (1995)			1985	36%
Terracol (2002)	France	Revenue minimum d'insertion	1994-1996	35-48%
Neuman and Hertz (1998)	Germany	Hilfe zum Lebensunterhalt	1991	52.3-58.7%
Riphahn (2001)			1993	62.3%
Kayser and Frick (2000)			1996	62.9%
Wilde and Kubis (2005)			1999	43%
Frick and Groh-Samberg (2007)			2002	67%
Van Oorschot (1995)	Netherlands	Bijzondere bijstand	1990	53-63%
Bargain <i>et al.</i> (2007) – administrative data	Finland	Toimeentulotuki	1996-2003	40-50%
Fuchs (2007)	Austria	Hilfe zur Sicherung des Lebensunterhalts	2003	56%
Rodrigues (2008)	Portugal	Rendimento Mínimo Garantido	2001	28%

### 3. BELGIAN GUARANTEED INCOME SCHEME: THE LEEFLOON

#### 3.1 Minimum income protection in Belgium

According to art. 23 of the Belgian constitution, every Belgian has the right to lead a life in conformity with human dignity, including among others the right to social security. To this end, Belgium has developed a welfare system of the European continental model with two guaranteed income schemes: one for adults between 18 and 65 (the *leefloon*) and another for the elderly aged 65 or more (the *inkomensgarantie voor ouderen (IGO)*). Both welfare programs date back to the beginning of the 1970s and were revised at the start of the new millennium. Moreover, they share some similarities in program design (Groenez and Nicaise, 2002).

In this paper, we restrict the analysis to the *leefloon*. This income support system has two main goals. It is intended to guarantee that everyone has the opportunity of leading a dignified life thanks to a guaranteed minimum income level. Financial aid related to the *leefloon* also aims at integrating recipients into society e.g. through labour force participation.

### 3.2 Main characteristics of the *Leefloon*

The *leefloon* is a means-tested cash-benefit system that is meant to serve as a last resort. Every individual applying for it will first have to exhaust her rights to other social benefits, such as unemployment benefits, benefits for disabled persons etc. Next she can voluntarily claim her entitlement to the *leefloon* at the local social service department, which will grant her a monthly sum<sup>5</sup> if she satisfies the eligibility criteria (Van der Straete, 2009). The federal government has determined five eligibility rules:

- *Nationality requirement*: the *leefloon* is open to all Belgians, EU citizens, registered foreigners and recognized refugees (POD Maatschappelijke Integratie, 2002).
- *Age criterion*: the individual has to be 18 years or older to be eligible for the *leefloon*. From 65 onwards, one is eligible for the *IGO*, and is de facto no longer eligible for the *leefloon*.<sup>6</sup>
- *Place of residence*: an eligible individual needs to locate her legal place of residence on Belgian territory.
- *Willingness to work*: the individual has to be willing to work, unless her situation does not permit working e.g. due to poor health.
- *Insufficient means*: The most important criterion is the lack of sufficient income. The individual income is measured by an administrative formula<sup>7</sup> and compared with a needs-adjusted threshold (the so-called means-test). If the means of the individual fall below the threshold, she is granted the difference between the threshold and her means, increased with a small lump sum. The *leefloon* distinguishes between three needs categories (see table 2): individuals that live together with others; individuals living alone; individuals living together with at least one dependent person.

Table 2 gives an overview of the needs-adjusted thresholds since 2002. Given that the data used for our non-take-up analysis date from 2005, the benefit level in 2005 is taken as reference and indicated in bold. Between 2002 and 2010, there has been a yearly average nominal increase of the *leefloon* of 3%. This nominal growth matched inflation between 2002 and 2005 and allowed for a yearly average real increase of 1,4% between 2005 and 2010.

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<sup>5</sup> The monetary sum is paid by the local social service department, but reimbursed by the federal government for 50% up to 65% depending on the number of *leefloon* recipients in the municipality.

<sup>6</sup> There was a gradual increase of the age limit for the *IGO*. It was set at 63 years in 2003, at 64 years in 2006 and at 65 years as from 2009.

<sup>7</sup> However, the local social service departments have been given discretionary power in the application of the means-test.

TABLE 2: OVERVIEW OF NEEDS-ADJUSTED THRESHOLDS SINCE 2002

	Category 1: Individual living together		Category 2: Individual living alone		Category 3: Individual living together with at least 1 dependent person	
	Nominal	Real*	Nominal	Real*	Nominal	Real*
01/10/2002	389,11 €	416,93 €	583,66 €	625,38 €	778,21 €	833,84 €
01/06/2003	396,88 €	420,42 €	595,32 €	630,64 €	793,76 €	840,85 €
01/10/2004	408,89 €	419,29 €	613,33 €	628,94 €	817,77 €	838,58 €
01/08/2005	<b>417,07 €</b>	<b>417,07 €</b>	<b>625,60 €</b>	<b>625,60 €</b>	<b>834,14 €</b>	<b>834,14 €</b>
01/10/2006	429,66 €	424,82 €	644,48 €	637,22 €	859,31 €	849,63 €
01/04/2007	438,25 €	427,16 €	657,37 €	640,73 €	876,50 €	854,31 €
01/01/2008	455,96 €	433,88 €	683,95 €	650,83 €	911,93 €	867,77 €
01/05/2008	465,07 €	431,37 €	697,61 €	647,07 €	930,14 €	862,75 €
01/09/2008	474,37 €	437,26 €	711,56 €	655,89 €	948,74 €	874,52 €
01/06/2009	483,85 €	451,30 €	725,79 €	676,96 €	967,72 €	902,62 €
01/09/2010	493,54 €	447,40 €	740,32 €	671,12 €	987,09 €	894,82 €

Source: POD Maatschappelijke Integratie (2010), own computations

\* The real values are computed using the Belgian CPI of 2004 and taking the nominal amounts of 01/08/2005 as reference

### 3.3 Computation method

A microsimulation model can easily be used to compute non-take-up behaviour in a data set if all the data needed for real life assessments are present in the data set. After the eligibility conditions are translated into formal expressions, the microsimulation model computes eligibility by applying the formal rules to the input data. Combining eligibility status with information on actual receipt of the *leefloon*, one can then compute (non-)take-up rates and type II errors (see figure 1).

The reliability of the outcome thus depends critically on the possibility to write down formal eligibility rules, which is undermined by any form of discretion, and on the availability and quality of the data, which is the subject of the next section.

## 4. THE DATA SET

### 4.1 The EU-SILC data set

The data at our disposal are the European Union Statistics on Income and Living Conditions (EU-SILC). This survey data<sup>8</sup> aims at collecting timely and comparable micro data on income poverty

<sup>8</sup> Some researchers argue that the use of survey data leads to an overestimation of non-take-up rates. An alternative is to tap into administrative data sources. Administrative data are however hard to obtain, either because they do not exist or because of privacy issues. Moreover, they often have only detailed info on claimants, since these are the individuals screened in detail by the

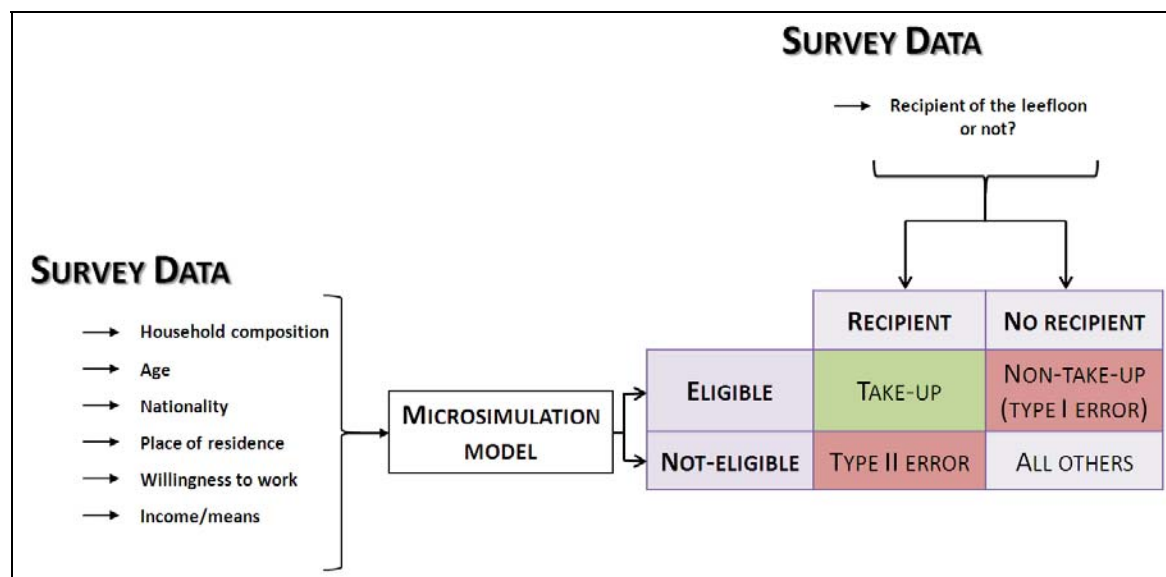
and social exclusion. We use the cross-section version from 2006 with individual and household information from 2005. The sample consists of 14.329 individuals (of whom 11.314 individuals are interviewed) in 5.860 different households. The sample is constructed such that it should be representative for the population on Belgian territory.

#### 4.2 Main data related problems

There are three main problems with the data, indicating that our results should be interpreted with caution.

The first problem relates to the small number of *leefloon* beneficiaries in the survey sample. The sample consists of 11.314 interviewed individuals of whom only around 100 individuals claim to have received the *leefloon* for at least 1 month in 2005.<sup>9</sup> The use of such a small number of observations could potentially lead to unreliable results, and even more so if we go into more detail and look at gender issues, regional patterns, nationality differences etc.

FIGURE 1: COMPUTATION METHOD FOR NON-TAKE-UP BEHAVIOUR



administration, and lack information on non-claimants. This may lead to an underestimation of real non-take-up behaviour. The difference between the two approaches can be seen for example by comparing both estimates of Blank (1997) in table 1. In Belgium, one could apply for panel data from the Cross Roads Bank of Social Security. This is certainly an option for future research. However, to be really useful for our purpose, the data from the Cross Roads Bank should be matched with (more detailed) fiscal information.

<sup>9</sup> These 100 observations in the sample represent about 70.000 individuals in the Belgian population. From administrative sources, we know that in 2005, there were on average 75.000 recipients per month (Oases, 2010).

Secondly, the representativeness of our *leefloon* information is imperfect. We compared the characteristics of our 100 persons sample with the characteristics of the population of *leefloon* recipients taken from administrative data (Oases, 2010). Statistical tests show significant differences with respect to the regional spread of recipients (figure 2a). Compared to administrative records, *leefloon* beneficiaries in Brussels are overrepresented in the EU-SILC while Flemish and Walloon recipients are underrepresented. The age profiles of *leefloon* recipients diverge only mildly if we consider the population in its entirety (figure 3a). Young receivers are proportionally underrepresented while older beneficiaries (aged 50 or more) are overrepresented. These mild differences cover however larger discrepancies in the age profiles for the regions (figure 3b). With respect to gender, figure 4a shows that our sample contains too few male recipients. The difference is again significant. As is clear from figure 4b, the variation in gender profiles is mainly caused by the Walloon subpart of our sample. Finally, the nationality profile of our sample fits in with the population profile, both in its entirety (figure 2b) and when split up in regions.

The final data problem bears upon the availability and reliability of the data. As shown in figure 1 and in table 3, extensive personal and household information is needed to impute eligibility. Not all required data are present, such as the rateable value (*'kadastraal inkomen'*) of a house or some of the specific income information that is used in the means-test. Furthermore, even if the data are present, they are not always reliable. In the data set, there are for example individuals claiming to be disabled without receiving any disability benefit or individuals indicating to have worked for several years who are unemployed without unemployment benefit. It may come as no surprise that these persons are more than proportionally situated in the low-income group, the group of interest in our study.

TABLE 3: DATA REQUIREMENTS VERSUS DATA AVAILABILITY

Data required	Examples	Status EU-SILC	Solution (if needed)
Income data	Income from work, pensions, ...	Data present, but not always reliable for low-income group	Delete most unreliable observations
	Social benefits: disability benefits, unemployment benefits, ...		
	Rateable value ( <i>'kadastraal inkomen'</i> )	Data not present	Use proxy: potential rent of real estate (at household level)
	Wealth		Use proxy: capital proceeds (at household level)
	Other: benefits in kind, real estate sale in the past ten years, ...		Not taken into account
Personal data	Age, nationality, place of residence, student, ...	Data present	
	Willingness to work	Data not present	Not taken into account
	Family ties: children, parents, brothers, sisters, partner, ...	Data present	
Take-up of the <i>leefloon</i>		Data present, sometimes overlap with <i>IGO</i>	Remove overlap with <i>IGO</i>

FIGURE 2: COMPARISON POPULATION-SAMPLE: REGIONAL SPREAD (a) & NATIONALITY PROFILE (b)



FIGURE 3: COMPARISON POPULATION-SAMPLE: AGE PROFILES (a) & AGE PROFILES BY REGIONS (b)

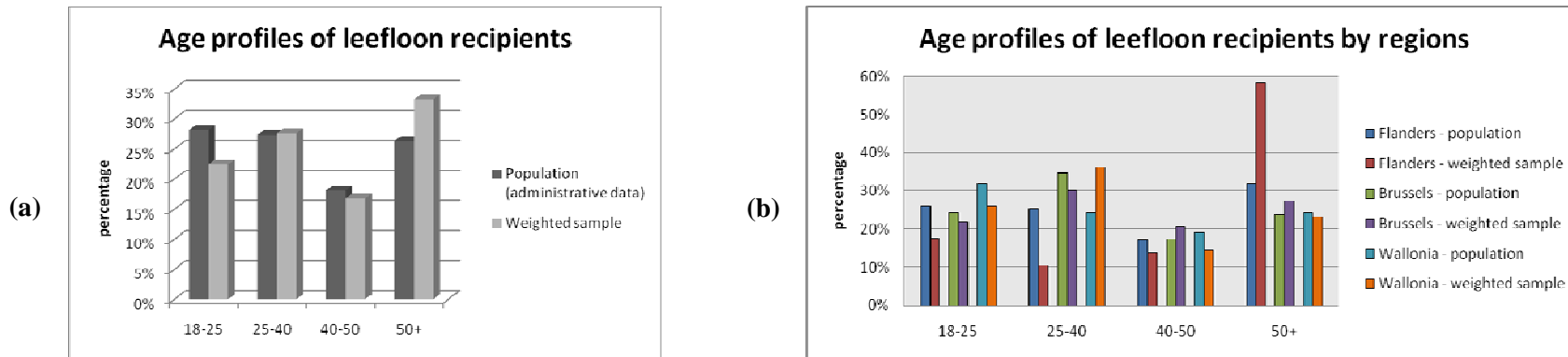
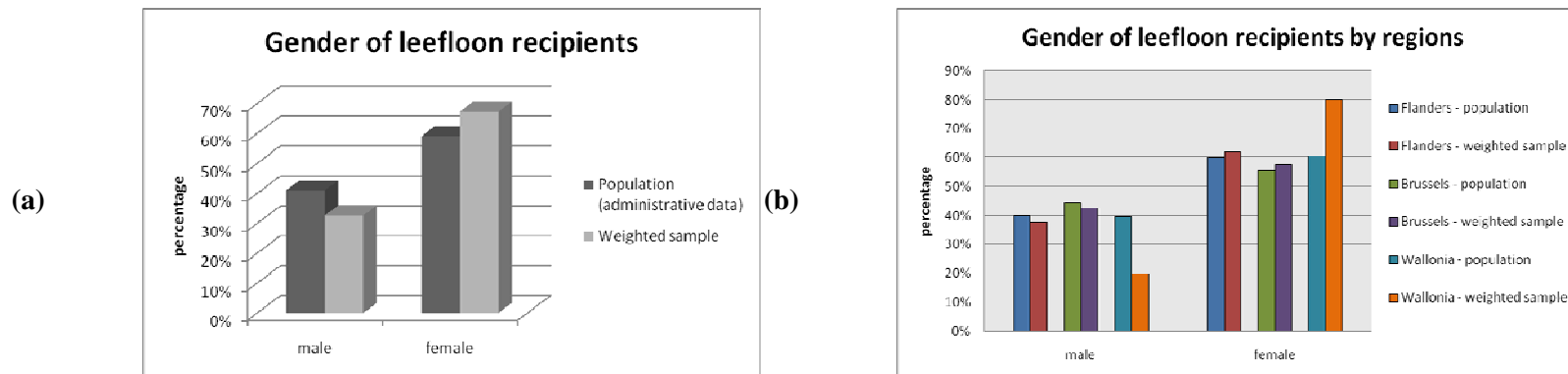


FIGURE 4: COMPARISON POPULATION-SAMPLE: GENDER (a) & GENDER BY REGIONS (b)



## 5. RESULTS

The results are summarised in tables 4 and 5. Table 4 expresses non-take-up in terms of individuals, while table 5 estimates non-take-up in monetary terms. Both tables consist of three columns: a reference and a margin around the reference. The reference is our best possible estimate given the available survey data. The upper and lower margins<sup>10</sup> are intended to cushion computation errors from incorrect or missing data as well as some of the potential discretion of the local social service departments in the awarding procedure.

TABLE 4: ELIGIBILITY AND NON-TAKE-UP BEHAVIOUR IN THE LEEFLOON (IN CASELOADS)

	Lower margin	Reference point	Upper margin
<b>Eligibility <i>leefloon</i> (individuals)</b>	109.670 individuals	138.524 individuals	200.443 individuals
<b>Non-take-up (type I error)</b>	62.014 individuals (56,6% <sup>♦</sup> )	90.309 individuals (65,2% <sup>♦</sup> )	152.229 individuals (76,0% <sup>♦</sup> )
<b>Type II error</b>	18.647 individuals (24,9% <sup>♦</sup> )	18.089 individuals (24,1% <sup>♦</sup> )	18.089 individuals (24,1% <sup>♦</sup> )

<sup>♦</sup> The non-take-up rate is computed as the ratio of the eligibles that do not receive the *leefloon* and the entire group of eligibles.

<sup>♦</sup> The type II error is computed as the ratio of the *leefloon* recipients who are not eligible and the total number of *leefloon* recipients (from administrative data).

Source: EU-SILC database, 2006

From table 4, we conclude that the non-take-up rate turns out to be substantial in Belgium and ranges between 57% and 76% with a reference of 65%. This non-take-up rate does not seem to be out of line with the empirical findings for other countries (see e.g. non-take-up rates in the Netherlands and Germany in table 1), although it is situated at the top end of these estimates. The group of *leefloon* beneficiaries who are not eligible (type II error) is much more stable and fluctuates around 24%. There are no good benchmarks in the economic literature to interpret this rather high percentage. As has been stressed before, the quality of the data limits the precision of these results. They should therefore be interpreted with caution and considered as an indicator of non-take-up related problems in Belgium rather than as an exact measurement of its magnitude.

Table 5 looks at the same figures, but in monetary terms, in that every individual is represented by the benefit she gets or should get. From this perspective non-take-up is smaller. This means that individuals who do not take up their benefits are entitled to smaller amounts than those who do take up their benefits. In addition, the variability around the reference is remarkably lower. Non-take-up ranges between 41% and 51%. This smaller range is the result of two opposite effects. The lower margin corresponds to a more stringent income condition. This means that less individuals will be deemed eligible (see table 4), which lowers the amounts to be paid. However, the individuals that are eliminated are those with the smallest entitlements. Consequently, the average *leefloon* claim increases and the reduction in

<sup>10</sup> More precisely, we compare the needs-adjusted threshold with 110% of the individual means in the first column and with 90% of the individual means in the third column.

government expenditures is less pronounced than the drop in the number of eligible individuals. The opposite is true for the upper margin.

TABLE 5: ELIGIBILITY AND NON-TAKE-UP BEHAVIOUR IN THE *LEEFLOON* (IN € PER MONTH)

	Lower margin	Reference point	Upper margin
<b>Eligibility <i>leefloon</i> (in € per month)</b>	45.317.651 €	48.633.025 €	56.454.478 €
<b>Non-take-up (type I error)</b>	18.563.395 € <b>(41,0%<sup>*</sup>)</b>	21.456.477 € <b>(44,1%<sup>*</sup>)</b>	28.859.513 € <b>(51,1%<sup>*</sup>)</b>
<b>Type II error</b>	9.464.338 €	8.796.852 €	8.796.852 €

<sup>\*</sup> The non-take-up rate is computed as the ratio of the simulated benefits that are not claimed by eligibles and the simulated benefits of the entire group of eligibles.

Source: EU-SILC database, 2006

## 6. TOWARDS A BEHAVIOURAL MODEL

Estimates of non-take-up rates are a valuable input for microsimulation models, as they allow to improve upon the untenable assumption of full take-up. For Belgium, this could be done by allowing only 35% of the eligible individuals in the data set to take-up the *leefloon*. As a first step, the model could select these 35% randomly. Problem solved? Not really! A much better solution would be to understand what drives non-take-up behaviour and identify those individuals most likely (not) to claim their entitlements. This requires, first, a better understanding of the main determinants of non-take-up behaviour and, second, a more complicated model that incorporates these determinants in the computations. In this section, we briefly tackle the former issue; the latter is left for future research.

The phenomenon of massive non-take-up of social benefits raises a difficult issue, certainly for economists who tend to believe that human beings act in their own self-interest and that more income is preferred to less income. Why would people deliberately renounce a financial gain? The first influential attempt to tackle this apparent inconsistency was Moffitt's (1983) model of welfare stigma. The idea underlying Moffitt's approach is that individuals are facing a trade-off between the benefits they can receive and the costs of claiming these benefits. If the claim costs are too high, the individual will renounce her benefit. In this approach the concept of claim costs is not to be interpreted in narrow monetary terms: claim costs include information and transaction costs on the one hand and social or psychological costs ('stigma') on the other hand. Moreover the claim costs are influenced by social interactions and by the design of the welfare program.

Transaction costs are all kinds of physical, administrative and language barriers. One can think of travelling costs, uncertainty related to the screening procedure, time and effort needed to understand and to fill out forms and to collect all necessary information, visits by social workers etc. Imperfect information also entails costs. The costs depend on the degree of information imperfection, ranging from not finding the right information, over misinformation to not being aware of the existence of the welfare program. The hypothesis that higher costs, e.g. worse information or more administrative forms, entail higher non-take-up rates is confirmed in empirical research. Dynarski and Scott-Clayton (2006) show for example that transaction costs to obtain federal student aid fall disproportionately on low-income, non-white

and non-English speaking youth, whose lag in educational development is put forward as justification for financial aid. The reason is that this vulnerable group is poorly informed about the program.

A second source of claim costs is of social and psychological nature. Even if individuals have sufficient knowledge of the program and are easily capable of filling out the forms without much discomfort, they can consciously refuse to apply because of a distaste for welfare support due to social stigma, feelings of shame or dependency. Stigma results from stigmatization, a social process of being treated as inferior by other members in society, and from the individual's perception of this process. Stuber and Kronebusch (2004) analyse interviews of more than 1400 individuals in 10 US States. The individuals are asked to (strongly) agree or disagree with statements such as 'a lot of people in this country don't respect a person on welfare', 'many people on welfare do not want other people to know' or 'I worry that being on welfare would make me lazy'. Based on the answers, the authors compute an index that is meant to represent felt stigma. Stuber and Kronebusch (2004) conclude that higher stigma significantly deters individuals to enrol in the US Medicaid<sup>11</sup> and Temporary Assistance for Needy Families (TANF) welfare programs.

Recent research in behavioural economics has drawn attention to the facts that individual behaviour is influenced by interactions with other individuals, such as friends, relatives or colleagues, and by the design of the government program.

Social interactions give rise to a social multiplier effect: if the behaviour of one individual changes, this will affect the behaviour of others in his network. In the context of take-up behaviour of the *leefloon*, social interactions directly affect the claim costs discussed above (Bertrand *et al.*, 2000; Rege *et al.*, 2009). Friends, family and social organizations can pass on information about the *leefloon* and help with administrative requirements, which influences transaction and information costs. Moreover, the composition of the social network can either increase or decrease stigma costs, as it may affect (beliefs about) social norms and social approval. If one's network is made up of people enrolled in the *leefloon* or other welfare programs, approval of participation is likely to be high and stigma costs likely to be low; if however one's network is composed of working or well-off people, feelings of stigma are likely to be more pronounced.

The design of the welfare program has a direct impact on participation. One can think of elements such as the complexity of enrolment, waiting lists, the possibility to get personal assistance, possible sanctions or documentation requirements. In the recent economic literature, a lot of attention is paid to the role of the default rule (Bertrand *et al.*, 2000; Currie, 2004; Dynarski and Scott-Clayton, 2006; Thaler and Sunstein, 2008). The legislator can on the one hand decide that individuals should come forward voluntarily and claim their benefits if they want to make use of them (default = no participation). This is the default rule in the current *leefloon* scheme. On the other hand, she could decide that every individual of whom she knows that income is low, is automatically enrolled in the *leefloon*. In that case the

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<sup>11</sup> Medicaid is a means-tested welfare program in the US that aims to financially support the medical expenditures of the poor.

individual should come forward if she does no longer want to receive the benefit (default = participation). All empirical studies find that a participation-default leads to much higher take-up rates than a no-participation-default.

A better understanding of how individual characteristics and more specifically participation decisions in the *leefloon* or other welfare programs relate to claim costs, social interactions and welfare program design, should be the starting point of a future behavioural economic model.

## 7. CONCLUSION

The effectiveness and redistributive impact of means-tested welfare programs, such as the *leefloon*, can be undermined by different types of take-up errors, i.e. non-take-up by eligibles (type I error) and take-up by non-eligibles (type II error). This poses a challenge both for policymakers and microsimulation model designers. Policymakers are confronted with welfare programs that do not accomplish their function as safety net. Microsimulation model designers, that aim to analyse and evaluate poverty, income distributions and redistributive policies, should worry that, with full take-up as standard assumption, poverty measures might be overly optimistic and financial costs of policy reforms incorrectly estimated. We argue therefore that this assumption should be relaxed in order to develop a more accurate Flemish microsimulation model.

In this contribution, we have provided a first estimate of take-up errors for the *leefloon*, i.e. the Belgian guaranteed income scheme for individuals aged between 18 and 65, on the basis of EU-SILC income data from the year 2005. Our main conclusion is that take-up errors for the *leefloon* are present and might be substantial. The estimated non-take-up rate (in caseloads) ranges between 57% and 76% with a reference of 65%. This high rate does not seem to be out of line with findings from other OECD countries, although it is situated at the top end of the estimates. It is rather close to estimates from Dutch and German social assistance programs. In addition, the type II error fluctuates around 24% of the individuals actually benefiting from the *leefloon*. The non-take-up rate based on monetary amounts is smaller and ranges between 41% and 51% with a reference of 44%.

However, these figures should be interpreted with caution. The local social service departments have some discretion in the awarding procedure, which cannot be incorporated exactly in a microsimulation model. Moreover, our analysis suffers from at least three data related issues. Firstly, the analysis is performed on a very small number of observations. In the EU-SILC data set, only around 100 individuals indicate to have received the *leefloon* for at least one month in 2005. Secondly, the population and sample characteristics of *leefloon* recipients do not match perfectly. Finally, some data are missing or unreliable. The computed take-up errors should therefore be considered as indicative of a non-take-up problem in Belgium rather than as an exact measurement of its magnitude.

In future research, we aim at developing a behavioural model, giving a better insight into the driving forces of non-take-up behaviour. This will make it possible to identify – up to a certain

level of reliability – those individuals more likely (not) to claim their entitlements and thus to evaluate reality and potential policy changes with greater accuracy.

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