

The Minimum Income Scheme as a poverty reduction mechanism: the case of the Basque Country

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The Minimum Income Scheme as a poverty reduction mechanism: the case of the Basque Country

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Abstract

This paper analyses the impact of a Minimum Income Scheme (MIS), which operates in the Basque Country, one of the 17 Spanish Autonomous Regions, by assessing its efficacy in fighting poverty. We evaluate the effect of the MIS with respect to two different poverty measures. The first one is that defined by the administrative criteria of eligibility. The second one corresponds to Sen's poverty measure that permits a simple decomposition of poverty into three different components, incidence, intensity and inequality. The results show that the MIS has reduced substantially all dimensions of poverty, even though there is scope for improvement both in coverage and efficiency.

JEL Classification numbers: I32, I38, D61

Key words: minimum income schemes, poverty, inequality, efficiency and effectiveness

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1. Introduction

The Great Recession has increased substantially poverty and the risk of social exclusion in many countries (OECD, 2013a). Different forms of Minimum Income Schemes (MIS) have been implemented in order to alleviate the impact of the crisis on social welfare and are currently at the heart of public debate. Most European Union Member States provide nowadays subsidies aimed at ensuring a minimum standard of living for those households in need. They started in 1992 when the European Council emphasized the need of developing last resort schemes to ensure individuals decent standards of living. Those programs were part of comprehensive and consistent plans to combat social exclusion.¹ European countries have implemented different MIS ever since, which vary in terms of coverage and targeted population. The most widely used are the so-called "simple and comprehensive schemes", which basically cover every household in need of support, without confining their effects to a particular group of people (Frazer and Marlier, 2009).

The knowledge on how those MIS are designed and implemented in different scenarios, as well as how well they are performing, is key to get a deeper understanding on the best ways of fighting poverty and so defining a reference framework.² This paper aims at contributing to that discussion by focusing on a particular case: the *Renta de Garantía de Ingresos* (RGI), a simple and comprehensive scheme that operates in the Basque Country. Let us recall here that the Basque Country is a rich region of northern Spain that in 1989 pioneered the introduction of MIS in the country. The RGI allocates some 450 million Euros per annum in the region, which represents the 4.5% of total public expenditure and 0.69% of its GDP. We shall describe here the nature of this income scheme and

¹ For more details, see Council Recommendation 92/441/EEC of 24 June 1992: <http://publications.europa.eu/en/publication-detail/-/publication/9953c2cf-a4f8-4d31-aeed-6bf88a5407f3/language-en>

² This knowledge is important beyond the evolution of the economic cycle; indeed, those schemes are also considered as part of the strategies to deal with the effects of the Fourth Industrial Revolution.

evaluate its success in ensuring a decent minimum standard of living for Basque citizens.³

This work is, to the best of our knowledge, the first study regarding the impact of the Basque MIS on poverty. The literature on the evaluation of MIS in Spain is scarce. Ayala *et al* (2016) provide the main review of the existing MIS in Spain. Ayala and Rodríguez (2010) evaluate the impact of the Minimum Income Program of the Madrid Government (Ingreso Madrileño de Integración). Fuenmayor, Granell and Savall (2018) carry an ex-ante evaluation of the Valencian Income Inclusion (Renta Valenciana de Inclusión). De la Rica and Gorjón (2017) assess the impact of the Basque MIS on the probability of finding a job, since it is at the same time an active and a passive policy.

The source of the data for our study is the 2016 Survey of Poverty and Social Inequalities (referred to here by its Spanish acronym EPDS), which is the latest available wave at this moment. According to this dataset, 5.8% of the population in the Basque Country benefited from the MIS in 2016, which corresponds to 59,976 households and 124,493 people. Total expenditure on MIS in that year, as reported by the EPDS, was 428.08 million Euros. This dataset includes variables for disaggregated monthly income, including the amount of MIS transferred to households, which implies that a simulation of the implementation of MIS can be carried out. By comparing income distribution before and after the application of the MIS, it is possible to measure the impact of the aid on poverty reduction.

We consider two different measures of poverty to carry on our analysis. The first one refers to the administrative rod that is used by the Basque Country Government to determine who is entitled to the MIS and so who is regarded officially as “poor”. There are eight different poverty thresholds defined depending on the size, composition and characteristics of the households (we describe properly those features later on). The second measure corresponds to Sen’s (1976) poverty index that captures in a simple and intuitive way the three key dimensions

³ The Basque Country is a small region in the north of Spain with a population of approximately 2 million (5% of the Spanish population). The active labor force is over 1 million and the employment rate is 50%. It is one of the richest regions in Spain, with the second highest GDP per capita and the third lowest unemployment rate (12.8%). The Basque Human Development Index is 0.924, the highest in the country, and at the same level as the Netherlands.

of poverty: incidence (share of the poor), intensity (how poor they are), and inequality (how unequal is the income distribution among the poor). See Chakravarty (2009), Corsi, Botti and D'Ippoliti (2016), Atkinson (2017) and Villar (2017) for a discussion on poverty lines and inequality indices.

The data show that the MIS implemented in the Basque Country has contributed definitely to reduce all dimensions of poverty, even if not to achieve its complete eradication (partly because some poor people do not meet the requirements to be MIS beneficiaries or do not applied for it and partly because sometimes the payments received are insufficient).

A further assessment on the impact of this scheme is developed using the model developed by Beckerman (1979), who introduces the notion of effectiveness and efficiency of the MIS (see Rodrigues 2001 and Matsaganis et al. 2007 for further applications of this method). Here we concentrate on the administrative definition of poverty to check how close is the policy of achieving its objectives. Regarding effectiveness (i.e. the ability to eradicate poverty), the empirical results show that the system performs rather well: On average 85% of poverty is eradicated. With respect to efficiency (i.e. avoiding the waste of resources), 87% of the benefit transferred effectively contributes to poverty reduction. Those results indicate that the policy works in the expected direction, even though there is room for improvement.

The rest of the paper is organized as follows. Section 2 describes the chief institutional aspects of the MIS implemented in the Basque Country and the data source. The analysis of the impact on this scheme on the reduction of poverty is addressed in Section 3. A few final comments are gathered in Section 4.

2. The Minimum Income Scheme in the Basque Country

2.1 Description

The Basque Country Minimum Income Scheme is a household-based scheme with no time limit. It is conceived as a last resort scheme, in the sense that applicants must already have requested all other income aids to which they are entitled. It was introduced in 1989 and has undergone several modifications ever

since; the latest version, on which this description is based, was implemented in 2011 (Act 4/2011). There are two complementary eligibility criteria associated with income and residence. Applicants must show that their household income is below a given threshold, which varies with the family type and is defined as a percentage of the national Minimum Wage, ranging between 88% and 135%, with some corrections for single-parent households (see Table 1 below). Regarding residence, the rule is that the MIS recipient must be registered on the census and actually have resided in the Basque Country for the last three years without interruption.⁴ The Minimum Income Scheme is compatible with other earnings as long as they do not exceed the threshold and the family does not own any property other than their usual residence.

The legislation distinguishes between eight types of households whose monthly income thresholds (poverty lines) are shown in Table 1.

Table 1. Poverty line by type of household in 2016.

Type of households		€
1	1 adult	626.58
2	2 adults	803.31
3	3 or more people, at least 2 adults	888.62
4	Single-parent (1 child)	848.81
5	Single-parent (2 of more children)	934.12
6	1 retired people	710.89
7	2 adults, at least 1 retired	888.62
8	3 or more people, at least 1 retired	959.7

The amount of MIS granted to each family unit will be the difference between the income of the family unit and the thresholds, as given in Table 1, not considering as income for this computation transfers from relatives or friends, private institutions assistance, “Social Emergency Aids” (SEA) and other social aids, such as, scholarships, aids for family and work conciliation, aids for minors or

⁴ There are some variants of this rule. When applicants can prove five years of paid work experience in the Basque Country, the residence requisite is reduced to one year instead of three. If none of the above requirements is met, recipients must have been registered for five continuous years out of the immediately preceding ten years. Moreover, both holders and other beneficiaries cohabiting in the same family unit who are able to work must commit to being available to do so and to actively searching for employment.

benefits for birth or adoption. In particular, the Social Emergency Aids⁵ are non-periodic benefits for those families with insufficient resources to meet specific expenses, which are not directed exclusively to MIS recipients.

In order to encourage unemployed recipients to find a job, there is a “Stimulus to employment” policy that applies when there are wage incomes in the household. The latest version of this policy establishes that a certain percentage of wages of any members of the family unit will be excluded (Order of 14 February 2001). The MIS has a supplement called “Supplementary Housing Benefit” (SHB), which is a periodic financial benefit intended to cover the cost of renting the habitual residence for those households which are not owner-occupiers. It covers the renting cost up to a maximum of €250 per month. This amount will be granted in addition to the amount of MIS that corresponds to each family. Finally, MIS recipients enjoy a series of bonuses, which may be regional or local, such as transport subsidies, academic fees, sanitation fees, tax benefits, etc. Summarizing, the final MIS transferred to their beneficiaries is the difference between the sum of the poverty line, the stimuli to employment, the SHB, the social aids and the disposable income.

2.2 Data

Our empirical analysis relies on the 2016 Survey of Poverty and Social Inequalities (EPDS its Spanish acronym) for the Basque Country (the latest available wave). This sample includes 10,316 individuals belonging to 4,327 households representative of the total population of the Basque Country.

The EPDS includes information on the households surveyed and their members. It contains personal information on gender, age, census status, number of years registered (if registered in the Basque Country), nationality, education level and place of origin. It also contains labor market information: labor status, type of contract if employed, etc. There is also information on all types of income (and the members that receive them), spending and savings in each household: wages, benefits, retirement pension, loans, revenues, transfers of relatives and

⁵ Detailed information of Social Emergency Aids can be found here: http://www.euskadi.eus/ayuda_subvencion/ayudas-de-emergencia-social-aes/web01-s2enple/es/

private institutions, heritage assets, social aids and, especially, the amount of Minimum Income Scheme received, together with the amount of SHB. Moreover, there is information on expenditures, such as, rent payment, mortgage, monthly bills, lending, etc. Finally, the EPDS includes a weighting factor that enables to obtain population figures. The key data so obtained are very similar to the official ones (administrative registry of beneficiaries), which makes its use very robust.

From this information the EPDS computes a monthly variable called Total Household Income, which is our basic reference variable. It corresponds to the total income received by the different members of the household and is equal to gross income including benefits minus taxes and minus insurance contributions, i.e. Total Household Income includes the amount of MIS received. We shall refer to this variable as (total) disposable income. The other variable of interest is the amount of MIS received by each household, which already includes the SHB. The SHB that the family receives can be calculated through the information of the rent payment.⁶

Remark: *Income information in the EPDS is reported by individuals (one member may answer for another if they are not present during the survey) and is thus different from the administrative information provided in order to apply for a MIS.⁷ That implies the existence of some discrepancies on the eligible households. Empirical evidence shows that there is a tendency to under-report the amount of income (Moore and Welniak, 2000). That would suggest that self-reported income be below the official registry. Yet disposable income in the dataset includes transfers from family and friends to the members of the household, as well as payments for informal work, which the official registry does not include. Hence in some cases we find that the self-reported income of some household is above the one corresponding to the administrative registry.*

⁶ The database does not include all the information needed to determine whether a household complies with the requirements to be an MIS beneficiary. For instance, ownership of second homes and the number of years worked in the Basque Country are not reported. Therefore, the analysis assumes that every household that receives MIS complies with those unobserved requirements, and that every household that does not receive MIS, in spite of falling short of the income threshold, fails to comply with one or more of the remaining requirements or has not applied for it. Information regarding whether individuals applied or not for the MIS is neither available.

⁷ Unfortunately, the data of the administrative register are not accessible.

Using those data we simulate the scenario that reproduces household income in the absence of MIS in order to compare this counterfactual situation with the real one and hence measure the impact of MIS on reducing poverty. The pre-benefit income situation is defined as the difference between disposable income and the amount of MIS and SHB received. Total disposable income in the sample is therefore the post-benefit income, as it already includes MIS. This gives two scenarios: pre and post-MIS. Finally, it is also assumed that there is no change in the behavior of individuals in response to the introduction of the Minimum Income Scheme (Rodrigues, 2001). This applies, in particular, to the probability of finding a job (see de la Rica and Gorjón, 2017 for a discussion of this aspect).

Table 2 shows the distribution of households by type according to MIS provision in the Basque Country. It also shows the incidence of individual and household MIS beneficiaries by type (%MIS). In all 124,481 MIS beneficiaries in 59,936 households are found.

Table 2. Distribution of individuals, households, and incidence of MIS beneficiaries by type.

Type	Individuals			Households		
	Total	%	%MIS	Total	%	%MIS
1 1 adult	146,994	6.86	15.07	146,994	16.78	15.07
2 2 adults	211,256	9.86	6.10	105,628	12.05	6.10
3 3 or more people, at least 2 adults	1,039,015	48.49	5.72	279,535	31.90	5.47
4 Single-parent (1 child)	17,947	0.84	34.63	8,974	1.02	34.63
5 Single-parent (2 or more children)	14,375	0.67	41.73	4,573	0.52	41.83
6 1 retired people	103,809	4.85	6.66	103,809	11.85	6.66
7 2 adults, at least 1 retired	269,998	12.60	2.07	134,999	15.41	2.07
8 3 or more people, at least 1 retired	339,143	15.83	1.56	91,741	10.47	1.48
Total	2,142,537	100.00	5.81	876,252	100.00	6.84

The most frequent type of household in the Basque Country is that consisting of three or more people, including at least two adults (type 3). Almost half of all individuals live in households of this type. Regarding MIS recipients, 5.8% of the Basque Country inhabitants are MIS beneficiaries, with large variations by type of household. Single-parent with two or more children (type 5) represent the larger share MIS recipients (42% receive MIS). By contrast only 1.6% of households with three or more people, at least one of them retired (type 8) are MIS recipients.

3. Assessing the Impact of MIS on Poverty Reduction

3.1. Preliminaries

In order to assess the impact of the MIS on poverty in the Basque Country we have to deal with some preliminary questions of method. They refer to the choice of the reference units, poverty lines and poverty measures (see Chakravarty 2009, Goerlich & Villar 2009 or Villar 2017 for a discussion). We shall address here those questions from a twofold perspective. On the one hand, using the administrative notion of poverty adopted in the Basque Country, which is implicitly defined by the eligibility criteria. On the other hand, applying a standard analysis on poverty measurement. The first approach helps evaluating the efficacy of the MIS with respect to their own conceptualization. The second one provides a complementary assessment with a more academic drift. The comparison also illuminates on how close are the administrative definition of poverty and the standard one.

Table 1 above summarizes the notion of poverty adopted by the government of the Basque Country. The units of reference are households of different types, depending on size and composition, each of which has associated a specific poverty line. So all basic aspects are given by the very administrative protocol.

To carry out a more conventional analysis we have to choose the adequate reference units, poverty lines and poverty index. Let us comment on our methodological choices. Regarding the reference units we adopt the consumption units approach. Consumption units are households adjusted by size and composition according to some equivalence scale (OECD, 2013b). Here we take the conventional OECD modified equivalence scale that assigns value 1 to the first adult in the unit, value 0,5 to all other adults, and value 0,3 to children (members of the unit under 14 years old). After this treatment we calculate the equivalised per capita income of the unit by dividing its disposable income by the size in terms of the equivalence scale. That is, income will refer in this context to per capita

disposable equivalised income (which entails that all members of the economic unit are assigned the same income and, therefore, they are all poor or none is).⁸

As for the poverty lines we shall consider two conventional alternatives: 60% and 40% of the median equivalised income. The first cut identifies those under *risk of poverty* whereas the second one corresponds to *extreme poverty*. The median equivalised income for the Basque Country in 2016 was €1428, which means that the poverty line (60% of the median) is given by €857 and the threshold for extreme poverty (40% of the median) is €571. Those values have remained unchanged after the implementation of the MIS.

To measure poverty we rely on Sen's (1976) poverty index, which separates nicely the three dimensions of poverty, incidence, intensity and inequality. Needless to say, there are other measures that permit this type of analysis (e.g. the FGT family of poverty indices). Yet the transparency of Sen's index seems preferable in this context, mostly bearing in mind that intensity and inequality are key for the evaluation, while the incidence may be less affected by the implementation of the MIS, as it will be shown later on.

Sen's formula is a modification of the average relative poverty gaps, in order to account for inequality. Let $\mathbf{y} = (y_1, y_2, \dots, y_n)$ stand for the income distribution vector of a population, which we assume ordered from bottom to top. And let z be a poverty threshold, that is, the income below which an individual is considered poor. Given (\mathbf{y}, z) let q denote the number of the poor and let $\mu^p(\mathbf{y})$ the average income of the poor. The relative poverty gap is given by:

$$RPG(\mathbf{y}, z) = \frac{q}{n} \times \left(1 - \frac{\mu^p(\mathbf{y})}{z} \right) \quad [1]$$

This formulation permits expressing poverty as the product of two relevant concepts: incidence (the share of the poor in the population) and intensity (the distance between the poverty line and the average income of the poor).

Sen (1976) suggests introducing inequality in this evaluation by substituting the average income of the poor by the corresponding egalitarian

⁸ Housing costs are not included when estimating the households' income, as they are taken into account in the legislation via Supplementary Housing Benefits.

equivalent value, which is given by: $\mu^p(\mathbf{y})[1 - G^p(\mathbf{y})]$, where $G^p(\mathbf{y})$ is the Gini index for the income distribution of the poor. So inequality penalizes the assessment of poverty. Sen's poverty measure can be given the following useful expression:

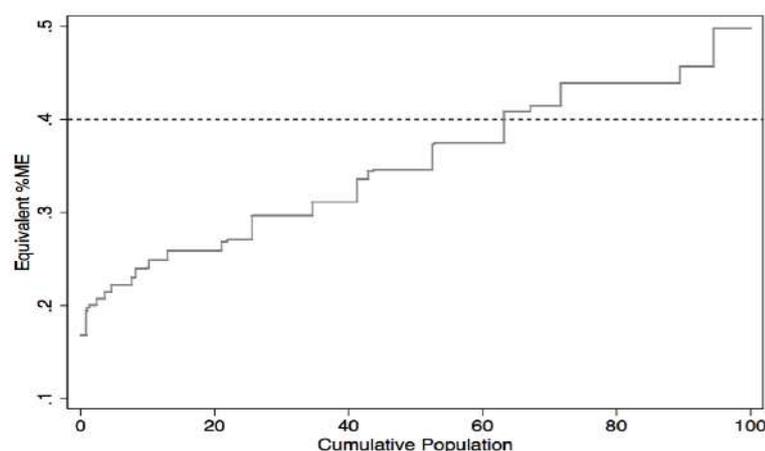
$$P_S(\mathbf{y}, z) = \underbrace{\frac{q}{n}}_{\text{Incidence}} \times \underbrace{\left(1 - \frac{\mu^p(\mathbf{y})}{z}\right)}_{\text{Intensity}} + \underbrace{\frac{Y^p}{nz} G^p(\mathbf{y})}_{\text{Inequality}} \quad [2]$$

Poverty is thus measured as the product of incidence and intensity, plus a term that captures the impact of inequality, where Y^p is the aggregate income of the poor.

3.2. The impact of the MIS on poverty

How does the implicit poverty line defined by the government of the Basque Country fare relative to the conventional poverty lines defined with respect to the median income? Figure 1 below illustrates this relationship. It describes how the beneficiaries of the MIS are distributed with respect to the different percentages of the median income. The implicit BC poverty line lies below the extreme poverty line (40%Me) for 63% of MIS beneficiaries (78,647 individuals), with about one third of MIS recipients below 30% of the median income and no one above 50%. Those above the 40% of the median income correspond to single member households (retired or not), two adults with at least one retired or single-parent with one or two children households (types 1, 4, 5, 6 and 7).

Figure 1. Equivalent poverty line as a percentage of the median income for MIS recipients in the Basque Country



The data plotted in Figure 1 tell us that the threshold set by the Basque Country is low compared to the extreme poverty line defined in the literature and especially so for those families with more members, due to the particular equivalence scale implicit (see Figure 2 below). This implies that, leaving aside the different equivalence scales used for the standard analysis (the modified OECD scale) and the administrative eligibility criterion, the Basque Country conceptualization of poverty is much closer to the notion of extreme poverty than to that of poverty risk. This might be interpreted showing that the Basque Country is implementing a policy that focuses on those more in need. So even though we shall consider the poverty lines associated with 60% and 40% of the median, it is the latter value that is to be regarded as the leading criterion to evaluate the impact of the policy.

Table 3 provides the results of the impact of the MIS on poverty. It describes the incidence, intensity and inequality of poverty before and after the implementation of the policy, for three different poverty lines: 40% and 60% of the median income (€571 and €857, respectively) and the Basque Country poverty lines (BC). Note that in the first two cases the units of reference are individuals whereas in the third one we refer to households, as this is the unit specified in the legislation of the Basque Country and the approach of the policy aimed at eradicating poverty.⁹ We also provide the value of the poverty index in equation [2] (adapting the definition to households for the administrative definition of poverty).

Table 3. Incidence and intensity (x 100), inequality and Sen's poverty index before and after MIS transfer¹⁰

Poverty line	Units	Before	After	Change
40% Med.	Individuals	7.83	4.88	-37.7%
60% Med.	Individuals	17.41	16.34	-6.1%
BC	Households	8.44	3.92	-53.6%
Intensity				

⁹ The comparison in terms of individuals for the BC values yields practically the same results and it is thus omitted.

¹⁰ Note that the poverty threshold under the BC line differs for each type of household. As a result the intensity is calculated from the corresponding poverty line for each poor household.

40% Med.	Individuals	49.01	24.93	-49.1%
60& Med.	Individuals	38.39	26.16	-31.9%
BC	Households	48.82	26.31	-46.1%
Inequality				
40% Med.	Individuals	0,371	0,163	-56.0%
60& Med.	Individuals	0,272	0,145	-46.8%
BC	Households	0,415	0,248	-40.4%
Overall poverty				
40% Med.	Individuals	0,053	0,028	-46.7%
60& Med.	Individuals	0,096	0,060	-37.2%
BC	Households	0,059	0,017	-70.5%

The first message derived from those data is that, whatever the poverty line is chosen, the MIS reduces all components of poverty. It is also quite evident that this is a policy to fight extreme poverty with a little impact on the extent of risk of poverty (the incidence of poverty when using 60% of the median just dropped by 6%).¹¹ Therefore, we shall focus on the other two cases, the 40% of the median and the BC.

According to the Basque Country poverty threshold, the incidence of poverty is reduced by more than half and after the policy affects to slightly less than 4% of households. Hence, the aid reduces poverty substantially even though it does not fully eradicate it. This is partly because some poor households do not meet the requirements for receiving MIS or do not applied for it, and also because the reported amount received is not enough to take them out of Basque Country poverty threshold (this happens for 18.5% of the MIS recipients). The data on incidence regarding the 40% of the median poverty line show a similar pattern even though less pronounced, as expected according to Figure 1. The reduction of poverty is of some 38% and almost 5% of the individuals remain extremely poor, 34.6% of which are MIS recipients. Moreover, more than 2% of the Basque population (46,000 individuals) is not considered as poor under the BC criterion but is considered so under the extreme poverty line.

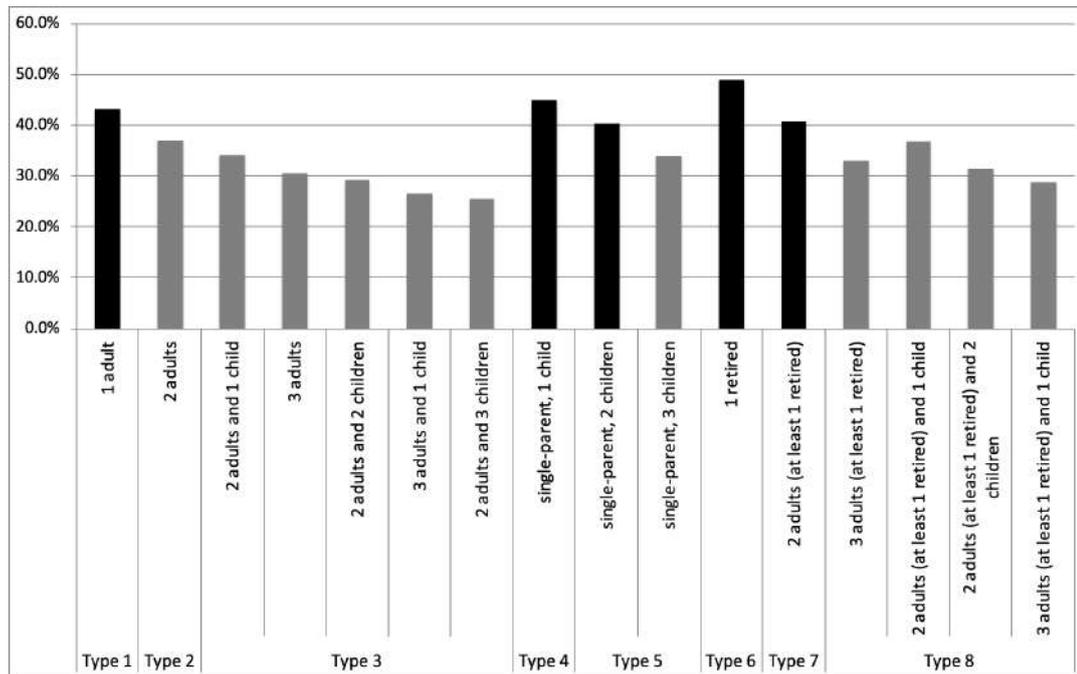
¹¹In fact, the impact of the MIS in the risk of poverty should be zero, since the transferred amount of MIS for all type of households is under the 60% of the median income. This small impact might be caused by fact that the EPDS consist on reported data instead of administrative data.

The intensity of poverty has also been reduced by half, according to the 40% criterion, and slightly less according to the BC criterion (and still less for the 60% threshold). The same can be said with respect to inequality, here with larger differences in terms of the 40% line.

The overall poverty measure, as obtained from equation [2], shows that the impact of this policy entails a very large reduction of poverty in terms of the BC criterion (over 70%) due the cumulative effect of reductions in incidence, intensity and inequality. The impact of the policy in terms of extreme poverty is also very large (close to 50%) and less so for the 60% criterion. It can be said that the MIS is very pro-poor policy, i.e., even if it does not eradicate poverty, poor households improve substantially their situation.

In spite of this optimistic conclusion, the performance of the MIS is to be taken with a pinch of salt. Figure 1 above showed that 63% of MIS recipients are below 40% of the median income, most of them far below it. Table 3 also indicates that even though the policy has had a relevant impact on the reduction of poverty, extreme poverty is far from negligible after the policy. So an immediate conclusion is that the MIS implemented by the Basque Country does not succeed in eradicating extreme poverty, as usually understood by specialists. Figure 2 below illustrates how this policy affects different types of households by comparing how the scheme fares with respect to the 40% poverty line. The figure makes it clear that the treatment of the different types of household is very asymmetric. Single adult households (living alone, with one child or retired) get a relatively generous subsidy whereas large households are badly treated with respect to them. The reason is one of design: the BC legislation applies an implicit equivalence scale that sharply reduces or even cancels the effect of extra members in the family.

Figure 2. Equivalent poverty lines as a percentage of the median income (€1428) for some types of household



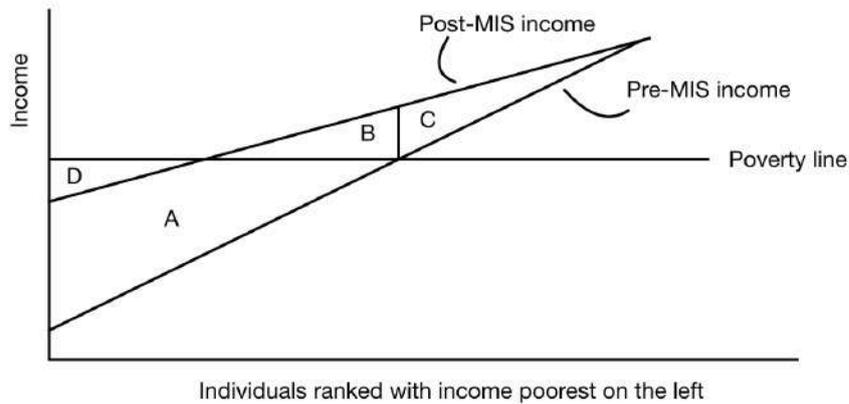
In summary, the impact of the MIS on poverty reduction is much higher when measured by the administrative rod than when measured with the standard tools in the field.

3.3 Effectiveness and efficiency of the Basque Country MIS

We now address the question of the efficacy of the expenditures devoted to fighting poverty by this MIS in the Basque Country. To do so, we focus on the criterion of poverty set out in the scheme itself, to assess its performance according to its own goals. The analysis here focuses, therefore, only on the Basque Country poverty lines. Following Bekerman (1979) we consider two different notions of efficacy: effectiveness and efficiency. Effectiveness is understood as the ability to achieve a desired effect - eradication of poverty in this case. Efficiency is the ability to achieve that effect with the minimum cost. Figure 3 helps understanding Bekerman's approach by comparing the situation before and after the policy, relative to a given poverty threshold. Area A in Figure 3 corresponds to the total amount of MIS received by pre-MIS poor and is therefore regarded as "well distributed", as it effectively reduces the poverty gap. Area B describes the excess of benefits received by the pre-poor whereas area C is the amount of MIS

misplaced (i.e. the amount of transfers received by pre-MIS non-poor agents). Finally, area D represents the extra income that would still be needed after implementing the policy to eradicate poverty.

Figure 3. Beckerman's Diagram



Beckerman proposes to measure effectiveness by the so-called **overall poverty reduction effectiveness** (OPRE), which is given by the ratio between what is covered and what is needed:

$$OPRE = \frac{A}{A + D}$$

As for efficiency, we adopt the **poverty reduction efficiency** (PRE) measure, which is given by the fraction of the expenditure that actually reduces poverty. That is,

$$PRE = \frac{A}{A + B + C}$$

Let us recall that our dataset for the analysis comes from the agents' reported incomes, whereas MIS is assigned using the administrative registered income. This involves some discrepancies between those two sources that may affect the results. In particular, as mentioned in the Remark above, transfers from family and friends or payments for informal work may appear in the reported data but are not included in the official data. This partly explains that we find 8,716 beneficiary households, involving 23,299 individuals, who were not poor before the application of the MIS (some 19% of all MIS beneficiaries).

The stimulus to employment calculated is €1,176,938, corresponding to 16,240 households with employed individuals (approximately 27%).

Beckerman's diagram is to be used bearing in mind that there are eight different poverty lines, one for each type of household. Table 4 describes the distribution of the types, the share of the expenditure they receive and the corresponding values of the effectiveness (OPRE) and efficiency (PRE) indices.

Table 4. Incidence, expenditure and Beckerman measures of effectiveness (OPRE) and efficiency (PRE) by type of household (%)

Type of household	Type share	Budget share	OPRE	PRE
1 1 adult	17,79	38,41	90,05	92,87
2 2 adults	10,35	11,42	82,97	78,3
3 3 or more people, at least 2 adults	47,75	31,58	81,88	85,41
4 Single-parent (1 child)	4,99	6,39	81,88	97,98
5 Single-parent (2 of more children)	4,82	3,7	82,15	90,86
6 1 retired people	5,55	4,37	81,9	89,82
7 2 adults, at least 1 retired	4,5	2,79	82,5	56,68
8 3 or more people, at least 1 retired	4,25	1,33	58,07	23,07
Total	100	100	85,06	87,03

The data in Table 4 show that effectiveness (OPRE) is high for most household types. In particular, the poverty gap experienced a 90% reduction for one adult household and more than 80% for the rest, with the exception of family units of type 8 (effectiveness below 60%). Efficiency exhibits more heterogeneity across family types with very low values for families of types 7 and 8. The waste of resources is not very large though as the expenditure on those types of household only represents about 4% of the total expenditure. Some 70% of the MIS is transferred to households of types 1 and 3, mostly due to their high incidence among the recipients (65%).

We do not have enough data to give a clear explanation of the source of those inefficiencies, even though misreported income and lack of supervision come to mind as venues to explore. Be as it may, the former analysis helps determining the degree of support provided by the MIS to different types of households and also to identify those that require further support in order to eradicate poverty and make a better use of public resources.

4. Final remarks

According to the Basque Survey of Poverty and Social Inequalities in 2016 there were 124,493 beneficiaries of the Minimum Income Scheme implemented in the Basque Country, which corresponds to 5.8% of its population, living in 59,976 households. The MIS can be regarded as a sensible program to fight extreme poverty with very good results when measured in terms of the notion of poverty that is adopted in the legal norm. Yet, when compared with the standard approach to measure extreme poverty (40% of the median income), the results seem less convincing. There is an insufficient coverage of those under extreme poverty, an asymmetric treatment of types of households with little justification, and some flaws regarding the efficiency in the implementation.

From the analysis developed in former sections one may well conclude that it would be preferable to define the MIS somehow differently. In particular, making explicit that it is an instrument to fight extreme poverty and thus adopting the standard conceptualization, based on two key elements: (i) Adopting the OECD-modified equivalence scale to adjust households by size and composition; and (ii) Using the 40% of the median income as the suitable poverty line.¹² That would reduce the compensations received by three types of households (single adult, a single parent with one child, and one retired), but would be more equitable with all other types and much more likely to eradicate extreme poverty. Note that the OECD equivalence scale already gives a relative prime to single member households. Moreover, the prime received by retired people is hard to justify when pensioners have increased their share into total income and receive other benefits.

An indirect effect of this change would be to reduce the incentive to split households, which implies taking advantage of the economies of scale within the family and so limiting the expansion of households. This would permit attending

¹² One may also keep the reference to the official minimum wage, which has the advantage of an easier calculation and updating (even though it implies adopting a reference value which takes as reference the whole of Spain, rather than the Basque Country). Be as it may, it happens that the 88% of the minimum wage is very close to 40% of the median.

better those more in need without a huge increase of spending on MIS (and also avoid penalizing having more children).

In summary, the MIS implemented in the Basque Country has contributed substantially to reduce all dimensions of poverty, even if it has not completely eradicated it. There is still room for improvement, especially regarding a fairer treatment of those families with more members.

References

Atkinson, A. B. (2017). "Monitoring global poverty: Report of the commission on global poverty." World Bank, Washington.

Ayala, L., Arranz, J.M., García-Serrano, C., & Martínez-Virto, L. (2016), El sistema de garantía de ingresos en España: tendencias, resultados y necesidades de reforma, Ministerio de Sanidad, Servicios Sociales e Igualdad, Gobierno de España.

Ayala, L. & Paniagua, M. (2016), Behavioral Microsimulation of the Impact of In-Work Benefits on Female Labor Supply and Income Distribution: Evidence from Spain, Equalitas Working Paper. Vol. 39.

Ayala, L. & Rodríguez, M. (2010), Explaining welfare recidivism: what role do unemployment and initial spells have?, **Journal of Population Economics**, 23 : 373-392.

Beckerman, W. (1979), The impact of income maintenance payments on poverty in Britain, 1975, **The Economic Journal**, 89 : 261-279.

Chakravarty, S. R. (2009), **Inequality, polarization and poverty**, Springer Verlag, New York.

Corsi, M., Botti, F. & D'Ippoliti, C. (2016), The gendered nature of poverty in the EU: Individualized versus collective poverty measures, **Feminist Economics**, 22 : 82-100.

European Commission, Research findings - Social Situation Monitor - Risk of poverty on basis of different thresholds.

Foster, J., Greer, J., & Thorbecke, E. (1984), A class of decomposable poverty measures, **Econometrica**, 52 : 761-766.

Frazer, H., & Marlier, E. (2009), Minimum income schemes across EU member states, EU Network of National Independent Experts on Social Inclusion.

Fuenmayor-Fernandez, A., Granell-Perez, R. & Savall-Morera, T. (2018), Evaluación ex-ante de la Renta Valenciana de Inclusión, XXV Encuentro de Economía Pública.

Gouveia, M., & Rodrigues, C. F. (1999), The impact of a Minimum Guaranteed Income Program in Portugal.

de la Rica, S., & Gorjón, L. (2017), Assessing the Impact of a Minimum Income Scheme in the Basque Country, IZA working paper nº 10867.

Moore, J. C., & Welniak, E. J. (2000), Income measurement error in surveys: A review, **Journal of official statistics**, 16 : 331-362.

Matsaganis, M., O'Donoghue, C., Levy, H., Coromaldi, M., Mercader-Prats, M., Rodrigues, C. F., Toso, S. & Tsakloglou, P. (2007), Child poverty and family transfers in Southern Europe, **Microsimulation as a Tool for the Evaluation of Public Policies: Methods and Applications**, Bilbao.

OECD (2013a), **Crisis Squeezes Income and Puts Pressure On Inequality and Poverty**, Paris, OECD.

OECD (2013b), **Adjusting household incomes: equivalence scales**, Paris, OECD.

Rodrigues, C. F. (2001), Anti-poverty effectiveness and efficiency of the Guaranteed Minimum Income Programme in Portugal.

Rodrigues, C. F. (2004). "The redistributive impact of the guaranteed minimum income programme in Portugal."

Sen, A. (1976), Poverty: an ordinal approach to measurement, **Econometrica**, 44 : 219-231.

Villar, A. (2017), **Lectures on Inequality, Poverty and Welfare**, Springer International Publishing.