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Universal Basic Income: Debate and Impact Assessment

by Maura Francese and Delphine Prady

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Universal Basic Income: Debate and Impact Assessment[1]

Prepared by Maura Francese and Delphine Prady

Authorized for distribution by David Coady

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Abstract

This paper discusses the definition and modelling of a universal basic income (UBI). After clarifying the debate about what a UBI is and presenting the arguments in favor and against, an analytical approach for its assessment is proposed. The adoption of a UBI as a policy tool is discussed with regard to the policy objectives (shaped by social preferences) it is designed to achieve. Key design dimensions to be considered include: coverage, generosity of the program, overall progressivity of the policy, and its financing.

Contents   **Page**

"I implore any of my fellow country-men who read this book not to object: `It can't be done'."
Meade (1964)

"The balancing of efficiency and equity – the challenge with which James Meade grappled throughout his lifetime as an economist – does not admit easy solutions." Atkinson (1996)

I. INTRODUCTION

This paper contributes to the ongoing debate by reviewing the main features of a universal basic income (UBI) and proposing a framework for policy discussion. After summarizing the main features of a UBI and the debate around it, the paper puts forward an analytical approach for its assessment. It further brings the analytical framework to the data through static microsimulations—i.e., that do not incorporate behavioral responses—of the redistributive impact of introducing a UBI in different types of countries.

Recognizing that the literature and the policy discourse both lack a unified definition and assessment methodology of a UBI, the present paper clarifies the salient features and key objectives which are associated with the different types of benefits often referred to as UBI. Looking to the pros and cons put forward by UBI proponents and opponents allows a better understanding of how to design a framework for assessing the relative desirability and merits of a UBI as an instrument for redistributive policy.

Discussing an approach for assessing the role and desirability of a UBI is, indeed, the core of this paper. The proposed approach is built around three key dimensions commonly used in the assessment of social policies, namely generosity, coverage, and progressivity. The framework therefore provides a consistent language and metric for rationalizing the different positions in the scholarly and policy debate, but also for highlighting the tradeoffs faced by policymakers. The final part of the paper brings the analytical framework to the data, further clarifying the usefulness of a unified language and metric in providing discipline to the policy discourse. Simulations show that while a UBI of significant amount (calibrated for example at 25 percent of median market income per capita) would have a significant favorable impact on distributional outcomes, key tradeoffs in program design and resource allocation need to be considered when comparing current programs, UBI or alternative schemes (and their financing).

The rest of the paper is organized as follows. Section II takes stock of the many definitions of UBI and highlights the key relevant characteristics that define a UBI type of program and around which most of the debate is articulated. In Section III, weaknesses and limitations of current safety nets are evidenced, signaling that there is room for improvement, and perhaps, new redistributive instruments. The analytical framework is detailed in Section IV and illustrated with microsimulations on household surveys data in Section V. Section VI concludes with a policy discussion.

II. DEFINITION AND DEBATE

The literature offers heterogenous definitions of a UBI, which reflect differences in approaches and conceptual frameworks. Beyond the theoretical debate, this heterogeneity is mirrored in current "UBI" experiments taking place in different countries: in Finland, the government financed

a monthly cash benefit of 560 euros for eligible unemployed adults in view of assessing how a cash transfer may affect labor decisions of unemployed individuals; in Kenya, the NGO GiveDirectly is set to give every adult of one particular village 22 dollars/month for 12 years; in Stockton California, the mayor's office plans to redistribute a monthly cash benefit to "a select number of residents".[2]

The plurality of these experiments allows to elicit key features that are relevant to the definition and understanding of a UBI:

- *Why? What goals?* A UBI could be used as a tool to achieve redistributive objectives, i.e., to tackle poverty and inequality, and to broaden the coverage of income-support programs (allowing social protection systems to reach parts of the population currently left out). If designed as a one-time endowment, it may be regarded as serving the purpose of improving equality of opportunity at an early stage of life.

- *Who?* The "universality" in the name of the tool suggests at the same time a broad pool of benefit recipients, and a condition-free benefit. However, how broad the boundaries should be is not exempt from passionate discussion. For example, should participation be limited to the country citizens or to residents? What does "participating" or "belonging" to a group mean and how is it checked?

- *What? How much?* The appropriate level of transfers also needs to be defined and is linked with the policy objectives. In general, the magnitude of the transfer can be related to the needs that the program is supposed to cover; and it is also affected (and most likely constrained) by the amount of resources that can be raised to finance the program. As benchmarking each individual's many needs is impracticable, common benchmarking methods calibrate the transfer as a fraction of a country poverty line or median income. This type of benchmarking further raises the question of whether to modulate the transfer value across different types of individuals (e.g., a lower value for children than for adults or a lower value for active individuals than for children and elderly). Finally, the nature of the transfer is also subject to interpretation as in-kind transfers could be chosen over cash transfers, and vice versa.

- *When?* This dimension looks at the timing of disbursement but is also linked to the nature of the program that considers, in particular, whether transfers should be made on a regular basis (monthly/yearly) or as a one-off.

Depending on how the above features are chosen and combined, scholars have proposed and discussed various forms of UBI, which complicates the comparison of the relative merits of an instrument that changes across analysis and is assigned different objectives (Figure 1). For instance, Thomas Paine's (1797) "ground-rent" resembles a categorical capital grant aimed at

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[2] To date, Alaska's oil dividend scheme, in place since 1982, is the only lasting (large scale) implementation of universal benefit. Other schemes have been experimented over the years with mixed outcomes. Between 1974 and 1977, the Canadian city of Dauphin gave a monthly stipend of 60 percent of the poverty threshold to a tenth of its population, before stopping because of fiscal pressures. In June 2016, the introduction of a UBI was rejected by a popular vote in Switzerland. In 2017, experiments of UBI-type of transfers were launched in Finland, India, USA and Kenya.

fighting the transmission of poverty from one generation to the next. Milton Friedman (1968) saw the "negative income tax" as a unique instrument to replace the entire American welfare state to overcome administrative inefficiencies. Atkinson's (1996) "participation income" departs from Meade's (1964) "citizen income" in two ways: (i) it complements rather than substitutes existing social programs and minimum wage; and (ii) it is conditioned on a form of social participation to secure political support. Van Parijs (1992) is a strong advocate of a complementary, regular, universal, unconditional and generous cash transfer distributed to every individual. Across this broad spectrum of positions however, the two most common traits of a UBI are i) the aim of reaching a vast portion of individuals/households in society, ii) in an 'unconditional' way (or under a very broad conditionality, as is the case for example of the "participation income").

Figure 1. UBI Key Features and Scholarly Position Examples

Source: Authors.
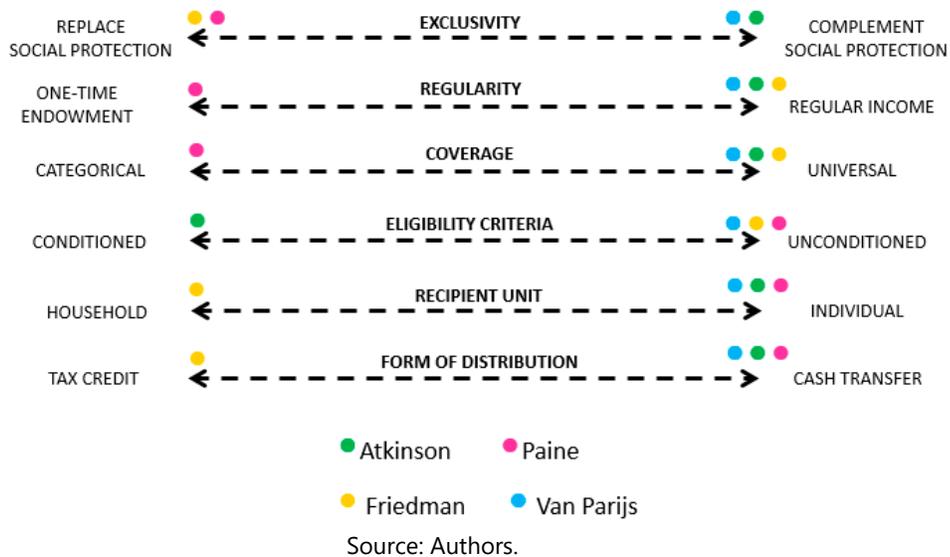
In what follows, it is chosen to consider as a UBI a benefit regularly (e.g., yearly or monthly) paid out in cash unconditionally to all residents in a country. Under such a program all residents would receive the same amount, with the benefit being benchmarked as a fraction of median equivalent income. Depending on the financing method considered (see Section V below) the UBI could be complementing existing social spending programs or substituting some of them. Looking at Figure 1, the UBI considered in the present paper is mostly located on the right side of the chart.

As noted above, proponents and opponents of the UBI have often highlighted different aspects of the instrument, with many arguments in favor mirroring those against.

Advocates of UBI-schemes argue that they can help address poverty issues better than means-tested programs; they also defend the UBI as a strategic instrument that can support the implementation of structural reforms (Coady and Prady 2018). Indeed, means-tested programs' effectiveness in reducing poverty can be weakened by several structural factors: high information and administrative costs requiring high and reliable capacity to target eligible households and monitor complex programs (Sala-i-Martin and Subramanian 2013); multiple obstacles (high

compliance costs, bad information, social stigma…) that affect take-up by eligible households (Atkinson 2015); the need to keep fiscal costs under control that often results in high marginal withdrawal rates that, in turn, tend to discourage labor market participation (Friedman 1968; Brewer, Saez, and Shephard 2010). In principle, simple UBI-schemes could save on administrative costs, increase transparency of transfer systems and make the latter less subject to third-party's capture.[3] Beyond efficiency improvement, a UBI can be strategically used to build large public support for difficult structural reforms (Subramanian 2017) and to renew a fairer social contract (Sala-i-Martin and Subramanian 2013).[4] Finally, the discussion around the UBI has intensified in recent years in relation to the debate on the future of work and the transformational impact of technological developments.[5]

Opponents mainly underline the fiscal dilemmas that the financing of a UBI would bring about; they also point at the negative impact on work incentives the scheme could potentially generate. Given tight fiscal constraints faced by many governments, leakages of resources to wealthy households (which are implicit and embedded in truly universal UBI type of schemes) can be seen as a luxury that countries can hardly afford, in particular because of possible crowding out of scarce resources that would be better allocated to other priorities (Sen 1992). On top of its opportunity cost, the introduction of a UBI could discourage people from working, reflecting labor supply elasticities and tax rates. These disincentives would translate into high inefficiencies that would increase the fiscal cost of a UBI.[6]

III.   WEAKNESSES AND LIMITATIONS OF EXISTING SAFETY NETS

Design advantages of a UBI are often put forward as a fix to important limitations and weaknesses of current social protection systems. Notable weaknesses are large coverage gaps of poor households, sizeable leakages of resources to richer households, and inability of programs to lift recipients out of poverty, often signaling low program generosity.

Regarding the generosity dimension of existing safety nets, resources currently devoted to social assistance programs[7] vary significantly by region and country, with advanced economies spending on average more than emerging and developing ones. Public spending is 2.7 percent of GDP on average for EU countries, against 1.6, 1.4, and 1.5 percent of GDP on average in upper

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[3] There is little rigorous empirical evidence on current safety nets' administrative costs and cost structures. Furthermore, comparability between studies is low. See Caldes et al (2006).

[4] Short-lived UBI type of schemes (or broad categorical transfers as universal child benefits) implementations in Iran and Mongolia signal, however, that implementation difficulties or ill-designed and under-financed schemes can backfire, threatening to reverse important structural reforms.

[5] On the latter see the G20 note on the future of work, measurement and policy challenges (IMF 2018b).

[6] Labor disincentive effects of some sort (either from income or substitution effects) are inherent in any type of transfer scheme. Unconditional transfers are generally less distortionary at the margin. However, an assessment of the distortionary impact requires a comprehensive assessment of the tax-transfer schedule, which for some type of households may be fairly complicated.

[7] To frame the UBI discussion we look at social safety nets/social assistance programs, disregarding for example those programs (mainly pensions) whose objective is to ensure income smoothing over the life-cycle. In reality, the boundaries between social assistance and social insurance programs are often blurred but considering income redistribution as a key objective a UBI type of program, this first order approximation is adequate for the purpose of the analysis presented in this paper.

middle income, lower middle income and low-income countries respectively (Figures 2 and 3). Within country groups variation of spending is significant (Figure 3).

Figure 2. Social Assistance Spending – Middle and Low-Income Countries
(Region averages in percent of GDP)
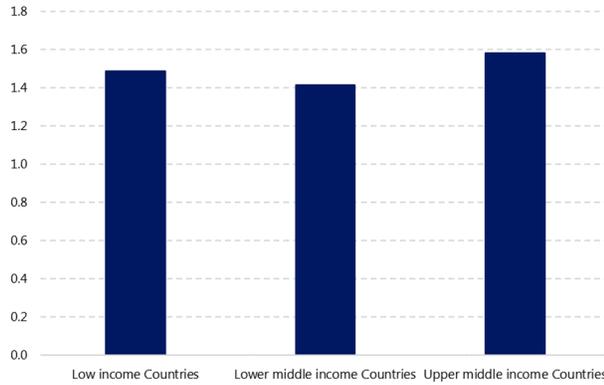
Source: Authors' calculations on World Bank (ASPIRE), latest year available.
Note: For Lower Middle-Income countries, results exclude Timor Leste and West Bank and Gaza that are outliers with extremely high spending.

Figure 3. Social Assistance Spending – European Countries
(Percent of GDP)
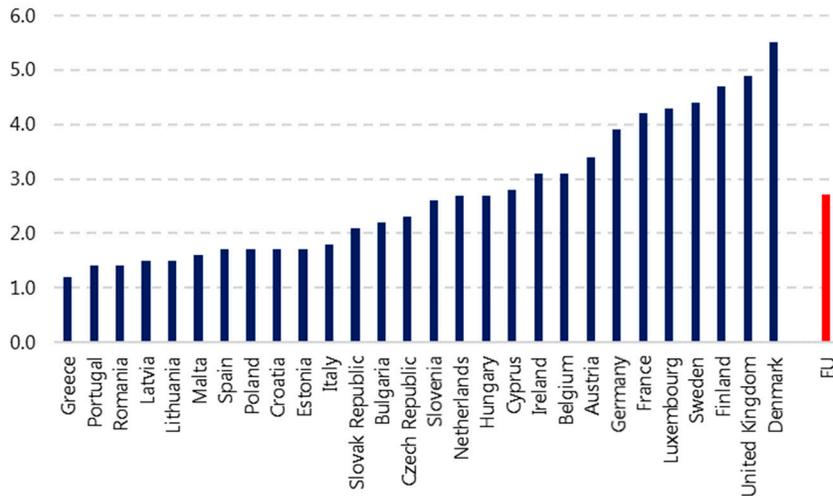
Source: Authors' calculations on Eurostat, latest year available.

Significant leakages and under-coverage issues are non-trivial in many current income-support programs worldwide. In middle and low-income countries, under-coverage of households at the bottom of the income distribution and coverage of households at the top of the income distribution are sizeable (Figure 4):[8] empirical evidence indicates that coverage of the poorest quintile in the population is lowest in low income countries. Relatively large coverage of high

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[8] The limitations of the effectiveness of targeting mechanisms that are common in low-income and developing countries is pointed out for example in Brown, Ravallion, and Van de Walle, 2016. They underline how means testing for example excludes many poor people from benefits and does not do better than a basic-income or other simpler method would do.

income groups also highlights the low efficiency of existing programs in excluding better off households from receiving benefits. These issues (even though to a lesser extent) can be observed in advanced economies as well. One third of total spending on means-tested assistance programs in the EU goes to the top six income deciles, a significant leakage (Figure 5). Such leakages have potentially sizeable fiscal and economic effects as they may crowd out much needed resources, at the detriment of both eligible beneficiaries (reducing social programs' effectiveness in tackling poverty and inequality) and other growth-enhancing spending like health and education.

Figure 4. Coverage of Social Assistance Programs by Income Level
(Region averages in percent of households in quintile)
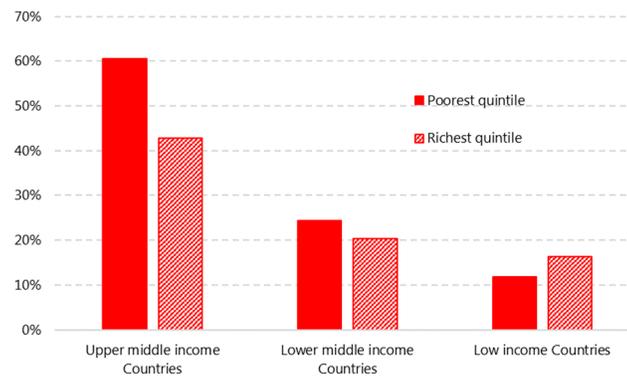
Source: Authors' calculations on World Bank (ASPIRE), latest year available.

Figure 5. Incidence of Means-Tested Social Benefits (excluding pensions) – Average EU 28
(Percent of total spending by deciles, 2016)
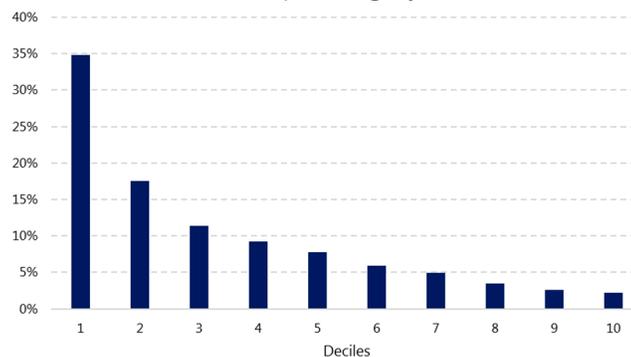
Source: Authors' calculations on Euromod.

Evidence for advanced and emerging economies suggests that non-take-up of social benefits by eligible recipients contributes to coverage gaps and broader concerns about the effectiveness of existing tax-and-transfer systems. Indeed, high non-take-up rates reduce the probability that income support programs reach their intended goals (e.g., poverty reduction), lead to treatment inequality among eligible individuals, and reduce the capacity to anticipate accurately the fiscal costs of policy reforms. High non-take-up rates also distort individual labor, consumption and investment decisions. Analyzing recent estimates of non-take up rates of monetary benefits (either means-tested or non-means-tested) in European countries, Dubois and Ludwinek (2015)

find that most conservative estimates are above 40 percent, irrespective of benefit types.[9] The literature suggests that non-take-up of benefits could reflect several factors: stigma associated with program participation, high transaction costs and information barriers, funding constraints and generosity of benefits (with larger benefits positively affecting take-up).[10] The available evidence does not offer clear indications of what types of barriers matter the most, even though it suggests that concrete and practical transaction costs may be more relevant than stigma (Currie 2006). Some of these financial and non-financial barriers can hamper take-up also of universal schemes (e.g., universal child benefit), suggesting that the implementation of universal programs is not free from problems and should also aim at minimizing participation obstacles.[11]

Weaknesses of existing redistributive programs can potentially generate sizeable economic distortions and disincentive effects, which may weigh on economic efficiency. While evidence indicates that social safety nets contribute to provide meaningful support for vulnerable parts of the population (World Bank 2015 and Bastagli et al. 2016), still limited resources and sizeable coverage gaps are significant obstacles to further tangible progress. Evidence also indicates that marginal and participation taxes for the eligible population may be large in advanced economies, suggesting that disincentives to work can be sizeable under current systems. For example, considering the combined effect of taxes and transfers, effective participation taxes can vary between 30 and 85 percent in European countries (with the higher values in Nordic countries; Immervoll et al. 2007).[12] In 2015, the average marginal effective tax rate (METR) in EU27 countries on earned income in the bottom quartile was 28 percent, increasing on average by 2 percent between 2011 and 2015, albeit with large variations across members.[13]

IV.   AN ANALYTICAL APPROACH FOR ASSESSING UBI

The analytical framework proposed in the present paper focuses mainly on the potential distributional impact of a UBI program. From the assessment perspective it implies that it is necessary to analyze the financing of the program, in addition to the effects of the UBI transfers. In other words, a *comprehensive* assessment of the UBI is required to understand its impact, looking at expenditure and resource mobilization mechanisms together. For instance, if the UBI were to complement existing programs, additional tax or resource revenues would have to be

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[9] Anecdotal evidence is consistent with this broad picture. In India, only 40 percent of citizens apply for the benefits they need, with application costs and complexity reported as the main hurdles (Demirguc-Kunt and others, 2017). In the United Kingdom, take-up rates for entitlements vary between 55 and 95 percent (Gandy and others, 2016).

[10] The literature also offers models in which 'complexity' of the transfer programs is explicitly used by policymakers as a screening and monitoring device to extract a better signal on true eligibility in a situation in which there is imperfect information. In these models 'complexity' and incomplete take-up may be an optimal equilibrium outcome (Jacobsen and Kopczuk, 2011).

[11] See IMF 2018a for a discussion on how digitalization can help address non-take-up issues.

[12] "Participation" taxes summarize the tax levied on labor market entry. They are affected by: i) wage rates; ii) income tax rates schedules; and iii) design of existing government transfer programs (e.g., means testing thresholds and withdrawal rates of benefits as labor income increases).

[13] Computation on EUROMOD statistics on distribution and decomposition of disposable income.

raised for its financing; if the UBI were to substitute other spending items, then there would be a need to identify what programs would be scaled down to divert resources to UBI

Our analytical framework is designed to shed light on the salient tradeoffs policymakers face when considering the implementation of a UBI. These tradeoffs involve three key dimensions commonly used in the literature to discuss performance of social spending (Figure 6):

- *Generosity:* the relevance/magnitude of transfers as a source of income for the recipients, also in particular for those at the bottom of the income distribution (the size of the box in Figure 6);

- *Coverage*: the share of individuals covered by the program, typically with a focus at the bottom of the income distribution (on the vertical axis in Figure 6);

- *Progressivity:* which indicates the share of resources captured by households at different points of the income distribution (on the horizontal axis in Figure 6). We consider programs that are able to channel more resources to the vulnerable part of the population as progressive.

Coverage and progressivity are key dimensions that shape a transfer program's distributional impact and its effectiveness in tackling poverty and inequality when these are a concern. Generosity, on top of its impact on reducing poverty and inequality, is an important determinant of a program fiscal cost/need for resources. Furthermore, benefit levels, together with program design (e.g., conditionalities), are key drivers of potential income effects and behavioral distortions. The specific performance of existing social protection (and tax) systems with respect to these three dimensions is key when assessing the impact, a UBI would have, as countries may face more or less binding tradeoffs and constraints stemming from their fiscal position and the design of their current programs and tax schedules. The main tradeoffs to which policymakers' need to pay attention are:

- leakages to richer households vs. effective coverage of poor households,

- generosity vs. (potential) work disincentives,

- fiscal cost vs. alternative use of available resources,

- implementation challenges vs. objectives.

How policymakers balance these tradeoffs shapes the effectiveness (i.e., achieving goals), efficiency (i.e., distortions minimization) and fiscal sustainability of the policy package.

A visual representation of the analytical framework based on the three dimensions discussed above is shown in Figure 6. A graphical representation is useful to discuss policy tradeoffs as it shows how various dimensions interplay. For a given generosity level (i.e., fixed resource envelope– or the size of the box), the relative desirability/merits of a UBI will depend for example on a country's progressivity (on the horizontal axis) and coverage (on the vertical axis) of its existing safety net. For well performing safety nets (top-right corner of Figure 6), the need for a

UBI is not obvious. However, when coverage gaps (e.g., from non-take-up rates) are considered a relevant policy concern and inclusiveness an important policy objective, some scholars have advocated UBI-type of schemes as a complement to existing programs, provided additional resources can be raised in ways that would not undermine the progressivity of the global tax-and-transfer system, or hamper fiscal sustainability.[14] For poorly performing safety nets (bottom-left corner of Figure 6), low progressivity and low coverage may reflect targeting difficulties, implementation bottlenecks and resource constraints. Whether a UBI could improve on the current situation will depend on specific potential implementation issues related to its rollout, and, crucially, on the possibility of raising the needed additional resources (e.g., through the removal of inefficient subsidies). Expansion of the fiscal envelope for income support programs in these cases would also help mitigate potential losses of current beneficiaries that would be triggered by the replacement of current programs with a UBI.[15] For safety nets with mixed performance (bottom-right and top-left corners of Figure 6), two types of coverage-progressivity tradeoffs appear relevant with different implications for a UBI desirability:

Figure 6. Analytical Framework
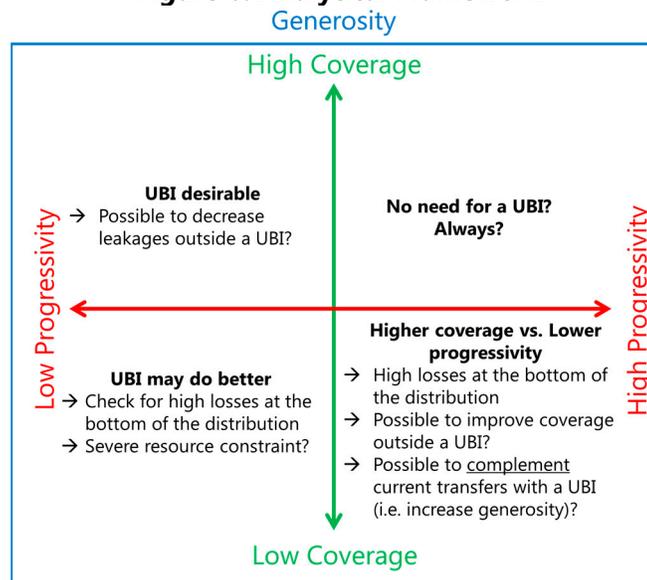
Source: Authors.

- When coverage is high, but progressivity is low, a UBI would most probably have better distributional outcomes if progressivity cannot be easily increased within the current system (i.e., if eliminating leakages in the existing set up is not possible or alternative design would not tackle the problem effectively). Energy subsidies are an example of such a case: they are universal, but benefits are regressive, mostly appropriated by rich households who consume more than poor ones. In principle, at the same fiscal cost, a UBI would deliver better distributional outcomes. Losers with respect to the existing system would likely be bunched among high income households. It remains to be seen

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[14] See for example Atkinson (2015), or Sen's (1992) views on UBI as something suited for rich countries that can afford it.

[15] See Coady and Prady (2018) for an assessment of the impact of replacing the PDS program in India by a UBI.

whether other alternatives would be available that would further increase progressivity and the relevance of implementation challenges for both a UBI or an alternative program;

- In the case of highly progressive programs, but with very low coverage at the bottom of the income distribution there may be a need for understanding whether the fiscal envelope can be expanded. With a fixed envelope, moving towards a UBI would likely generate large losses at the bottom of the income distribution (coverage expansion would be mirrored by high losses for households benefitting from existing programs). UBI and alternative designs would again need to be assessed based on resources availability and implementation constraints.

## V. Bringing the Analytical Approach to the Data

A. Country Selection and Assumptions

This section aims at giving empirical content to the discussion of the analytical framework for the analysis of UBI by providing salient illustrative examples of how the framework can be brought to the data. For the empirical assessment a sample of eight countries has been selected; the analysis is based on microdata from the standardized Luxembourg Income Study (LIS) archive.[16] For all selected countries, the latest year available in Fall 2017 has been used. Besides data availability, countries selection criteria have aimed at ensuring heterogeneity in terms of geographical area, development stage (emerging and advanced economies), generosity (i.e., current level of spending) and progressivity of current non-contributory transfers. Given that discussion of specific country cases is beyond the scope of the paper, results are presented without identifying country names. Using actual data, instead of artificially generated country examples, allows to anchor the discussion to policy dimensions that are relevant for present policy debates and that account for actual strengths and weaknesses of existing social protection systems. For example, the sample accounts for heterogeneity in the magnitude of resources spent on non-contributory social assistance programs. In the selected sample (Figure 7), advanced economies spend on average three times more than emerging economies on non-contributory transfers (3 vs. 1.1 percent of GDP) and the coverage of households in the bottom two income quintiles is broader (65 vs. 44 percent of households on average in advanced vs. emerging countries).

The simulations used for assessing the impact of introducing a UBI are partial static equilibrium exercises: only households are considered (no firms or production side of the economy) and behavioral responses (e.g., changes in labor supply or consumption patterns) are not accounted for. As mentioned, this empirical approach, as many other available empirical assessments of UBI implementation (Levy et al. 2013 or OECD 2017a), does not account for household behavioral responses and results should therefore be considered as short-term assessments. However, it is recognized that behavioral responses are relevant to assess the relative desirability of a UBI.

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[16] Harmonized into a common framework, Luxembourg Income Study datasets contain household- and person-level data, from about 50 countries, both advanced and emerging. Country microdata are collected from household surveys and therefore subject to several limitations—e.g., underrepresentation at the top and bottom of the income distribution. However, LIS harmonization and country-coverage allows for comparability of social assistance benefits income data.

Figure 7. Generosity, Progressivity and Coverage of Non-Contributory Transfers
(Percent of GDP; percent of households in bottom four income deciles[1])
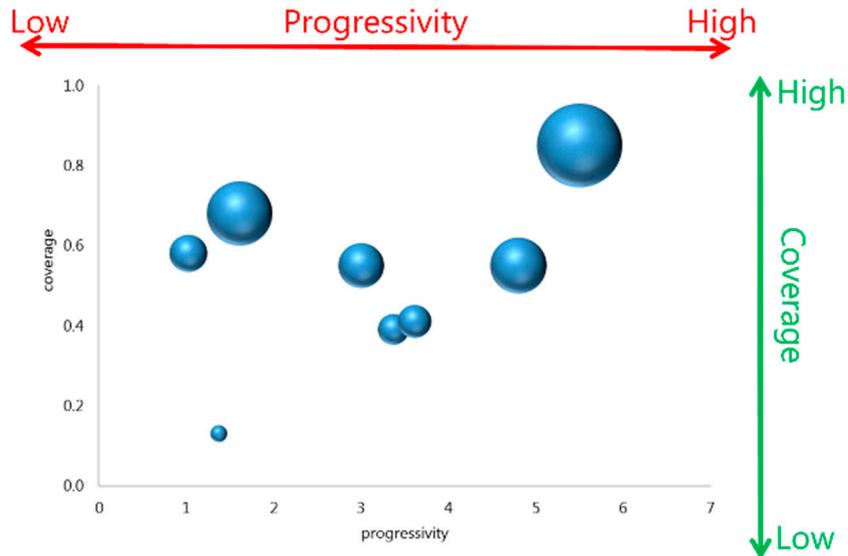
Source: Authors' calculations on LIS microdata for selected countries.
[1] Deciles of per capita equivalent disposable income (LIS equivalent scale).
Note: The ratio of the share of total spending received by the bottom 40 percent of income distribution to the share of total spending received by the top 40 percent (shown on the horizontal axis) serves as a proxy for progressivity. Coverage (vertical axis) refers to the percentage of households in the bottom 40 percent of the income distribution receiving any transfer. Computations consider benefits on non-contributory transfers as reported in microdata. The size of the markers (parallel to the size of the box as in Figure 6) indicates the magnitude of spending (overall amount of benefits received) as percent of GDP.

As discussed above, potential inefficiencies brought about by a UBI should be evaluated as well as distortionary effects of existing programs which are in some cases characterized by high labor market participation taxes (see Section III). Indeed, behavioral responses to a UBI will reflect both labor supply elasticities (on the intensive—numbers of hours worked—and extensive—decision to work or not—margins) and tax rates (especially participation tax rates), and their magnitude and direction will depend on the design of existing tax and transfer programs and on the measures identified to finance a UBI. Furthermore, behavioral responses will generally vary across income levels and types of individuals.[17]

The empirical evidence suggests also that behavioral effects will depend on the structural characteristics of the economy under consideration that, in turn, will determine the magnitude of possible offsetting forces. Based on selected household types, OECD (2017b) shows that in a sample of ten OECD countries a UBI would reduce participation taxes for singles with two children and one-earner couples (with no or two children), while increasing it for two-earner couples.[18] Using micro-simulation models that incorporate labor supply responses, Immervoll et

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[17] The empirical literature shows that in general prime-aged men and singles' labor supply is more inelastic, while married women with children show the largest labor supply elasticities.

[18] Sample countries are Australia, Canada, Finland, France, Italy, Japan, Netherlands, Switzerland, UK and USA. Besides different withdrawal rates of current transfer programs, heterogeneity across country reflects the

al. (2007) show that, in aggregate, inefficiency losses may be sizeable if a UBI complements highly distortionary existing safety nets in selected European countries; Colombino et al. (2008) show that both a UBI and non-means-tested in-work benefits financed by progressive taxes would perform better than current safety nets in selected European countries.[19,20] IMF (2017) analysis based on a general equilibrium model indicates that a UBI would not necessarily generate lower growth compared to other programs.[21]

B. Gross Fiscal Cost and Redistributive Impacts

To begin with, for the selected countries sample we estimate the gross fiscal cost of a UBI whose yearly amount is calibrated as 25 percent of the country net median market income per capita (i.e., earned market income minus direct taxes paid).[22] This amount is then distributed to all residents in a country, without further conditions or targeting criteria (e.g., a one-year old and a 30-year old receive the same amount, irrespective of their individual or household income). This exercise gives a sense of the magnitude of the necessary resources to finance a UBI program calibrated in a comparable way for a heterogeneous set of countries.

A UBI calibrated at 25 percent of net median market income per capita would substantially reduce inequalities and poverty, but at a substantial gross fiscal cost (Table 1). All things being equal, the reduction in inequality would be substantial (around -5 percentage points of the Gini index) and rather similar across countries; the reduction in poverty would be higher in emerging economies than in advanced ones in our sample (-10.4 percentage points on average vs. -7.5) suggesting "diminishing returns" to a UBI in this respect. The gross fiscal cost would be sizeable and on average higher in richer economies than in poorer ones (6.5 percent of GDP vs. 3.8).

C. Three Financing Scenarios

If a first-step analysis is useful to grossly gauge how much would a UBI cost and how effective it would be in tackling poverty and inequality, a meaningful assessment requires: (i) considering the

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possibility of losing existing tax-allowances and joint or individual taxation of labor income at the household level.

[19] These models, while incorporating household behavioral responses, are still partial equilibrium models that disregard general equilibrium feedbacks.

[20] Welfare functions and Gini indexes are among the criteria considered by Colombino et al. (2008) to score policies. In some countries with large welfare states, the implied increase in the top marginal tax rates could be substantial and induce a reduction in female labor market participation.

[21] See IMF (2017) for simulations using a general equilibrium model calibrated on the US and Bolivian economies. For instance, jointly accounting for behavioral responses, financing modalities, and potential tradeoffs between equity and efficiency, introducing a UBI of one percent of GDP in the US would have a negligible effect on total hours worked (marginally positive if the UBI is financed by a reduction in unproductive spending; marginally negative if it is financed via proportional consumption taxes), and a positive impact on total demand (especially for non-tradable services).

[22] We also simulated several other levels of UBI amount (i.e., 10, 20, 30, 40 and 50 percent of net median market income per capita). These levels are set arbitrarily. As a benchmark, one can think also of the LIS relative poverty threshold set at 50 percent of the per capita equivalent median market income, or levels currently being experimented in different countries: in Finland, selected unemployed recipients are given €560 per month.

performance of existing programs; and (ii) including the impact of different ways to finance a UBI. In a second step of the empirical analysis, the microsimulations incorporate financing options. In this set of simulations, we consider the introduction of a UBI whose fiscal cost is calibrated considering the current observed level of spending for non-contributory programs (universal and means-tested) in each country (Table 2). Three financing options are considered, so that the program is fully financed and the UBI net fiscal cost is set to be 0: (i) the UBI substitutes existing non-contributory transfers; (ii) direct income taxes are increased; (iii) an additional proportional tax on disposable income is levied. In the last two options, the UBI complements current programs, expanding the overall spending on social protection.[23] As in subsection IV.B, the UBI is distributed to all residents in a country without conditions or targeting criteria.

Table 1. Gross Fiscal Cost and Redistributive Impacts of a UBI

	Gross Fiscal Cost (percent GDP)	*Change in Gini*	*Change in Poverty Rate*
Country A	4.6%	*-0.05*	*-11.6*
Country B	3.5%	*-0.06*	*-10.4*
Country C	6.8%	*-0.04*	*-6.3*
Country D	3.7%	*-0.06*	*-12.0*
Country E	4.9%	*-0.04*	*-6.9*
Country F	2.3%	*-0.05*	*-10.8*
Country G	6.7%	*-0.04*	*-6.0*
Country H	6.4%	*-0.05*	*-10.1*

Source: Authors' calculations on LIS microdata.

The relative distributional properties of the UBI and of existing non-contributory transfers, can be compared for each of the three financing options indicated above. The comparison is based on the three dimensions which are the pillars of the proposed analytical framework: i) the progressivity of the resource allocation, ii) the coverage of vulnerable households at the bottom of the income distribution, and iii) the generosity of benefits.

A convenient place to start is with corner-case countries that perform at opposite corners of Figure 6. Country B is an example of L-L-L country, i.e., low coverage, low progressivity, low generosity country. Country G is an example of H-H-H country, high coverage, high progressivity, high generosity. In a relatively poor-performing case such as Country B (Figure 8), low coverage and progressivity mean that a large share of vulnerable individuals are not included in current programs, and at the same time that a large share of resources is captured by the rich. In this case, substituting a UBI to current social assistance programs, *while keeping the same fiscal envelop*, would result in large gains in coverage at the bottom of the income distribution without significant welfare gains or losses (i.e., individual benefits will remain very low), signaling that a key issue is the inadequacy of the current generosity level and fiscal envelope (an estimated

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[23] Mobilizing revenue presents its challenges, in particular in emerging and developing economies. And doing so effectively requires well designed revenues mobilization strategy that can support expenditure expansion.

0.2 percent of GDP based on the resources for non-contributory transfer programs as captured in LIS data).

Table 2. Calibration of a UBI on Current Non-Contributory Transfers and Coverage and Progressivity of Existing Programs

| Countries | Fiscal Envelope (percent of GDP) | Existing transfers | | | |
| | | Coverage | | Share of Total Spending | |
		bottom two deciles	top two deciles	bottom two deciles	top two deciles
Country A	0.70%	55%	5%	39%	7%
Country B	0.20%	16%	6%	28%	17%
Country C	2.30%	66%	19%	48%	6%
Country D	1.00%	63%	28%	23%	26%
Country E	0.80%	46%	17%	41%	8%
Country F	3.10%	65%	13%	16%	11%
Country G	5.20%	84%	36%	39%	7%
Country H	1.50%	61%	20%	38%	9%

Source: Authors' calculations on LIS microdata.

In many emerging and poor economies, where existing safety nets are small and ineffective, two important issues should be considered as key aspects when evaluating the desirability of a UBI or of alternative transfer schemes: (i) whether (and how) additional resources could be raised; (ii) whether significant implementation issues would hamper the introduction of a UBI. On the mobilization of additional resources, we note that even if financing were to come from a proportional income tax, average net gains would be substantially higher for poorer households (Figure 8, panel c). The progressivity of the overall package would be enhanced if transfers were to be financed by an increase in progressive direct taxes on income (results not reported in the chart). In a relatively well-performing case such as Country G (Figure 9), substitution with a UBI would significantly reduce the current distributional impact of public policies as losers would be bunched at the bottom of the income distribution, and gainers at the top. For this type of countries (typically advanced economies), some scholars have been proposing UBI as a complement rather than a substitute to fairly generous current programs (an estimated 5.2 percent of GDP for non-contributory programs in LIS data for Country G), bringing about the question of how to raise additional resources in an equitable way and in a fiscally sustainable manner.

Moving to country-cases where reforming current safety nets imply balancing more demanding tradeoffs between different redistributive dimensions of interest, the relative desirability of a UBI will depend on how much these tradeoffs prevent current programs from achieving their redistributive objectives. In Country C for example, current spending on non-contributory programs (an estimated 2.3 percent of GDP in LIS data) is fairly progressive and generous but coverage at the bottom two income deciles remains about 65% (Figure 10b).[24] However everything else equal, if a UBI were to substitute current non-contributory transfers, more than

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[24] Coverage of vulnerable households may be incomplete either because eligibility rules exclude the poor, or because eligible households do not take up the benefit they are entitled to, or because of both types of exclusion.

60 percent of households in the bottom two deciles would incur an average welfare loss of 34 percent (Figure 10c). By comparison, financing a complementary UBI through an additional proportional income tax would preserve the progressivity of a UBI which would, by design, increase household coverage at the bottom of the income ladder. The key would be whether resources would be enough to avoid generating losses for households currently covered by the system. The accommodation of the coverage-progressivity tradeoff and the choice of the financing mechanism can therefore shape the results very differently.

Figure 8. Low Generosity-Progressivity-Coverage of Existing Transfers vs. UBI: Country B

a) Progressivity *(percent of total spending)*   b) Coverage *(percent of households in decile)*

c) Average net gain (+) / loss (-) from transition to a UBI
(percent of per capita equivalent disposable income)

Financed by Substitution   Financed by a Proportional Tax
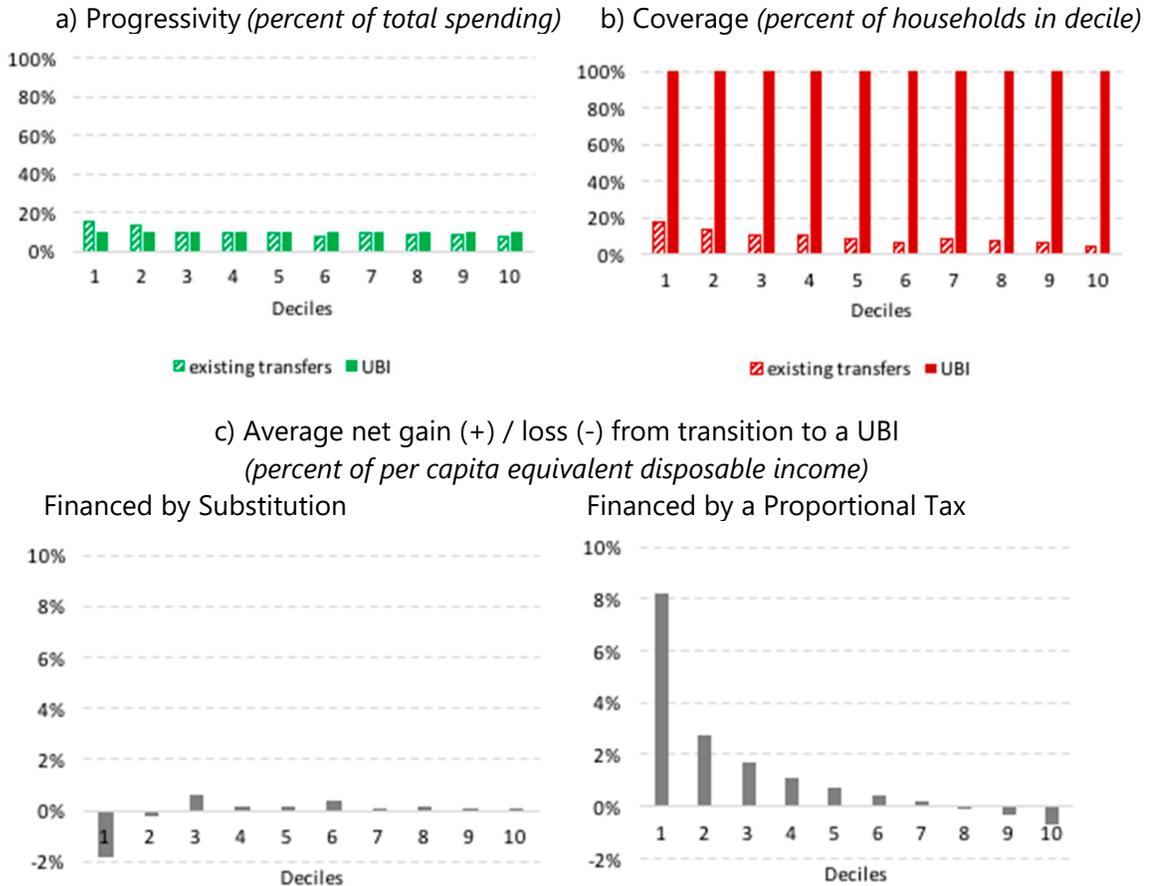
Source: Authors' calculations on LIS microdata.

How the choice is made can depend not only on policymakers' objectives and social preferences, but on how other policy options fare in terms of ability to reach vulnerable households and implementation constraints.

As mentioned above, the performance of existing safety nets matters. An illustrative example is the comparison between Country C and Country D (Figure 11). Coverage in the bottom two deciles is similar (about 65%), but in Country D progressivity of current spending is much lower and so is generosity (an estimated 1.0 percent of GDP based on LIS data vs. 2.3 in Country D). In fact, it might be less fiscally costly in Country D to replace current non-contributory transfers by universal transfers generous enough to avoid losses for household in the bottom 20% of the income distribution than in Country C. As above, such a substitution should be consistent with

policy objectives, implementation issues and administrative costs (of UBI or potential alternatives).

Figure 9. High Generosity-Progressivity-Coverage of Existing Transfers vs. UBI: Country G

a) Progressivity *(percent of total spending)*   b) Coverage *(percent of households in decile)*

c) Average net gain (+) / loss (-) from transition to a UBI
(percent of per capita equivalent disposable income)
Financed by Substitution   Financed by a Proportional Tax
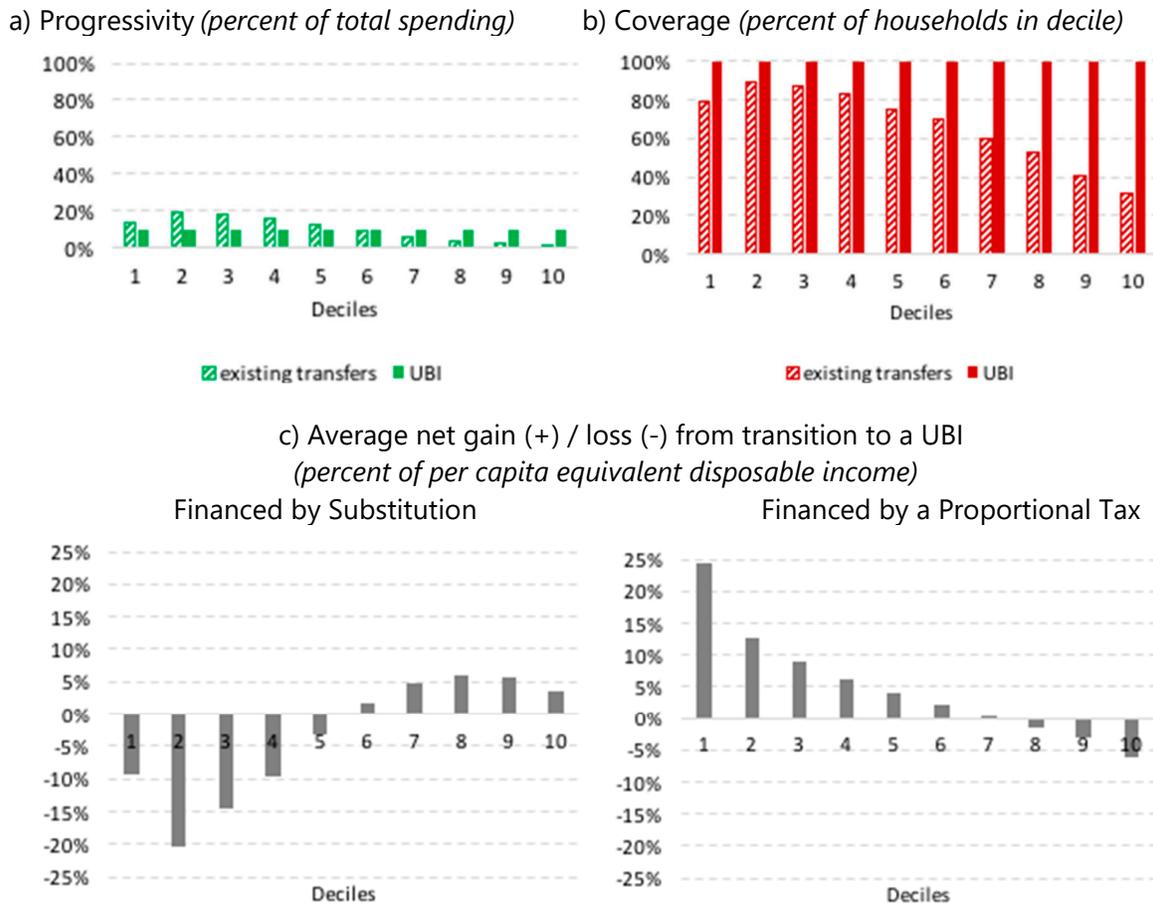
Source: Authors' calculations on LIS microdata.

A case that we do not illustrate here is that of countries that can contemplate the implementation of a UBI as a substitute to universal but regressive policies (as is the case for energy subsidies mentioned in Section IV). In this case, gains will not be achieved in terms of coverage (which would remain universal before and after the reform), but by improvements in the distributive performance (a shift from a regressive to a progressive program). The desirability of a UBI scheme in these cases would need to be assessed on the basis of advantages and disadvantages in terms of implementation challenges vis-à-vis feasible alternatives and potential fiscal resources constraints.[25]

Summing up, results from our microsimulations highlight how empirical analysis focusing on the key dimensions for assessing performance of transfer programs may guide policy discussion. In countries where there is no proper safety net, a UBI can be part of the debate as an option for the design of income-support mechanisms. Its relative merits and feasibility should be assessed

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[25] See Coady and Prady (2018).

against those of alternative feasible options and evaluated given fiscal constraints and implementation challenges. In countries where current social safety nets perform much better and administrative capacity is high, there may anyway be room for sizeable improvement. Some scholars have been putting forward UBI-type programs as a possible option if inclusiveness is of high concern and lack of coverage and non-take-up seen as an issue.

Figure 10. Trading Off Coverage and Progressivity of Existing Transfers: Country C

a) Progressivity *(percent of total spending)*

b) Coverage *(percent of households in decile)*

c) Average net gain (+) / loss (-) from transition to a UBI
(percent of per capita equivalent disposable income)

Financed by Substitution

Financed by a Proportional Tax
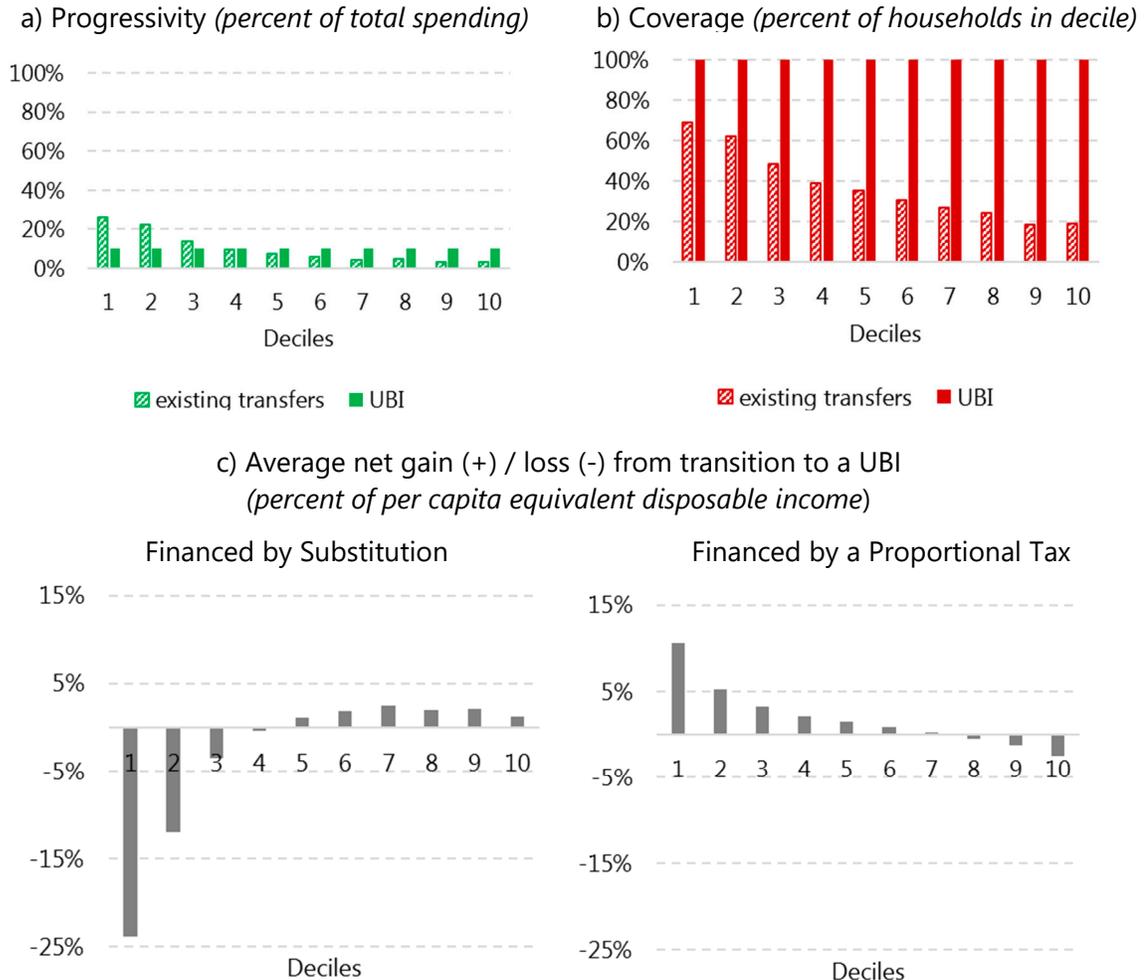
Source: Authors' calculations on LIS microdata.

In the framework considered in this paper, this leads to looking at the issues of fiscal sustainability and to a distributive assessment that needs to include financing mechanism and social spending policies in a comprehensive way.[26] Finally, in all countries, the consideration of a UBI as part of a structural reform plan should similarly be based on a detailed analysis of current tradeoffs associated with existing redistributive programs and fiscal sustainability of financing

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[26] Other recent studies that also use microsimulation techniques corroborate the view that consideration of existing social protection and tax systems is an essential component. Brown and Immervoll (2017) also use microsimulation techniques: 1) to underline the importance of assessing together existing social protection and tax systems for a meaningful understanding of the impact of UBI programs; and 2) to assess alternative incremental reforms to improve current assistance systems in European countries against a UBI alternative.

options. Beyond the tradeoffs analyzed above, policymakers may face other conceptual, implementation and policy choices (e.g., whether to give up the subsidization of goods like food or energy, or how to fight/avoid corruption) that the introduction of a UBI may be related to and support.

Figure 11. Trading Off Coverage and Generosity of Existing Transfers: Country D
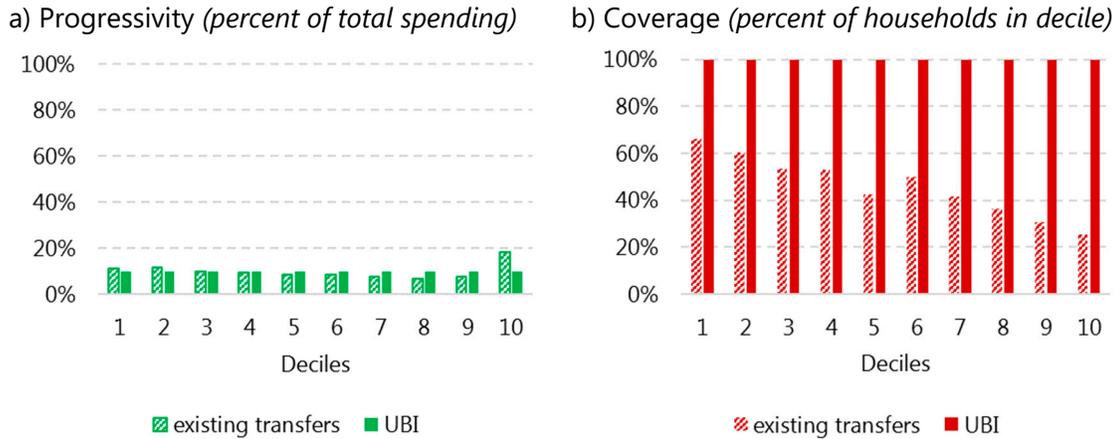
a) Progressivity *(percent of total spending)* b) Coverage *(percent of households in decile)*

c) Average net gain (+) / loss (-) from transition to a UBI
(percent of per capita equivalent disposable income)

Financed by Substitution   Financed by a Proportional Tax
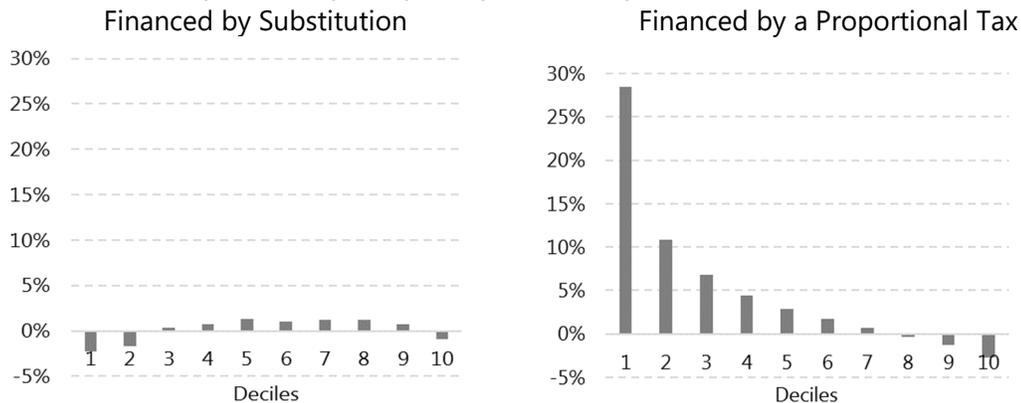
Source: Authors' calculations on LIS microdata.

VI. CONCLUSIONS AND POLICY DISCUSSION

The joint empirical analysis of the relative redistributive performance of a UBI, existing social safety nets and available financing options is powerful in highlighting the tradeoffs faced by policymakers when assessing social spending programs along key dimensions:

i.   coverage at the bottom of the income distribution vs. leakages to richer households,
ii.   generosity of transfers vs. incentives and economic distortions,
iii. fiscal cost vs. alternative use of scarce fiscal resources.

The fourth aspect that weighs heavily in shaping policy choices is how to reconcile objectives and implementation challenges.

The saliency of each of these tradeoffs depends on each country specific circumstances, in particular on its position in the coverage/generosity/progressivity space (Figure 2), its capacity to raise resources in a progressive and sustainable manner and the ability to roll out a (more or less) complex program. Social preferences, together with constraints, determine how these tradeoffs are called.

The relevance of these tradeoffs and the design of a transfer program has implications that go beyond the performance of the specific scheme. They are related to and impact how a country overall benefit-tax system affects individual behaviors,[27] bearing far-reaching implications for labor market, consumption and investment decisions that will in turn impact back the fiscal sustainability of the tax-and-transfer system. As mentioned, inefficiencies (e.g., disincentives to work) are relevant issues also under existing safety nets—that are rarely universal and unconditional—and their current financing mechanism. For this reason, a broader discussion is needed, that would move beyond just looking at UBI in isolation to assessing whether a policy package encompassing a UBI would increase or decrease the distortionary impact of government policies and or improve/reduce the performance of a safety net. As important is the thorough assessment of implementation capacity both for targeted and universal type of programs. In short, efficiency and equity impact of a UBI cannot be gauged in isolation.

Beyond the discussion presented in this paper and short-term considerations, other issues also point to the usefulness of broadening the horizon when discussing universal programs and looking for ways to make social protection systems adequate for facing future challenges. For example, in an economic environment where job security decreases and income volatility increases, expanding available insurance mechanisms for those who are out of work may become an important policy objective; similarly, where there is a need to generate public support while protecting vulnerable households from undesired side effects of structural reforms that impact large segments of the population. protecting vulnerable households from undesired side effects of structural reforms that impact large segments of the population.

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[27] Which are not captured by the static simulations presented in the paper.

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