Falling through the Cracks: Digital Infrastructures of Social Protection in Ecuador

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Debate

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ABSTRACT

While cash transfers gain prominence as a response to the COVID-19 pandemic, there is a strong impulse to regard them as a stepping-stone towards the formalization of employment and universalization of social protection. This contribution problematizes how populations in informality are included in narrowly targeted social assistance interventions, which are heavily reliant on targeted schemes and fail to make informality legible to programme administrators. The focus of the article lies in the politics of exclusion and inclusion that permeate digital infrastructures, particularly data infrastructures such as social registries, that are used to target Ecuador's most prominent social assistance programme, Bono de Desarrollo Humano, and the COVID-related programme Bono de Protección Familiar. The article is based on ethnographic work, interviews and narrative analysis. It finds that social registries compiled for proxy means testing weaken the link between eligibility and informal employment and obscure the processes that perpetuate precarity. More recent data innovations, such as machine learning, are also insufficient to locate vulnerable workers as they learn from historical social registries data and replicate their biases, for example by overlooking non-poor areas where informal employment also occurs. Data infrastructures have shifted attention to the technicalities of the selection of beneficiaries and away from power imbalances in the design of social assistance, despite their selectivity and politics.

INTRODUCTION

As governments grapple with the severity of the COVID-19 or SARS-CoV-2 pandemic, workers have been required to isolate, which for many means the cessation of economic activities essential to maintain their livelihoods.

The ongoing health crisis has exposed aspects of precarity brewing across the globe, especially salient among informal workers. Though by global standards, informality in Latin America is moderate, many precarious workers occupy a liminal state. They are either inadequately covered by social security or have made only a few sporadic contributions due to atypical work arrangements and, as a result, do not qualify for unemployment or other benefits. As of 2016, informal employment accounted for 53.1 per cent of Latin American workers (ECLAC/ILO, 2020). These levels of informality mean that more than half the workforce have no access to rights at work, such as paid sick leave, social security or unemployment insurance.[1] Informal workers were severely hit by the pandemic in Ecuador when lockdowns interrupted daily economic activities essential to their subsistence. Jara et al. (2021) estimate, using data from ENEMDU,[2] that the number of informal workers reporting (positive) labour earnings decreased by 52 per cent (from 3.8 to 1.9 million workers) between 2019 and 2020, compared to a fall of 29 per cent among formal workers. Workers in informal employment are often not covered by narrow cash transfer programmes, because they are either deemed non-poor according to national poverty lines or simply excluded from social registries. A significant share of vulnerable workers in informal employment remain in the 'missing middle': not contributing to social security and excluded from social assistance (ILO, 2020).

Cash transfers gained prominence as a means to extend social protection to informal workers in response to the COVID-19 pandemic (Gentilini et al., 2020). According to the Economic Commission for Latin America and the Caribbean (ECLAC, 2020), the provision of new cash transfers accounted for 27 per cent of the measures adopted in Latin America, the amounts paid under existing cash transfer programmes increased by 13 per cent, population coverage of existing cash transfers expanded by 4 per cent, and the early disbursement of existing cash transfers increased by 5 per cent. Nevertheless, the popularity of cash transfers precedes the COVID-19 pandemic. Many scholars have regarded them as part of an inclusive turn in development policy, claiming that they provide a social minimum (Barrientos, 2016), shape state aspirations of universalism (Grugel and Riggirozzi, 2018) and even constitute a new politics of distribution — the direct distribution of social wealth to the poor (Ferguson, 2015). However, there is a growing body of critical literature that is attentive to the various normative dimensions of cash transfers, that is, the ideas, norms, institutional modalities and practices associated with these forms of social assistance and their many

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1. Unemployment insurance (Seguro de Desempleo), was introduced in March 2016 to cover those individuals who are affiliated to the general social security regime and have paid contributions. As of December 2019, the number of unemployed recipients amounted to 22,900 (Jara et al., 2021).
2. Encuesta Nacional de Empleo, Desempleo y Subempleo (Employment, Unemployment and Underemployment National Survey).

unintended effects on social, economic and political inclusion (Ballard, 2013; Barrientos et al., 2008; Cookson, 2018; Molyneux, 2006; Molyneux and Thomson, 2011; Peck and Theodore, 2015; Schild, 2007).

This article looks past policy evaluations of developmental outcomes to examine cash transfers as an infrastructure of inclusion of precarious and informal populations into social protection systems. It focuses on the contradictory power relations that determine the selective exclusion and (adverse) inclusion of populations in social protection through complex targeting infrastructures, including data infrastructures such as social registries. Although data infrastructures might constitute genuine efforts to make populations in informality visible to the state, an excessive emphasis on data-driven inclusion can easily be used to depoliticize processes of precarity, particularly when data infrastructures are poorly adapted to informal contexts. The article approaches data collection, specifically the social registries used to select beneficiaries, as a non-neutral process, exposing the power relations that permeate these complex digital infrastructures. It argues that the current data infrastructures of inclusion in social protection, as evinced in the recent efforts to extend social assistance to informal workers during the pandemic, are not only inadequately designed and exclude many, but also obscure and perpetuate precarity. Social assistance's reliance on proxy means tests[3] delinks the process of inclusion — that is, eligibility — from employment (Gentilini et al., 2020). The fact that after two decades of cash transfers, workers in informal employment are still hard to locate and protect shows that the transition from citizenship regimes to anti-poverty interventions has reinforced rather than helped overcome poverty and precarity, deepening old social cleavages.

The article introduces the key theoretical issues of legibility and inclusion in social protection, focusing on cash transfers. Following a brief presentation of the methodology, the article situates social assistance responses in a historical context in Ecuador, briefly discussing the key modes of inclusion of informal and marginalized populations in the social protection systems. The empirical core of the article surveys institutional efforts to set up and allocate the Bono de Desarrollo Humano or BDH (Human Development Grant), the main cash transfer programme in the country, and, more recently, additional income support to vulnerable populations via the Bono de Protección Familiar or BPF (Family Protection Grant), created in the context of the global pandemic. The circuits of inclusion in cash transfers are examined through the lens of previous ethnographic work on the BDH in Ecuador, which looks at the fissures in data infrastructures used for the selection of social assistance beneficiaries and provides the background for a

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3. Proxy means tests are widely used for the selection of cash transfer beneficiaries, as they offer an approximation of the level of poverty of households based on a set of weighted variables associated with deprivation, estimated using non-linear principal components analysis (Oosterbeek et al., 2013).

commentary on the data infrastructures of inclusion adjusted and augmented to extend social assistance amid the COVID-19 pandemic via the BPF. This reveals a tension between efforts to compensate for missing data on populations excluded from social registries and the illegibility of informal actors to the state. Focusing on the BPF, the article examines how informality is reconstructed in the data infrastructure designed and adjusted in the pandemic context to extrapolate information on informal workers, given the impossibility of gathering new household data due to lockdown measures. It critically examines what functions data infrastructures serve in contexts of informality and how targeting is performed at the bureaucratic level.

INFRASTRUCTURES OF INCLUSION IN SOCIAL PROTECTION

Cash transfers were initially conceived as a strategy to extend social protection to previously excluded populations, such as informal workers. They are therefore regarded as part of an inclusive turn,[4] following a tendency to assess social protection in extremes as either inclusionary or exclusionary. Concerns with exclusion from social protection feature prominently in the social policy and informality literature, denoting a sense of powerlessness and limited agency among the poor and their exclusion from social and economic rights, rather than from markets (Chen, 2007; du Toit, 2004). In the Latin American context, this exclusion is often associated with a highly problematic depiction of a 'culture of poverty' (Lewis, 1959) that revolves around marginality, helplessness and dependency. Cash transfers are consequently regarded as a reversal of such forms of exclusion, because they emphasize the inclusion of subordinate populations that had remained invisible to the state, excluded from formal wage employment and contributory social security.

Nevertheless, significant fissures have accompanied the inclusion of informal workers into social protection via cash transfers. Cash transfer programmes aim to manage poverty technically (Peck and Theodore, 2015) and are built to avoid personal biases by removing bureaucrats from the loop and replacing them with proxy means tests and other modelling techniques that apply rigid criteria no matter the circumstances. Nevertheless, 'questions that are rendered technical are simultaneously rendered non-political' (Li, 2007: 7). Through their emphasis on data-driven inclusion, cash transfers have contributed to depoliticizing the condition of poverty and informality (Fischer, 2018; Peck and Theodore, 2015).

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4. This turn signals an 'inclusive' embedding denoted as 'inclusive liberalism' (Porter and Craig, 2004), and could also be regarded as part of 'progressive neoliberalism' (Fraser, 2016), a defensive reaction to neoliberalism, or a Polanyian double movement (Buğra, 2020; Fischer, 2020; Porter and Craig, 2004).

This emphasis on the technicalities of beneficiary selection has been accompanied by a rhetoric of self- and co-responsibility, which enlists beneficiaries — those at the bottom of the pyramid[5] — as co-partners in the process of social transformation (Molyneux, 2008). Underlying this notion is the idea of self-improvement, with beneficiaries learning 'how to market themselves' (Gledhill, 2004, cited in Schild, 2015: 550) and facilitating their transition to become 'consumers and a market, rather than … "the poor" in need of aid' (Elyachar, 2012: 111). However, self-improvement has a coercive dimension that legitimizes selectivity as a form of social regulation among the poor (Lavinas, 2015), which has placed mothers as responsible for 'correcting' underinvestment in schooling or health among the poor (Cookson, 2018; Lavinas, 2013; Molyneux, 2006) and has effectively diverted attention away from top-down forms of social responsibility (Peck and Theodore, 2015), including the provision of affordable public goods (Lavinas, 2013).

By design, cash transfer programmes are silent regarding the need to include recipients in formal and secure employment — the link is made implicitly through human capital investments that increase future employability. Along these lines, the role of cash transfers, particularly conditional variants, is simply to assist in unlocking poor households' potential by increasing human capital and skills formation to improve their usefulness to capital. Nevertheless, the inclusion of marginalized workers in social assistance without any explicit attempt to alter the conditions that perpetuate informality can increase precarity. Different forms of marginalization[6] can accompany the inclusion of marginalized populations in the labour market, with workers unable to control or have any impact on the systems into which they are incorporated, perpetuating unstable and unprotected employment, or even eliminating some forms of work (Mann and Meagher, 2017).

The extent to which the integration of previously excluded groups into social protection can be regarded as transformative or merely palliative depends on the degree to which individuals gain some capacity to tackle the social relations that produce or reinforce their precarity. More concretely, Molyneux et al. (2016) note that, to be transformative, cash transfers need to invest in beneficiaries' capabilities and help them overcome oppressive social relations. That implies a broader conceptualization of social protection that goes beyond the provision of narrowly targeted cash transfers and redistributes assets, effectively integrating excluded and

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5. When discussing informal work, the notion of the bottom of pyramid should be gendered. According to the network Women in Informal Employment: Globalizing and Organizing (WIEGO), women are overrepresented at the bottom of the earnings pyramid, e.g. as contributing family workers and home-based out-workers, while men often appear as informal employers or informal wage workers (Staab, 2020).
6. What defines the marginality of informal workers is not exclusion from markets but the terms and conditions of incorporation (du Toit and Neves, 2014).

marginalized workers into redistributive schemes and providing them with mechanisms to claim their rights. Koehler (2011) argues that if cash transfers are sufficiently generous and broad in coverage, they can constitute the first step towards transformation. At the core of such conceptualizations of inclusive and transformative social assistance is a rights-based and social justice approach: increased transparency, providing accessible information for citizens to monitor their inclusion and claim their rights, and equity in the programme delivery, particularly in contexts marked by social segmentation.

Who is Legible to the State?

To be included in social protection, individuals have to be made legible to state institutions and recorded as citizens with rights and entitlements. Legibility, following Scott, involves the sorting and selection of populations and is thus related to the 'state's capacity for large scale social engineering' (Scott, 1998: 2). This process rests on simplifying social life, with data making some aspects legible to the state, while other aspects remain illegible (D'Ignazio and Klein, 2020). Precarious informal workers have remained in a liminal state because of missing data due to the inability to capture part-time engagements, mobility across sectors or merely social marginality and remoteness. They may also remain illegible for opposite reasons when they are located in sectors and areas regarded as non-poor and thus excluded from social registries. Although significant progress has been made in the measurement of informal employment, it has been done through an aggregate lens — for example, employment surveys representative at the national level — that 'reflects a certain mindset towards informality, which views it as a mass or a lump' (Kanbur, 2017, cited in Chen and Carré, 2020: 12).

In light of this, processes of legibility advanced through recent data infrastructures such as social registries can be seen as a genuine effort to navigate the disorder of informality. However, social registries — the data infrastructure used to target social assistance programmes — are not designed to capture the instability of labour earnings. They focus on structural poverty, including location, households' ownership of durable goods, housing quality, demographic structure and educational levels (Rinehart and McGuire, 2017). Most social registries survey households to generate a score using a proxy means test, a targeting tool regarded as objective and dependable because it relies on observable characteristics instead of reported income, which is considered to lead to moral hazard. However, social registries systematically exclude a vast share of poor households from social protection (Chirchir and Farooq, 2016). In the Ecuadorian case, exclusion errors account for 35 per cent of the eligible population for BDH transfers, with the take-up in the poorest 20 per cent at 65 per cent, as estimated by Rinehart

and McGuire (2017) using data from the Encuesta de Condiciones de Vida 2013 (ECV or Living Conditions Survey). A more recent study by Kidd and Athias (2020) accounts for a targeting error of 50 per cent with respect to the intended recipients — those in the two poorest quintiles using ECV 2014 data.

Central to the problem is that social registries depend on bureaucratic practices that automate and depoliticize the uneven legibility of the poor. Missing and incomplete social registries reveal the power asymmetries and 'social distance' between state functionaries and the lived realities of poor and informal workers. Despite complex targeting tools, large sections of the poor continue to remain illegible to the state. With registration and quantification essential to make populations legible to social protection programmes, less visible informal workers are forced to find ways to make themselves visible to the state.

Far from improving techniques for identifying precarious populations, the process of selection of cash transfer beneficiaries encourages populations to adapt to the targeting processes. Individuals try to guess at the material and behavioural characteristics that could be recorded as defining a condition of poverty in order to secure participation in social assistance programmes, for example, hiding durable goods during the survey or even refusing affiliation to social security to secure participation in social assistance (Palacio Ludeña, 2019). Hence, data infrastructures do not function as neutral tools of identification but establish the parameters of acceptable behaviour for the deserving and eligible poor.

METHODOLOGICAL APPROACH

The methodological approach adopted here brings together the study of politics of inclusion in social assistance in Ecuador, its intended reach and its exclusions. It favours a qualitative approach: an ethnography of social surveys to deconstruct and problematize the digital infrastructures of inclusion in social assistance and to explore what is missing. It traces the construction of the Registro Social, the social registry used by the Ministerio de Inclusión Económica y Social (MIES — Ministry of Social and Economic Inclusion) to record and identify poor households eligible for social assistance. The 2008–09 wave of the social registry was used as the initial sampling frame for interviews and was complemented with purposive sampling to include 'hidden' populations — those missing from the registries. The field research occurred during the transition between the 2008–09 social registry and the 2013–14 social registry, which, after collecting a new sample and estimating a new poverty metric, resulted in a massive process of graduation of beneficiaries out of the assistance programme (in other words, delisting from the social registry). This event helped to identify the institutional process of exclusion from cash transfers, the channels through which former beneficiaries

are notified, and the mechanisms that are (not) in place to claim their rights and entitlements.

The fieldwork was conducted in southern Ecuador, in Loja and Machala, between 2013 and 2015. The cities were selected as part of a diverse case study design (Gerring, 2007). The choice of contiguous locations allowed for controlling factors, such as peripheral location, yet enough variation in variables of interest (for example, informal employment) while having roughly the same level of participation in social assistance. The ethnographic research involved observation of interactions between social assistance beneficiaries and government officials, visits to health centres where mothers took their children for compulsory medical check-ups, and open conversations with intended recipients as signalled in the social registries. These were mostly female as the conditional cash transfer (CCT) programme is allocated to mothers with under-age children, but also included workers who were purposively chosen at sites of informal employment — open markets, streets (to locate peddlers), waste disposal dumps — reaching a total of 30 participants. Interviews were intended to bring to the fore the voices of those directly impacted by the targeting process outcomes.

Insights from the ethnographic research, particularly about the messiness of informality and the difficulties of reaching hidden populations, are used to comment on the more recent COVID-19 social assistance response. Official records, reports and policy documents are treated as instruments of critique and constitute the empirical base to distil the institutional processes that led to the emergence of BPF in Ecuador, using narrative analysis. In practice, this means looking at how informality is constructed in these documents and data protocols, what functions are served by a particular construction of informality in this context, and how the programme is performed, that is, operationalized to allocate social assistance benefits. The narratives are supplemented by key informant interviews with international consultants, programme administrators and data analysts.

THE EMERGENCE OF SOCIAL ASSISTANCE IN ECUADOR

The concept of legibility can be operationalized to capture how the state 'sees' workers and whether they are considered subjects of protection, if not citizens with rights. Four main modes of social protection can be identified in Ecuador, corresponding to different periods in the country's economic history. The first was a dualistic period in which informal workers' inclusion in social protection was dominated by the Church and landed elites. The second was a state-led industrialization period in which efforts were made to universalize social protection but, due to the emphasis on modernization, only the most visible formal workers in urban areas were incorporated. The third was a structural adjustment period in which informality expanded and became politically visible to the state, while the last was the 'New Social'

period in which the state extended social protection to informal workers via social assistance.

By the end of the 1990s, the erosion of social rights that resulted from informalization and flexibilization of labour triggered demonstrations. These pressures led to the creation of a social assistance programme, Bono Solidario (BS or Solidarity Grant), targeted at poor households to compensate for eliminating the subsidy on cooking gas.[7] This was presented as an effort to extend protection to informal workers. However, there was no specific policy instrument to conceptualize and measure recipients' condition of informality beyond missing data, for example, individuals not appearing in social security administrative records. Ecuador was one of the first movers in terms of the chronology and extent of targeting tools for social protection, presented as data-driven rather than political. Throughout the 2000s, the commodity boom created the fiscal space to expand the BS as a conditional cash transfer — the BDH. Like many other early CCTs in the region, the BDH was actively co-produced by multilateral development agencies and international financial institutions.[8] The Interamerican Development Bank (IDB) was involved in overwriting the operating costs of the BDH in 2003 (Martínez et al., 2017) and helped to foster an experimental ethos amongst policy makers and consultants involved in the redesign of the BDH as a CCT, tasked with quantifying the nudge that the programme should provide to the poor to enforce conditionalities and the use of evaluation tools in general.

TECHNOFIXES FOR POVERTY: DIGITAL INFRASTRUCTURES OF INCLUSION

Cash transfer programmes rely on the accurate selection of beneficiaries through innovative digital infrastructures. The circuits of inclusion in social assistance amount to a complex array of priorities, technologies, processes and practices that make it possible to gather data on intended beneficiaries. At first, BS beneficiary households signed up on a first-come, first-served basis. Their eligibility was determined based on household data and income levels as self-reported in local parish churches, which led to substantial mistargeting (Kingman Garcés, 2002). By 2002, and following the regional trend, the administration developed a first social registry, SelBen, and modified eligibility rules, including the use of proxy means testing. Since then,

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7. Formal sector workers were compensated through an adjustment in the minimum wage.
8. The IDB and the International Food Policy Research Institute (IFPRI) played a critical role backing CCTs from early on. IFPRI was invited by the Mexican government to evaluate Progresa (Mexico). The early experience with CCTs seemed to debunk claims that targeted programmes in poor countries were plagued by leakage and high administrative costs (Lavinas, 2013). The World Bank later embraced CCTs as compatible with its social risk management agenda and funded pilots across the region (ibid.).

the social registries in Ecuador have been updated every five years: 2002–03, 2008–09 and 2013–14.[9]

Social registries support the 'intake, registration and determination of potential eligibility for several social programs' (World Bank, 2019: 9). These registries contain information on household characteristics of all members living in areas with a high incidence of poverty. To determine eligibility, such registries construct a socio-economic welfare index, which classifies households as extremely poor, (moderately) poor and non-poor, using a proxy means test. Often, a poverty map is used to identify households to be surveyed and included in the registry. In the Ecuadorian case, the poverty maps contain information of 'around 90 per cent of households in rural areas in Ecuador, and about the same fraction of households in selected urban areas that were judged to have a high incidence of poverty' (Schady and Araujo, 2006: 4).

Most families living in rural areas and some of the more deprived urban areas were surveyed and included in the 2002–03 social registry. In 2003, the BS was merged with Beca Escolar (BE or School Grant), a conditional cash transfer programme to prevent school dropout, into a new CCT of national reach: the BDH. The creation of BDH was accompanied by a retargeting of the recipient population using SelBen II, a proxy means test estimated from a more extensive social registry of poor households. Education and health conditionalities were introduced in the programme and poor mothers were framed as co-partners in social assistance. Informal work was not explicitly addressed in the programme design, though affiliation to social security (as a proxy for formal employment) remained as one of the exclusion criteria.

In 2014, the social registry was again adjusted, leading to a substantial exogenous graduation process, that is, delisting from the social registry. Furthermore, the government banned new households from joining the registry due to budgetary pressures as oil revenues dropped. To justify their exit, the poverty threshold (or welfare index) used to determine eligibility for the BDH and Pensión Asistencial was lowered.[10] The intention was to incorporate graduated (delisted) households as users of other social services (World Bank, 2019). About 400,000 households were removed from the database, and their eligibility was 'switched off' (Bosch and Schady, 2019), as illustrated in Figure 1. The consequences of exogenous graduation of vulnerable populations were substantial. According to Buser et al., 'two years after families lost the cash transfer, which they had received for seven years [on average], the young children in these families weigh less and are shorter and more likely to be stunted than young children in families that kept the cash transfer' (Buser et al., 2017: 788).

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9. The social registry for 2018 could not be fully completed and uses machine learning instead of principal component analysis to estimate the proxy means test.
10. Pensión Asistencial was a cash transfer targeted at the elderly population excluded from the pension system. It used to be part of the BDH.

Figure 1. Number of BDH Beneficiaries between 2003 and 2018
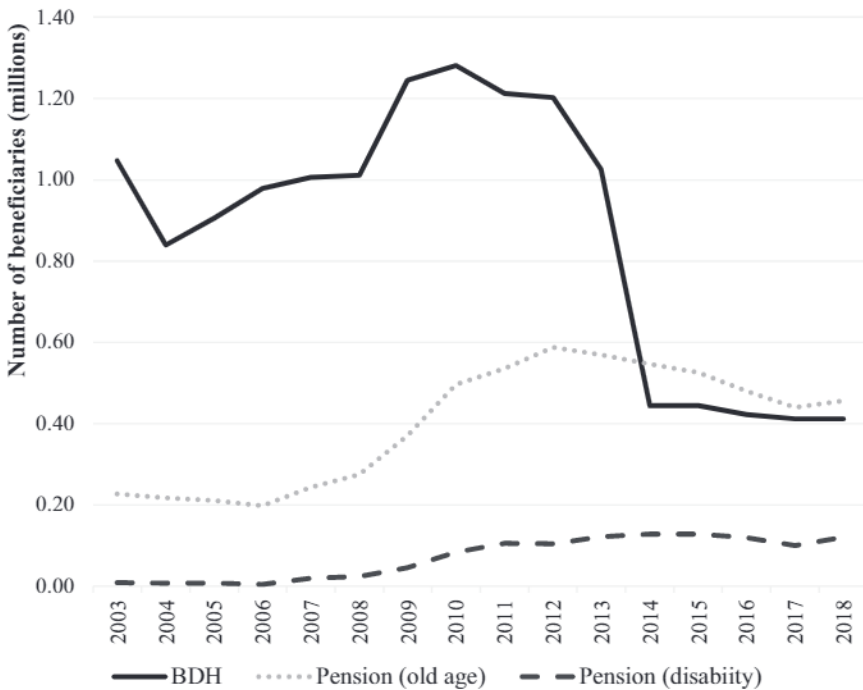
Source: Data from Undersecretary for Non-Contributory Insurance, Contingencies and Operations, MIES, elaborated by the author.

However, the graduation process had not been officially announced to beneficiaries. In interviews, graduated beneficiaries did not know how and when they had been removed from the programme. Many learned about their exclusion when they approached the cash point and received an error message. Some had been notified that they would no longer participate in the programme with an automated text message sent to their mobile phones: '*otros lo necesitan más*', meaning 'others need it more'. This observation is corroborated in a World Bank report which, although advocating the need to revise the social registry to increase the rate of graduation of beneficiaries, flags the lack of transparency and accountability in the graduation process (MIES and World Bank, 2019).

Until the 2014 registry, poverty maps were used to determine the sampling frame and build households' welfare profiles. Principal component analysis (PCA) was used to build a welfare index, which assigned significant weight to a few durable goods, appliances and possessions, such as irons[11] — some-

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11. As speculated by former recipients and confirmed by a key informant from the World Bank involved in the social protection division for Ecuador (interview, July 2020).

thing that seems to have been known to the target population as some hid such goods when surveyed for the social registry (Rinehart and McGuire, 2017). The combination of the decision to downsize the programme, and the opacity of the index identifying beneficiaries of social assistance programmes, has led people to perceive their inclusion as a lottery, to speculate about its (mis)use for electoral purposes, or to challenge the targeting process. Despite not having the statistical literacy to decode the proxy means tests or PCA modelling, graduated beneficiaries' guesses were somewhat informed, as captured in the following quote:

> I went to the MIES office on three occasions. I begged them to include me back in the BDH programme. However, they said no. That I am not in the register anymore. They told me they checked, and I should have enough for a living. So, I thought it might be true because I got a new electricity meter.[12] But I do not understand why [that matters]. We live in a single room.[13]

Moreover, social registries quickly become obsolete. This rapid obsolescence was identified during the field research, which first used the 2008–09 social registry to locate households in 2013 while official authorities were surveying a new social registry. The high levels of attrition (about 50 per cent, as discussed in Palacio Ludeña, 2017) signalled the difficulties of capturing the fluid and 'unorganized' nature of households in social registries. Social registries rely on an abstract and stable notion of a nuclear family as a planning unit to allocate social assistance benefits. However, when simplifying information about household composition and assuming permanence and cooperation among its members, bureaucratic practices inevitably leave out elements essential to the actual functioning of households as sites of reproduction. The openness of households gives their members space for flexible work arrangements characteristic of informal employment, for example, opting for seasonal migration strategies or relying on relatives for the provision of care, sometimes leading to the emergence of extra-household informal provisioning networks. The inability to keep track of this fluidity results in exclusions from social protection, as captured by the following quote:

> Of course, I need it [the BDH money]: I am a poor mother. I have two children that are still attending school and a newborn. He is not even registered. MIES people have not visited us. They have not been to our home; nobody comes to Bello Horizonte, at least not in the four years that we live there. Nevertheless, we do not stay there. We have to keep on moving; otherwise, the police are onto us.[14]

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12. The presence of an electricity meter indicates that the household is obtaining its electricity from the public network.
13. Interview with female former BDH beneficiary (street vendor at 'Mercado Central'), Loja, April 2013.
14. Interview with female rural–urban migrant (street vendor of the drink *horchata*), Machala, July 2013.

Registries also fall short in capturing the circulation of labour, as off-and-on hiring in urban employment often matches off-and-on coming and going from peri-urban and rural areas, sometimes even within the same day. When either parent would go to the city for work, older members, usually grandmothers and *comadres* (networks of godmothers, usually neighbours), would stay home and look after the children, given the limited access to childcare. However, when care duties are shared amongst the extended family or community, the recording of households as planning units becomes much more difficult, as members who appear in certain nuclear families are providing or receiving care in other units. As a result, many women recorded as members of specific nuclear households might have obligations in different households. These enlarged domestic units seem to allow their members to be more flexible and circulate their labour in terms of participation in (informal) paid work and unpaid care work, both at the family and community levels. A beneficiary mother explained how she could 'trick' the system, be 'seen' as poor while guarding her informal network of care: 'they [MIES] could not relate my daughter to him [her husband] although she lives with me … and that is a good thing, because she is also a single mother like I was back then when I was her age, and she makes good use of the BDH money'.[15] This quote captures the informal systems of exchange that resemble what Ferguson (2015) identifies as 'retargeting' from below.
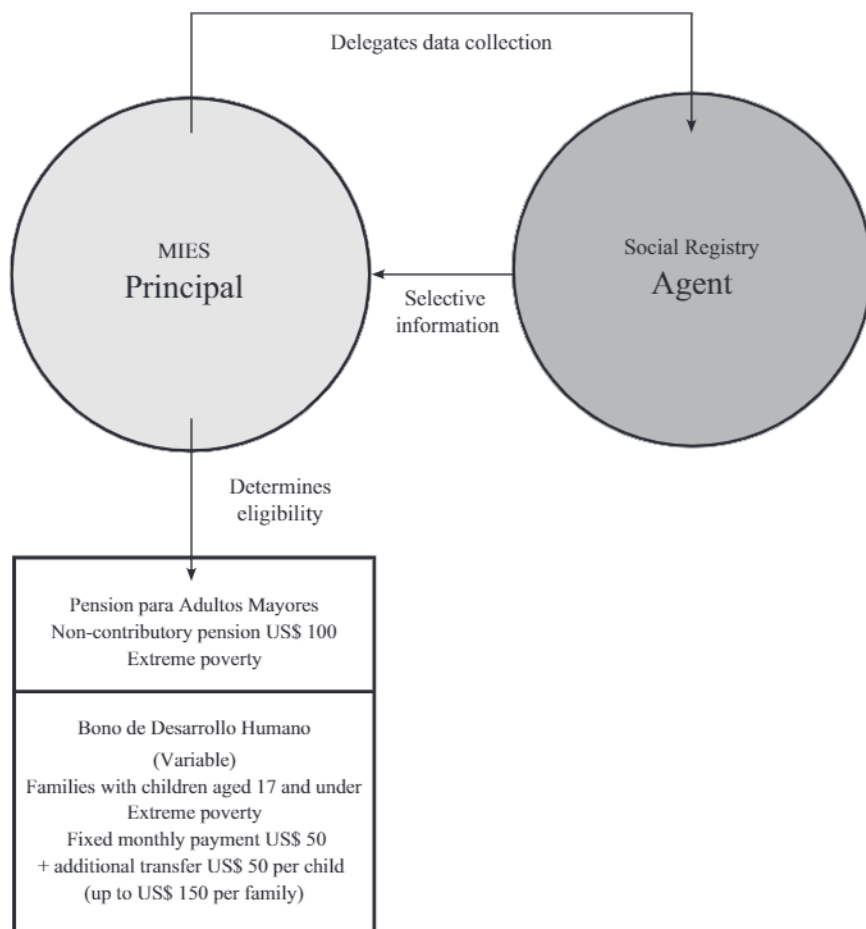
These contradictory processes denote the complexity of the circuits of inclusion of households' informal care and paid work and the challenges of capturing this complexity in social registries. Household data are inherently messy. Social registries, rather than recording tools, are rationing instruments that exclude as well as include. Layers of conflicting institutional processes and bureaucratic practices are added upon each other in the various processes of data infrastructure optimization. These processes are stripped of their context and politics to produce a narrative of a mathematically led set of interlocking eligibility rules.

The firm reliance on data infrastructures to depoliticize poverty is particularly evident in the creation of the 2018 social registry. Borrowing from finance lingo, a World Bank key informant who was involved in the modelling of the 2018 index explained how the data infrastructure was supposed to be shielded from politics to prevent the arguably intended mistargeting of the 2014 index: 'cash transfers have to be administered separately, you cannot be both the credit scoring agency and the bank'.[16] This analogy aimed at differentiating the functions of a social registry unit that assesses poverty and vulnerability by employing a social registry, and MIES, the institution that grants the benefit, as captured in Figure 2. These changes in the digital

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15. Interview with female BDH recipient (domestic worker), Loja, March 2015.
16. Interview with key informant, World Bank Consultant for Ecuador on data infrastructure, July 2020.

Figure 2. Segregation of Institutional Functions: MIES and URS

Delegates data collection

MIES
Principal

Social Registry
Agent

Selective
information

Determines
eligibility

Pension para Adultos Mayores
Non-contributory pension US$ 100
Extreme poverty

Bono de Desarrollo Humano
(Variable)
Families with children aged 17 and under
Extreme poverty
Fixed monthly payment US$ 50
+ additional transfer US$ 50 per child
(up to US$ 150 per family)

Source: URS (2020), elaborated by the author.

infrastructure and institutional framework have also marked a different mode of inclusion into social protection, aimed at creating a multi-programme targeting scheme beyond a narrow focus on the poor — at the risk of suffering from the Christmas tree syndrome (Cecchini and Martinez, 2012), with too many heterogeneous interventions channelled through the same infrastructure of inclusion. The 2018 index was intended to predict consumption per capita (as income is regarded prone to underreporting) and allocate individuals to percentiles to develop a simplified index that could be matched with any poverty metric. Unlike previous exercises, the model did not discriminate between poor and non-poor. Its implementation, however, remained pending until the onset of the COVID-19 pandemic.

FALLING THROUGH THE CRACKS

Ecuador entered the second half of December 2020 with 208,828 confirmed cases and 13,984 fatalities due to COVID-19 (Palacio Ludeña, 2021). Ecuador was soon identified as one of the hardest-hit countries globally, next to Peru, once the pandemic's epicentre moved to the Latin American region (*Financial Times*, 2020). The actual mortality is likely to be underrepresented in these figures due to the levels of informality, the scarcity of tests and the additional deaths from treatable diseases resulting from the limited access to ICUs and the general collapse of the health sector in Ecuador. Following the declaration of COVID-19 as a global pandemic by the World Health Organization on 11 March 2020, the government declared a state of emergency on 16 March in the context of exponential growth in the number of confirmed cases.

In the midst of the COVID-19 outbreak, Ecuador's social protection response was to maintain current benefits and prioritize the delivery of an additional cash transfer programme, Bono de Protección Familiar or BPF, discursively presented as extending assistance to informal workers. To situate the necessity for a new social protection programme in Ecuador, it is worth remembering that a preliminary analysis using ENEMDU data suggested that over 60 per cent of poor households were excluded from BDH and other social assistance programmes (Sectorial Cabinet for the Social and United Nations System, 2020). In this context, the BPF was documented by ECLAC (2020) as an innovative crisis response to extend social protection to informal workers. The programme explicitly mentioned precarious workers in activities exposed to dismissal and redundancies as the target population.

The BPF was rolled out in two phases. In the first phase, US$ 120 was paid in two instalments of US$ 60, made in April and May 2020, to households identified as vulnerable to poverty according to the Índice de Registro Social 2014 (IRS2014) metric. In the second phase, US$ 120 was paid, again in two instalments of US$ 60, between 1 May and 30 June 2020, allocated to a representative of the household or individual whose income was deemed insufficient to afford a basic basket of goods or *canasta familiar vital*, as estimated by the Instituto Nacional de Estadística y Censos (INEC — National Institute for Statistics and Censuses) for 2020. The second phase excluded beneficiaries of other cash transfers, including BDH, or those that received the BPF during Phase 1.

However, the implementation of the BPF was difficult as informal workers could not be easily identified in the social registries. The narrow focus on poor households and the emphasis on consumption, household characteristics to identify poor mothers with dependent children, and dwelling location and conditions — the result of the government's preference for an unmet basic needs approach to poverty — limited the capacity to extend social protection to informal workers suddenly pushed into poverty by COVID restrictions. The registries had no informal employment data, as cash transfers

are assumed to operate without interfering with labour outcomes, making informal practices illegible.

To identify beneficiaries for the first phase of the BPF, the Unidad de Registro Social (URS — Social Registry Unit)[17] used a welfare index estimated using PCA, known as Índice de Registro Social 2014 or IRS2014 — the official metric used to identify BDH recipients before the onset of the pandemic. There was a more recent metric, Índice de Registro Social 2018 or IRS2018, which used machine learning to minimize inclusion and exclusion errors identified in the IRS2014 metric (MIES, 2018), but which had not been officially approved for use as the targeting mechanism for social assistance programmes. The URS was tasked with identifying 400,000 beneficiaries in the first phase with a budget of US$ 54 million financed by the central government. The URS used the IRS2014 to identify households just above the cut-off point eligible for BPF transfers to extend protection to households vulnerable to poverty, as the households below the threshold were, in theory, already covered by the BDH. In practice, inclusion errors persisted, a situation that the programme administrators were aware of prior to the rollout of the programme; for example, the inclusion error rate was as high as 64.9 per cent among the extremely poor (MIES, 2018).
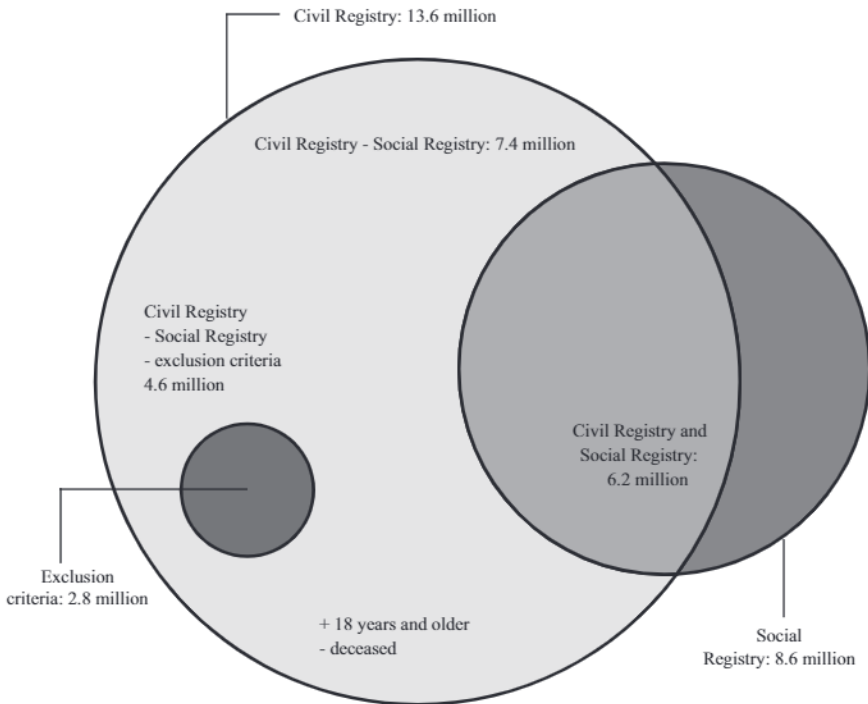
For the second phase, an additional 500,000 households were to be included in the BPF, with a budget of US$ 60 million made available from the Risk Mitigation and Emergency Recovery Project financed by the International Bank for Reconstruction and Development, as part of the loan BIRF 8591-EC (URS, 2020) which had been signed in 2016. The choice of targeting mechanism was a highly debated aspect of the programme, as described in the technical report (URS, 2020). Given the obstacles to identifying the target population using the 2014 metric, the 2018 metric was brought into effect to locate the target population. The 2018 metric used a tool called Xtreme Gradient Boosting or XGB, an application of machine learning techniques that the World Bank had been promoting to expand and complement social registries (McKenzie, 2018). MIES (2018) reported that the IRS2018 metric seemed to reduce inclusion errors to 7 per cent. However, the 2018 social registry was incomplete.

For this phase of the emergency programme, the URS was responsible for identifying a 'technical, objective and uniform' indicator of vulnerability, as quarantine and physical distance affected not only those identified as poor through targeting mechanisms of other social assistance programmes (URS, 2020: 15). An inter-institutional technical committee[18] was created

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17. The URS is responsible for managing and coordinating the social registries and maintaining and updating the related databases.
18. The committee included social policy entities like the Ministry of Labour, the Social Security system, IESS (Instituto Ecuatoriano de Seguridad Social), the Tax Department (Servicio de Rentas Internas), and other institutions, such as the Ministry of Energy and Renewable Resources and the National Electoral Council (Consejo Nacional Electoral — CNE).

Figure 3. Data Infrastructure Design for the BPF

Civil Registry: 13.6 million

Civil Registry - Social Registry: 7.4 million

Civil Registry
- Social Registry
- exclusion criteria
4.6 million

Civil Registry and
Social Registry:
6.2 million

Exclusion
criteria: 2.8 million

+ 18 years and older
- deceased

Social
Registry: 8.6 million

Source: URS (2020), elaborated by the author.

and tasked with the development of a contingent data infrastructure, given the difficulties of locating eligible households using incomplete social registries (URS, 2020). The new data infrastructure relied on administrative registries — for example, registry of vital records and statistics, census data from 2010, and estimations of fertility and mortality — and applied various exclusion filters as determined by the URS, such as inclusion in the 2014 social registry, affiliation to social security (as registered in IESS administrative records), and per capita income above US$ 313.50 (the estimated per capita cost of a basic basket of goods). The committee identified 4.6 million potential beneficiaries (see Figure 3), from which 130,000 had to be selected for the new cash transfer (ibid.).

Even after applying these filters, the mandate to locate informal workers eligible for the new social assistance programme remained challenging to implement. The URS, which led the committee, implemented a residual approach to informality, filtering out individuals in social security records. It was assumed that informality could be captured by exclusion from administrative registries which could signal formal sector workers — despite variability in contributions. Nevertheless, given the incompleteness of

administrative registries (characteristic of the high levels of informality in the labour market and the lack of bureaucratic coordination among various offices), the strategy shifted towards geographical targeting and machine learning. For the second phase of the BPF, the URS favoured geographical targeting over the use of a proxy means tests (URS, 2020), arguing that it represents one of the latest technologies of inclusion into social assistance targeting. To identify vulnerable populations, the committee applied the XGB model, which used machine learning to map estimated poverty at a geographical level using census data (as old as 2010 and thus prone to exclusion errors) and administrative registries. This method was used to search for neighbouring individuals who were not in the social registries but could be in deciles 1 to 3 according to machine-generated consumption data. The algorithm assumed that neighbours share socio-economic characteristics and that their location is fixed. To avoid inclusion errors — administrators' primary concern — the algorithm excluded highly heterogeneous areas in terms of consumption poverty and focused on more homogeneously poor areas, that is to say, those in deciles 1 to 6 (ibid.).

Nevertheless, this might have resulted in excluding vulnerable individuals and households living in census tracts that the committee identified as non-poor — a weakness of poverty maps identified by Rinehart and McGuire (2017). Furthermore, the layering of exclusion criteria had made households illegible, as nuclear families could not be simulated from administrative data (which had no data on kinship except for marital status). As a result, targeting was implemented at the individual level, at the risk of oversampling individuals within the same household. Eventually, intended beneficiaries were located using individual geolocation data from the registration of an electricity meter or electoral roll (using CNE data). Using this method, the URS replicated consumption poverty maps for all income groups, locating individual data for deciles 1 to 10 as estimated from the 2014 and 2018 social registries and mapped onto census data. For deciles 1 to 4, it was found that individuals did not appear in the social security registries (a proxy of informal employment), though some did appear in the social registry. As they continued mapping deciles 5 to 7, more observations could be matched in social security registries, but the data poorly captured their vulnerability status (URS, 2020). Many domestic workers were visible in the social security registries — a paradox of exposure, the result of affiliation campaigns between 2012 and 2015 that aimed to formalize employment and made them visible in social security records. However, many had lost their jobs during the pandemic as employer families observed strict isolation. Given the emphasis on preventing leakage and thus excluding those who appeared in social security registries — an indicator of formal and protected employment — issues with misreporting, low labour-law compliance and tax evasion might have worked to the advantage of wealthier segments of the labour force rather than casualized and precarious labourers who lack the means to conceal their income or occupational status.

In conversations with members of the technical committee, it was mentioned that there was a reluctance to use the data from the ENEMDU, collected by the INEC, which does include data on informal workers and which could therefore signal the sectors and areas where informal employment was concentrated. Nor did administrators talk to informal workers' associations, despite the call for social dialogue coming from various groups, such as the domestic workers' association.[19] The absence of informal workers in the design of the BPF speaks to the gap between their statistical legibility as an aggregate group and their (individual) representation in data infrastructures for social assistance. Visibility in the social registry becomes strategic, as data points that are easily legible to state officials translate into eligibility. However, it is a legal mandate to gather household data before allocating social assistance benefits. The priorities and ordering of actions contradict rights-based social protection, as the data protocols first verify and then protect, leaving many behind.

The use of advanced digital infrastructures did not translate into increased effectiveness in including informal populations, whether because of an erroneous belief in the objectivity of the data infrastructures or because the conditions that perpetuate workers' precarity remained illegible in the messiness of social registries. The BPF had a minimal effect in cushioning the income shock resulting from the COVID-19 crisis: it accounted for a 13.4 per cent increase in household income for the first decile of the income distribution and a 4.2 per cent increase for the second decile (Jara et al., 2021).[20] The delivery mechanisms of the BPF also turned out to be problematic. Various firms act as financial brokers and connect the central database administered by the MIES and interconnected ATM network that keeps all the ID numbers and names of beneficiaries and institutions participating in the social assistance payment system (Martínez et al., 2017), but there is no possibility for direct digital payments. Beneficiaries of the new programme gathered in crowds at collection points, further exposing vulnerable populations to the virus (*El Universo*, 2020). Furthermore, payments were made through specific collection points and smaller local operators in the network, such as corner shops, which left many unable to withdraw the grant as shops were closed because of the lockdown. Despite efforts to increase the number of low-cost payment channels in their branches (AS, 2020), distance still played a role, as remote populations could not access collection points due to isolation and quarantine measures.

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19. Key informant, member of the domestic workers' association Unión Nacional de Trabajadoras del Hogar y Afines, June 2020.
20. Jara et al. (2021) find that COVID-related policies, for example, BDH, BPF and unemployment insurance, played a minor role in mitigating the effect of earning losses, leading to a 0.011 point decrease in the Gini coefficient.

CONCLUSIONS

This article has argued that social registries can reflect power structures behind the limited view of the poverty reduction agenda which shapes expectations, norms and legislation about how data on the poor should be collected and targeting applied. Circuits of inclusion in social protection come into being through a web of relations between populations, institutions and state practices. Contradictory power relations result in the fractured behaviour of state structures that struggle to coordinate bureaucratic practices and incomplete data infrastructures. These elements have a paralysing impact, as evinced in the weak financial response to informal workers, marked by the inability to 'see' informality beyond the aggregate level. The difficulties of locating informal workers through data infrastructures speak of the fluidity of social life and the instability of incomes, hard to capture through fixed units and metrics. Poorly conceptualized, state cash transfer systems can reinforce the absence of trust and the lack of compliance among informal workers — as exemplified in their 'disobedience' of the lockdown measures in Ecuador during the first months of the pandemic.

Furthermore, the reliance on social registries has effectively shifted attention to the technicalities of the selection of beneficiaries, prioritizing 'moral individualism' (Wacquant, 2009) over the intricacies of inclusion, as demonstrated by the emphasis on preventing leakage and inclusion errors, that is, giving money to those who are not vulnerable or poor. Such data fetishism has resulted in convoluted data protocols and ambivalent and often antagonistic claims to social protection. The tectonic plates of data infrastructure are set in motion every five years to resample the target population, with vulnerable households expelled from data infrastructures. This process is not incidental: fractures in the inclusion infrastructures have their selectivity, enacting an exclusionary politics of redistribution. Digital infrastructures said to be insulated from politics entrench exclusions and obscure the social structures that perpetuate vulnerability. For data infrastructures to foster inclusion, they need to be better attuned to the lived experiences of precarity that are not captured in the social registries — the unstable incomes, fluid household structures and mobility that characterize precarious lives.

In light of this, cash transfers cannot be seen as a stepping-stone towards inclusion owing to their narrowly targeted metrics and punitive exclusion protocols. Moreover, better inclusion of precarious workers in the design of social protection still fails to offer transformative forms of economic inclusion (Devereux and Sabates-Wheeler, 2004; Koehler, 2011). While cash transfers top up incomes, they do not address the conditions that perpetuate vulnerability and precarity. As such, cash transfers hardly seem to pose a radical challenge to the situation of informal workers who are prone to precarity unless they are embedded in a broader social policy architecture.

Furthermore, the punitive logic favouring verification over protection does not resonate with the rights-based approach that cash transfer

enthusiasts ascribe to these interventions. Targeting protocols govern populations with a fragile attachment to social citizenship, making them more amenable to control, as they need to be seen as 'poor' from above. Even if the public rhetoric of efficient and accurate targeting might be sincere, it remains silent on how these disciplinary processes lead to invisibilization of precarity. Intended beneficiaries lack the tools to decipher the automated bureaucratic arcana of proxy means tests and machine learning, undermining supposed transparency and obscuring their social rights. As the growing numbers of informal and unpaid workers bear the brunt of these crises, there is a strong call for universalization of social protection (ECLAC/ILO, 2020), which can be administratively less cumbersome and better aligned with a logic of rights.

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