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RESEARCH ARTICLE

Understanding migrants in COVID-19 counting: Rethinking the data-(in)visibility nexus

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Abstract

The COVID-19 pandemic confronts society with a dilemma between (in)visibility, security, and care. While invisibility might be sought by unregistered and undocumented people, being counted and thus visible during a pandemic is a precondition of existence and care. This article asks whether and how unregistered populations like undocumented migrants should be included in statistics and other "counting" exercises devised to track virus diffusion and its impact. In particular, the paper explores how such inclusion can be just, given that for unregistered people visibility is often associated with surveillance. It also reflects on how policymaking can act upon the relationship between data, visibility, and populations in pragmatic terms. Conversing with science and technology studies and critical data studies, the paper frames the dilemma between (in)visibility and care as an issue of sociotechnical nature and identifies four criteria linked to the sociotechnical characteristics of the data infrastructure enabling visibility. It surveys "counting" initiatives targeting unregistered and undocumented populations undertaken by European countries in the aftermath of the pandemic, and illustrates the medical, economic, and social consequences of invisibility. On the basis of our analysis, we outline four scenarios that articulate the visibility/ invisibility binary in novel, nuanced terms, and identify in the "de facto inclusion" scenario the best option for both migrants and the surrounding communities. Finally, we offer policy recommendations to avoid surveillance and overreach and promote instead a more just "de facto" civil inclusion of undocumented populations.

Policy Significance Statement

The COVID-19 pandemic confronts policymakers with a dilemma: should unregistered populations like undocumented migrants be included in statistics and other quantification exercises devised to track the virus, and if so, how? On the one hand, visibility toward the state is often associated with surveillance. On the other hand, invisibility may put at risk not only migrants but also the surrounding communities. To address this dilemma, the paper singles out and mobilizes four criteria linked to the sociotechnical characteristics of data infrastructure. Arguing that full invisibility of people on the move is not a viable option and more pragmatic solutions should be examined, the paper identifies four scenarios for making undocumented migrants visible and offers recommendations to implement a "de facto inclusion" scenario.

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1. Introduction

As other epidemics in history, the COVID-19 pandemic has exposed the close nexus between illness and (in)visibility. This nexus has been acknowledged among others by the World Health Organization's Executive Director Michael Ryan, according to whom in the COVID-19 emergency "we cannot forget migrants, we cannot forget undocumented workers, we cannot forget prisoners" (BBC World, 2020). Since the pandemic became global news, the world has indeed discovered that invisibility is a recurrent companion to the virus, for at least two reasons. First, the virus itself is largely invisible. It is hard to trace and even to classify as the primary cause of death, complicating the efforts to understand its diffusion patterns and to count victims (Kliff and Bosman, 2020). Second, invisible populations like the elderly (McIntyre and Duncan, 2020), the homeless (Belardelli, 2020; Weiner, 2020), and undocumented migrants (Carretero, 2020) are among the most affected by the virus. In this paper, we focus on the latter, in view of exploring viable options to reduce the social costs of the pandemic for people on the move.

This essay suggests that the COVID-19 pandemic puts us in front of a dilemma between invisibility, security, and care. This dilemma is of a sociotechnical nature: it knits together key questions for contemporary democratic societies, like social inclusion, with issues that pertain to the digital infrastructure of visibility such as institutional databases. We ask whether and how unregistered populations[1] should be included in statistics and other counting exercises that characterize the pandemic. In particular, we wonder how inclusion can be just, given that for unregistered people visibility is often correlated to a type of state surveillance and control they wish to avoid.

Unregistered and undocumented people face unique vulnerabilities. Even under nonpandemic circumstances, not only do they experience social and institutional inequalities (Hirsch, 2020), but they are also exposed to high medical risks due to barriers in access to health care (Winters et al., 2018). Barriers can take the form of national health systems charging unregistered residents (Russell et al., 2018), or hostile environments barring undocumented populations from seeking health care (Barenboim, 2016). Furthermore, they often lack accessible information and basic hygiene facilities, and their economic fragility may encourage them to expose themselves to employment-related risks when others may choose to stay at home (Bos-Karczewska, 2020; Morris, 2020).

These vulnerabilities have become especially dramatic during the COVID-19 pandemic, as migrants have higher risks of "contracting and spreading COVID-19 due to overcrowding, inadequate sanitation, poor nutrition, and limited access to health services" (International Organization for Migration, 2020: 1) on top of "limited employment options, poor and unsafe living, and working conditions" (International Federation of Red Cross and Red Crescent Societies, 2020: 7). The COVID-19 pandemic has also drawn attention to the substantial shares of undocumented migrants among essential workers in key sectors like agriculture and social and health care (Anderson et al., 2020: 12). The fact that these jobs often entail frequent and protracted contact with others, often vulnerable populations, constitutes a serious issue for public health.

In ordinary times, undocumented people might prefer to remain under the radar, as visibility may equal repression, racist hostility, or even deportation. During the pandemic, they may continue being invisible, as often they are too afraid to seek help. As a consequence, the number of COVID-19 infections among undocumented groups hardly reach official statistics (Bulman, 2020). However, being counted and thus

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[1] In this article, we use the terms "unregistered" and "undocumented" to refer to people who are kept invisible to the state, for example, undocumented migrants and other people on the move who are not known or are only partially known to authorities. We use the two terms as approaching the notion of semilegality proposed by Kubal, who argues that "semilegality should be viewed as a multidimensional space where legal status—migrants' formal relationship with the state—interacts with various forms of their agency toward the law: their behaviour and attitudes (cf. Kubal, 2012)" (Kubal, 2013: 563). And also: semi-legality "can therefore denote a range of migrants' interactions with law, demonstrating that the divide between legal and 'illegal' is not a strict dichotomy but rather a tiered and multifaceted relationship with degrees of membership that distinguish beyond citizens, permanent legal residents, temporary legal residents, and 'other' migrants" (Kubal, 2013: 563). The definition of semilegality points exactly to those people who are made invisible or semivisible through documentation and registration (or the lack thereof), here referred to as "unregistered" and "undocumented" populations.

visible in time of pandemic is a precondition of existence and care (Milan and Treré, 2020). Conversely, invisibility may mean death, and it puts at risk not only people on the move but also the surrounding communities.

What follows explores this claim by considering undocumented populations as especially vulnerable to COVID-19 due to their invisibility in official registries and administration, and the barriers to formal and professional care that this invisibility often entails. To this end, we dialogue with science and technology studies and critical data studies to illuminate the relation between data infrastructure and their social consequences. We ground our observations on the public debate about undocumented migrants and farm handworkers in European and non-European countries. Yet our concluding recommendations are applicable mainly in European countries.

The paper is structured as follows. First, we identify the dilemma between invisibility, security, and care as stemming out of the ambiguity between surveillance and empowerment in state building and population management. After exposing the sociotechnical nature of the dilemma at hand and introducing four analytical criteria for its analysis drawn from literature as well as our previous research, we enumerate the medical, economic, and social consequences of invisibility for undocumented people, making the case for an urgent reconsideration in proactive terms of the dilemma we investigate here. By triangulating our survey of migrant counting actions undertaken (or not) by European countries, our analysis of the consequences of invisibility, and the four criteria, we propose four scenarios that articulate the visibility/invisibility binary in more nuanced terms. We finally offer recommendations to avoid a surveillance scenario and move instead toward a more just scenario that we term "de facto civil inclusion."

2. The Dilemma of Making Migrants Visible to COVID-19 Counting

We know from history of technology and the sociology that has his roots in Foucault's work (e.g., Foucault, 1977; Foucault, 2007) that the production and circulation of numbers, and statistics in particular (Bourdieu, 2012), has historically played a key role in the construction of the state (Desrosières, 1990; Mitchell, 1991; Carroll, 2006; Mukerji, 2011) and as a "container for the polity" (Bigo, 2002). Population counting is performative of both polities (Pelizza, 2016) and the populations it claims to represent and evaluate (Ruppert, 2010). Scholars observing population census dynamics, for example, have noted how "counting citizens entails making distinctions between who is part of the polity and who is not" (Espeland & Stevens 2008: 405). "Measurement intervenes in the social worlds it depicts" but also "[m]easures are reactive; they cause people to think and act differently," argued sociologists of quantification Espeland and Stevens (2008: 412).

Counting contributes to making up people (Hacking, 1999) by creating or reinforcing categories used to make sense of human beings (Bowker and Star, 1999). To name but a few that fit our analysis of undocumented migrants during the pandemic, attributes such as race and ethnicity recorded in population statistics may end up institutionalizing such categories (Desrosières, 1998). Counting exercises can "exert discipline on those they depict (…) making it possible to monitor or govern 'at a distance'" (Espeland and Stevens, 2008: 414–5; see also Scott, 1998). However, counting can also constitute "a form of inclusion and ethical discussion" per se (Faust, 2008), as recognition might turn into a means of affirmation (Bruno et al., 2014). Interestingly, a study of another invisible population, namely the homosexuals in 1940s America, is credited with having helped forging the gay rights movement in the United States (Kinsey, 1948). By creating a community by means of enumerating it, the study de facto recognized its existence— also in political terms (see also Jacquot and Vitale, 2014). Numbers may indeed become a welcome form of visibility for populations at the margins, which may lead to claim-making. As Foucault (2007) recalled, disciplinary technologies can also trigger inclusive power dynamics and innovative transformation.

It is in this ambiguity between surveillance and empowerment that the dilemma discussed in this article has its roots. The COVID-19 pandemic and the risks associated with the lack of control over the infected population have foregrounded anew the dilemma between (in)visibility, security, and care. In normal conditions, undocumented people may prefer to remain invisible rather than face repression, stigma, or deportation (Barenboim, 2016; Tyler, 2018; Meloni, 2019). Undocumented migrants might conceive of

invisibility as a form of protection from care that too often resembles control and surveillance (Pallister-Wilkins, 2018). However, invisibility might even serve the needs of informal economies (McDowell et al., 2008).

On the other hand, during a pandemic, visibility to COVID-19 counting may be welcomed by policymakers and migrants alike, as a measure to gain access to health care. A surge in the visibility of undocumented populations might help curbing the COVID-19 contagion and avoiding massive diffusion within vulnerable populations. Being invisible in administrative databases indeed often translates into the inability to figure in medical databases and thus access crucial services, health care above all. Even when the costs of insurance can be offset, being administratively countable remains a precondition of diagnosis and treatment. The United States are a case in point. While the second coronavirus relief package known as the "Families First Coronavirus Response Act" has extended testing to the Medicaid-eligible population, even when uninsured, undocumented migrants and other temporary residents are not counted amid the eligible populations (Narea, 2020; Sadeghi and Wen, 2020). Drawing on similar developments during past epidemics, authors have argued that the invisibility of vulnerable migrants in disease surveillance data can constitute a more serious risk than stigmatization, and have thus called for a "pragmatic sociology of screening" (Kehr, 2012).

All in all, the dilemma between the risk of contagion of vulnerable populations and the risk of massive surveillance is of difficult solution. To at least partially unpack it, we suggest considering the conditions of visibility as a sociotechnical question. Indeed, the visibility/invisibility binary does not exist in a vacuum, but is built in and around data infrastructures. The features of administrative and medical databases shape the infrastructure of visibility. Technical decisions such as user profiling and database interoperability establish who can access which data, for which purposes and for how long. The ambiguity between surveillance and empowerment on which our dilemma is grounded can thus be traced back to digital data infrastructures for population management (Ruppert, 2012). Haggerty and Ericson, for example, have developed the notion of "surveillant assemblage" to account for the way digital data infrastructures abstract "human bodies from their territorial settings, and separat[e] them into a series of discrete flows" (Haggerty and Ericson, 2000: 51). We suggest that understanding the sociotechnical methods through which abstraction and separation take place is key to articulate the visibility/invisibility binary in more nuanced terms.

Taking into consideration the infrastructures of COVID-19 data collection and circulation opens the possibility to qualify the dilemma between (in)visibility, security, and care not as a binary solution, but as a matter of articulation of sociotechnical criteria. Drawing on literature as well as on our previous research, we suggest four sociotechnical criteria that characterize data infrastructure, namely the type of data that are collected, the purposes of data collection, the degree of system interoperability, and duration and conditions of data storage.

The first criterion concerns the type of data that are collected, including data collection methods and the scope of data. The methods through which large-scale numbers are assembled have never been straightforward nor all-encompassing, nor are they without their own politics (Gitelman, 2013; Bier, 2017). As the vast literature on data quality in medical studies suggests, not everyone is counted in all systems, and not in the same way (e.g., Blencowe et al., 2012; Lozano et al., 2012; Naghavi et al., 2017). Data collection methods used to carry out COVID-19-related counting are no exception. Pelizza (2020) has listed structural and implicit bottlenecks that may explain why minorities are underrepresented in COVID-19 data. The case of Singapore's second wave is exemplary. While the city state was initially praised for its ability to curb the early diffusion of the pandemic, from April 2020, numbers went up again in cramped migrant workers' dormitories in the suburbs. It took authorities some time to realize that a pull approach was not sufficient. As migrants did not show up at health facilities, they were tested and recorded only late, and only after a dramatic surge in cases. It was only when new infections increased to thousands that testing teams reached dormitories in the outskirts (Ratcliffe, 2020).

Second, the purposes for which data are collected are crucial. Different purposes can entail different data designs, and even when data collected for one purpose are reused in a different context, their meaning and significance might change. A birth date can suggest very different evidence and follow-ups when used

for medical or policing purposes. Scope creep is a widespread phenomenon when dealing with data about migrant populations (Ajana, 2013). As such, purpose articulates the visibility/invisibility binary in more nuanced terms: the point is not only whether someone is visible in statistics and databases, but by whom and for which purposes this visibility is attained.

Third, scope creep often depends on the degree of system interoperability. The more systems are integrated, the more likely data can be used for purposes different from the ones originally intended. In the European Union (EU), massive investments aim to increase interoperability among the European information systems for security, border, and migration management (European Parliament and the Council of the European Union, 2019). Interoperability is deemed the best technical solution to siloed data, interorganizational misalignments, and data gaps. With reference to the visibility/invisibility dichotomy, however, interoperability expands the type of data that are potentially accessible by diverse actors and authorities.

Fourth, duration and conditions of data storage are yet another analytical criterion to consider in articulating the visibility/invisibility dichotomy. As inclusion in a database has effects beyond the initial input, it often haunts data subjects beyond the original context and moment of counting and inclusion (see De Goede and Sullivan, 2016). For this reason, the duration of storage and the possibility to delete data from a database used for COVID-19 counting (cf. Peña and Varon, 2019) further articulates the visibility/invisibility distinction.

This paper suggests that, variably arranged, these four criteria can articulate different scenarios of surveillance and care, as we illustrate after grounding our initial considerations on a survey of the conditions on invisibility of undocumented migrants in the European continent during the COVID-19 pandemic.

3. The Consequences of Invisibility

Invisibility of undocumented populations during a pandemic can have at least three types of consequences—in the medical, economic, and social realms—which we proceed to detail. First, unregistered migrants are generally left behind in the efforts to address the public health threats of the coronavirus outbreak. As we have already noted, the spread and impact of COVID-19 are likely to be worse among migrant populations across the globe also, because they are among the most vulnerable social groups, in virtue of their poor access to information and hygiene facilities, as well as their economic vulnerability. What is more, medical consequences add to and aggravate preexisting institutional and social inequalities.

Second, invisibility may entail asymmetries in economic and labor relations. Not only does it allow exploitation in the agri-food industry, construction work, and on-demand job markets (LeVoy et al., 2004), but it also marks an asymmetry between migrant workers' contribution to the COVID-19 response and their underrepresentation in data analysis and thus policy response. As a matter of fact, most economic sectors at the COVID-19 response frontline, including caregivers, largely employ undocumented workers such as migrants. According to the Migration Policy Institute, in the United States, the foreign born (not necessarily undocumented) represent 38% of home care, and significant shares of workers in food production and distribution (Gelatt, 2020). Food delivery workers in European cities are mainly unregistered migrants who cannot afford to "stay home," as governmental measures require, thus losing income. In Spring 2020, Austria and Germany imported manpower from Eastern Europe to harvest seasonal vegetables like asparagus (Rising, 2020). Yet one might wonder whether such initiative in crucial economic sectors corresponds to actual efforts to make undocumented workers visible to COVID-19 counting, as rights asymmetries continue to affect the job market. We face the paradox that while the labor of undocumented workers is deemed vital, workers themselves are kept out of the COVID-19 count and excluded from aid, treatment, and welfare subsidies. The invisibility of undocumented workers may even have economic effects, with entire sectors collapsing when this specific workforce is inaccessible. In Italy, where undocumented migrants in large part sustain the agricultural production chain especially in the South of the country, the introduction of mandatory self-certification to exit home has been sufficient to jeopardize the agri-food sector as a whole (Roberts, 2020). To counter economic and labor consequences,

policy responses have been timidly experimented. For example, the then Italian Ministry of Agriculture Teresa Bellanova proposed to create a new registry of agricultural labor (ANSA, 2020) and has managed to give some of the estimated 600,000 undocumented immigrants in the country temporary work permits to plug the COVID-19-related labor gap (Corriere della Sera, 2020). Yet the economic consequences of migrants' invisibility are expected to haunt Western economies and industrial relations at least until travel restrictions are lifted.

Third, invisibility has societal consequences, as it contributes to fueling racism and xenophobic reactions. In countries where migration is often associated with racial traits and hospitalized patients are largely white, pseudoscientific myths have spread on social media (Carter and Sanford III, 2020; Depoux et al., 2020). Racialized narratives of alleged immunity to the virus went hand in hand with the apparently contradictory accounts of migrants as infectors (Huffington Post, 2020; Khandekar, 2020; Pelizza, 2020). Such racist narratives do not only lack any scientific base and disregard empirical evidence of Afro-American communities tragically and disproportionally hit by the virus (Eligon et al., 2020). They also allow racial classifications and genetic pseudoscientific thinking to resurge in public debate. Furthermore, they divert socio-scientific explanations and consequent policy action. If undocumented migrants are less prone to ask for help with COVID-19 symptoms (McFarling, 2020), this is often due to their scarce linguistic skills, fragmented social networks, or the tendency to associate the health care system with repressive authorities. These hypotheses should be duly investigated and addressed in order to curb the contagion, while explaining the invisibility of minorities in hospital wards in terms of racial immunity hampers such analysis.

The three consequences of invisibility we have identified do not exist in isolation; rather, they are frequently simultaneously present. Medically exposed populations often work in precarious or exploitative economic sectors, which have become "essential" during the pandemic. Social prejudice thrives on reluctance to address health care facilities. In many countries, labor visibility is tolerated only insofar as it does not lead to social visibility (Ambrosini, 2013). These three consequences considered, the COVID-19 crisis encourages us to take our initial dilemma seriously. With Kehr (2012), we argue that full invisibility is not a fair nor viable option, and more pragmatic solutions should be examined instead. If keeping undocumented populations invisible is problematic, what kinds of visibility can then be pursued?

4. Four Scenarios to Reconsider the Relationship Between Data and Visibility of Migrant Populations

We propose four scenarios for COVID-19 counting that articulate the visibility/invisibility binary by differently arranging the sociotechnical criteria introduced above. Each scenario is characterized by a distinct combination of the four criteria. For each scenario, we discuss whether and how it allows addressing the medical, economic, and social consequences of invisibility, and its conditions of feasibility. The scenarios are summarized in Table 1.

A first scenario provides for a temporal visibility of undocumented migrants only for medical purposes. Health data are collected and made available to medical personnel in one or more health organizations, thanks to (low) interoperability between homogeneous organizations. Data are used for diagnostic, treatment, and disease tracking. They are stored solely for the duration of the pandemic, or until a vaccine is rolled out. We call this scenario "minimalist," as it seeks to prevent the unmotivated collection of nonmedical data, as well as scope creep. To this goal, the circulation of data is limited to medical personnel and organizations thanks to a low degree of interoperability. Given its scope, this scenario would only allow addressing the medical consequences of invisibility. A similar scenario would be feasible insofar as health operators adopt a push approach and reach out undocumented people in temporary shelters and farming settlements, as the case of Singapore suggests. It also requires opening access to testing and treatment to people who are not registered in local registries nor national health systems.

A second scenario collects medical data of undocumented populations primarily for medical purposes, but does not exclude further uses for surveillance and tracing purposes. In this scenario, law enforcement

Table 1. *Four scenarios of data visibility based on the four analytical criteria identified (i.e., type of data, purposes of data collection, degree of system interoperability, and duration of storage)*

Scenario	Type of data collected	Purposes of data collection	Degree of interoperability	Length of data storage
Minimalist	Medical	Diagnosis, treatment, track, and tracing. Only health care operators can access them.	Low (shared only among professionals at health care organizations)	Short (duration of the pandemic only)
Creeping	Medical	Originally only medical, but open to surveillance purposes (e.g., by law enforcement)	Medium (health data are exchanged on demand by law enforcement or systematically)	Long (security conditions apply)
Pragmatist	Labor and medical data	Early diagnosis and treatment of exposed workers to avoid collapse of economic chains (access to employers, medical and labor authorities)	High (systematic matching of labor and medical data)	Short (duration of pandemic and economic emergency)
De facto inclusion	Medical, labor, welfare, bank, and rental data	To provide access to basic services and civil rights, policymaking (diverse agencies according to their mission)	Low	Depends on type of data and purpose, but policymaking requires relatively long periods.

authorities can obtain access to data collected for medical purposes to identify and track undocumented migrants either on a one-to-one basis (data exchange via nonpermanent channels) or systematically (medical information systems are made interoperable with security ones). Once entered in security systems, data are stored for variably long periods of time, depending on national law enforcement regulation and evolving priorities. This scenario ensures that undocumented migrants have access to COVID-19 diagnosis and treatment, but allows scope creep toward security goals and future surveillance practices. As such, the scenario addresses the medical consequences of COVID-19, but not the economic nor the social ones. We term this scenario "creeping" in recognition of the fact that it provides for scope creep. The conditions of feasibility of this scenario are similar to the ones for the first scenario, and depend on the ability of the health system to intercept invisible people who might not spontaneously show up at medical facilities.

In a third scenario, labor data about undocumented migrants are matched with data about their medical conditions. Here, the main purposes of data collection and circulation are the early detection of contagion in frontline work environments to avoid the collapse of whole economic sectors. In this scenario, data are accessible to health authorities for medical diagnosis and treatment, to employers who are accountable for ensuring healthy work environments, and to labor authorities who are responsible for health benchmarks and labor policies. Such a scenario thus requires a high degree of interoperability between systems, with medical and labor data systematically shared and matched. Yet the feasibility of this scenario rests in its informality and temporary character. For it to work, it is paramount that law enforcement authorities are not involved in data exchange. Furthermore, data should only be stored for limited periods of time, corresponding to the duration of the pandemic and of the economic emergency. We name this scenario "pragmatist," as it foresees unprecedented forms of visibility for undocumented populations, in the name of both care and economic return. This scenario addresses the medical and economic consequences of invisibility, but ignores the social ones. An example of this scenario is Italy who, in the wave of the pandemic, sought to develop a similar scenario to deal with the shortage of migrant workers in the agri-food sector (ANSA, 2020).

Finally, the fourth scenario expands the type of data produced about undocumented populations. Medical, labor, welfare, bank, and housing data are produced for the purpose of providing access to institutions, such as health care, work, education, welfare, financial services, accommodation, and civil rights, as well as in view of supporting policymaking in specific sectors. As providing access to such a wealth of sensitive data might lead to enhanced surveillance, data can only be accessed by governmental and nongovernmental agencies for purposes that strictly adhere to their mission. Employment agencies can, for example, have access to labor data alone, and aid organizations to housing, welfare, and labor data. This selective access to data would support policymaking as well. For example, health departments could match medical, labor, and rental data to verify under which working or living conditions the risk of exposure to COVID-19 is higher. Given the necessity of selective access by diverse agencies, in this scenario, the degree of interoperability between systems is low and data sharing is only possible on a case-by-case basis. Data are stored for variable lengths of time, depending on the type of data and purpose. As a rule of thumb, policymaking requires storing data for rather long periods.

We label this scenario "the facto inclusion," because undocumented migrants would have access to most civil rights granted to citizens of a given polity, while not being immediately eligible for citizenship. This scenario resonates with the policy implemented in Portugal (Waldersee, 2020), where individuals with pending asylum decisions have been granted access to the job and housing market, health care, welfare, and financial services. While this scenario addresses the medical and economic consequences of invisibility, it also sets the ground to face its social consequences. By acquiring access to a broad set of institutions of civil life, undocumented migrants also acquire visibility as de facto members of the community. Furthermore, their presence in hospital wards would silence pseudoscientific accounts of alleged immunity, as well as narratives looking at migrants as the "infecting other." It should, however, be noted that the feasibility of this scenario is the most challenging, as it requires collecting data from scattered sources at multiple moments. Yet this bottleneck could be solved thanks to what could be seen as "I-centered data repositories" that delegate decisions about access to the data subject. Blockchains are a well-known example of data repository through which diverse forms of personal empowerment can be pursued.

5. Concluding Recommendations: Toward a Multipronged Approach

We suggest that the "de facto inclusion" scenario might turn out to be the most coveted by those policymakers who tackle the COVID-19 emergency not only as a medical and economic problem, but frame it as a socio-scientific problem (Hoppe, 2010). However, under which conditions can policymakers approximate the "de facto inclusion" scenario we just sketched? A multipronged approach is needed in order to tackle the problem of making the invisible population of undocumented migrants countable under just conditions. In this section, we put forward a set of viable recommendations for policymaking. These recommendations consider the four analytical criteria, our survey of policy measures in Europe, the three consequences of invisibility, and the four scenarios for data visibility we identified. As we write from a European vantage point and our survey of policy responses is admittedly Eurocentric, it should be noted that not all recommendations are universally applicable. When this is the case, the scope of validity of recommendations is explicitly marked.

First, careful consideration of how counting is carried out and what digital infrastructures are used toward this end is paramount. Existing legislation might come in handy in evaluating methods and means of data collection. For starters, within the EU, counting should respect the principles enshrined in the EU General Data Protection Regulation (GDPR; European Parliament and Council of the European Union, 2016), most notably data minimization (i.e., data collection should be limited to what is necessary) and purpose limitation (i.e., data should be collected for specific, explicit, and legitimate purposes). Furthermore, counting should commit to fairness and transparency, whereby personal data should be processed in a way which is transparent to data subjects, and, we add, abides to the principles of democratic oversight and accountability. In other words, the counting we propose should be finalized to protection of vulnerable populations and the communities surrounding them, rather than be at the service of exclusion, discrimination, or repression of undocumented and unregistered people. Furthermore, special attention should be paid to methods of data collection, and especially to how they strengthen invisibilities. Who to count and how is to be carefully evaluated not only against the principle of purpose limitation, but also against the principle of maximized inclusion. As it is unlikely that maximized inclusion can be achieved by adopting a pull approach to testing, proactive approaches to reach invisible populations should be adopted. As suggested elsewhere (Pelizza, 2020), ethnographic methods in testing design could allow better identifying the circumstances and venues where testing undocumented migrants is more feasible. Adopting ethnographic methods could also unravel assumptions about "who" is in need, and thus concur in designing a more inclusive methodology for COVID-19 counting.

Second, any measure taken in relation to data collection and data use and sharing should be free from discrimination (see Milan, 2020), as well as future-proof. To start with, the time variable needs to be given adequate consideration. Data about health conditions collected during the pandemic emergency should not be used against vulnerable populations at a latter stage. Access to civil rights for unregistered people must also include the right to be deleted from any database, and to not be traced beyond the original goals (i.e., the purpose limitation mentioned in the GDPR). Data about people who have been on the move are already stored in systems of identification and registration used at the border, with the risk of carrying stigmas far and wide (Broeders, 2007; Pelizza, 2021). On top of that, entering a health care or welfare database often means enlisting a system of cross checks that can be invasive of personal life and heavily influence individual choices. As many registries are also modes of control and surveillance, inclusion should also mean inclusion in the right to be forgotten. Furthermore, any restrictive or invasive measure should come with adequate sunset provisions, whereby any data collection that is in some way invasive of individual privacy can cease to have effect when, for example, a vaccine becomes available and widely administered.

Third, in this process of envisioning fair rules for counting vulnerable populations, the question of infrastructure is to be taken seriously. Although "invisible" in themselves, digital infrastructures—including how they are designed, integrated, and who owns them—are an integral part of any decision-making with regard to counting, especially for what concerns the public versus private ownership and oversight. As we know that the practice of counting speaks for the counter more than for the

counted (see Scott 1998), we propose an alliance between different counting entities rallying around the need for public critical care. These entities include, at the bare minimum and depending on the context, migrant-led organizations, shelters, health care institutions, unions, and organizations supporting people on the move. This comes with its own set of challenges, including database interoperability issues and principles, as various organizations will have to gather around a concern for care and public health in light of their own experiences and values. The alternative would, however, leave us with a prolonged public health crisis, or centralizes state authorities or private corporations in the collection of population data.

Finally, the counting we propose should learn from European practices of migration management, and realize that there may be correlations between the conditions of data collection and the type of data to be given priority. In Europe, for example, with the 2015 introduction of the "Hotspot approach," practices of data collection granted priority to security data over health data (Pelizza, 2019). If anything, COVID-19 is a powerful reminder of the need to restore the original priority given to health data in population management. In addition, identification and tracking of migrants for purely security purposes should avoid interoperability with health care information systems that join together resident populations and those on the move.

To conclude, we cannot but note that the bulk of our proposals—especially around data protection, data minimization, purpose limitation, and sunset clauses—are valid also in the deployment of contact tracing apps for the general population, which leads us to wonder to what extent any counting measure to contain the virus can be effective while distinguishing among populations. By considering how to fairly include invisible populations in what is today's most pressing counting exercise, we might end up realizing that even most classifications for visible populations are being redefined. A more comprehensive solution to this conundrum would entail rethinking critical services to include all residents of a given polity, regardless of their migratory status. This might mean changing the ways polities see their people and see who these people are, and ultimately the role of data infrastructures in this inclusive recounting.

Abbreviation

EU   European Union

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