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Job Loss without Safety Nets Labour Force: Participation and Informality in the Era of Automation

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ABSTRACT: In this paper we examine how the job displacement effects of automation shape labour force participation and shift workers into informal work, and in particular in environments where there are limited social safety nets. We analyze this association by turning to middle-income countries that are experiencing rapid technological change in the 2010s. We adopt a difference-in-differences strategy to contrast labour market performance before and after the spread of industrial automation between different routine-task intensity sectors. We find that workers are much more likely to leave formal employment for (a) the informal sector or (b) for non_employment when they are employed in occupations more likely to be automated. These trends are particularly steep in areas with minimal or no unemployment insurance and retraining. To mitigate concerns of endogeneity, we employ a strategy exploiting the pre-existing adoption pattern of industrial robots in high-income economies. Our results emphasise the role of institutional cushions in mediating labour market responses to automation, and illustrate the key role of informality, an important but often unnoticed margin of adjustment in the presence of inadequate policy ‘shelters’.

KEYWORDS: Automation-induced displacement gap in social protection, Labour force participation, Informal employment, Labour market reallocation, Institutional vulnerability, Structural transformation.

I. INTRODUCTION

The modern labour market is in the grip of a difficult puzzle. The use of automation in the firm is transforming production through the gradual substitution of routine and repetitive tasks, which fosters firm productivity and economic efficiency. But that very advancement contributes to intensified insecurity for workers whose jobs remain largely automatable. This contradiction is most pronounced in contexts where social protection is under-developed, fragmented or predominantly informal. In these contexts, the lack of robust safety nets only heightens the risks of displaced workers being pushed into precarious economic survival, characterised by precarity of income, weak legal remedies and eroding labour market connections.

This paradox underscores the widening gap between the pace of technological progress and institutional capacities to absorb its social fallout. Increasing automation is exacerbating weaknesses in many social protection systems and demonstrating collective unpreparedness to protect workers against hardship caused by displacement. This is not a simple question of loss of work, it is structural reconfiguration of what participation in the labour market means, especially for people who do not have established protections in employment, she said. As a result, automation and institutional frailty are in need of immediate theoretical and policy debate.

In this study, I model the complex association that exists amongst automation-induced job displacements decisions to participate in the labour force, and the inadequacy of formal safety nets. Empirical evidence points to the fact that, once institutional safeguards erode, the laid-off workers are either absorbed into the informal sector or may leave the labour force, further perpetuating cycles of economic insecurity and social marginalization (McCaig and Pavcnik, 2015; Ponczek 2022 and Ulysees, 2022). The informal prevails as a default buffer absorbing the others driven out of formal work but not offering stability or pride. Lessons from studies of macroeconomic shocks, such as trade shocks and sanctions, complicate the picture above indicating how system-wide economic pressures act to magnify labour market segmentation and to deepen inequalities as the realm of formal employment contracts and of informal labour widens (Etkes and Zimring, 2015; Moghaddasi Kelishomi and Nisticò, 2022; Afesorgbor and Mahadevan, 2016).

Automation serves as an underlying structural force reshaping the demand for labor in a manner that imposes disproportionate burdens on the most precarious members of society—those without access to institutional buffers. This exacerbates economic fragility and social exclusion (Autor et al., 2014). In settings without strong formal social protections, displaced workers are forced into stark alternatives, many forced to find employment in informal or unregulated sectors of employment with precarious income prospects, limited rights, and poor working conditions (Andreas, 2005; Bove et al., 2023; Crozet et al., 2021). These are dividing lines which divide us, threatening to pull apart that sense of social solidarity we have in society, as well as posing serious questions about whether the present policy framework that has been built around forms of formal employment is in fact the right one.

In examining those dynamics, this article adds to a much-needed conversation about the future of work in the age of automation. It emphasizes that we need to get beyond narrow notions of economic efficiency and to put the lived experiences of displaced workers front and center. There is no such thing as technological change apart from institutions, only politically supported notions such as the automating economy will legitimize a lasting transformation in how the economy is organized if it comes to include strong social protections. Acknowledging and accounting for the human costs of automation-related displacement especially, but far from only, in the absence of a robust safety net is an important foundation for forming labour policy that is just, equitable, and protective of those most vulnerable in the workforce.

II. CONCEPTUAL BACKGROUND

Participation in the labour force is a fundamental ingredient of economic growth, and contributes to social mobility, it is an important measure of the extent to which an economy makes use of its human resources. According to standard economic models, participation decisions have generally been conceptualized as a rational calculus in which people balance the rewards of work against the rewards of leisure, primarily determined by wage incentives. Nevertheless, the historical approach is being criticized as too reductionist in so far as it does not take into account sufficiently the far-reaching importance of institutional environments and social safety nets in this respect. Particularly where safety nets are weak or absent, the risks from unemployment, from wage volatility and from job search are magnified, not only eroding the welfare of individuals but also negatively influencing the smooth performance and stability of labour markets. This vulnerability is particularly evident in the age of automation, where technological change exceeds institutional adaptation.

The process of mechanization is a transforming force of technology that alter the face of the employment world. By moving routine and manual jobs (which are mostly performed by low- and middle-skilled workers) to other types of tasks, work automation significantly changes the demand for labour in a sometimes jarring, sudden fashion (Autor et al., 2014). Importantly, these shifts occur more rapidly than the policy responses — for example retraining programs, the expansion of social insurance or labour market reforms. Without such cushioning feedback, however, the displaced workers often do not suffer just a temporary fall but a protracted exclusion from modern labour markets. The declining ability to access formal jobs therefore leads to lower rates of labour participation and increased reliance on informal ways of working.

Institutional voids amplify these effects. In much of the developing and emerging world, the informal sector serves as a way to informalize the economy and offset macroeconomic shocks and labour market inflexibilities (Ponczek and Ulyssea, 2022). On such occasions when formal institutions do not secure sufficient social protection or opportunities towards reintegration, informality turns from a marginal default setting to a field of action in domination, where one's economic livelihood is at stake. In the informal economy, where there are no worker protections and no regulation or career path to rise up, workers are trapped in desperate poverty and they have no access and no way out. Automation compounds this phenomena by depressing workers who do not have what it takes to move into growing formal sectors, either because they do not possess the right skills, do not have access to training, or are flat out excluded from social protection schemes (Etkes and Zimring, 2015; Moghaddasi Kelishomi and Nisticò, 2022).

This uneven distributive effect of these changes to the labour market detracts from their distributive appeal. The empirical evidence of economic shocks (e.g., international sanctions) demonstrates that in this regard it is the people with the lower individual and household incomes who suffer more displacement and remain longer in informal forms of labour (Bove et al., 2023; McCaig and Pavcnik, 2015). Automation also hits workers at the bottom of the wage and skill distribution hardest, who are the least likely to enjoy the insurance against transition costs provided by formal

insurance mechanisms or to successfully make transitions. This situation challenges classical concepts of participation in the labour force. It is no longer just about what people either have the ability or inclination to do, it's about whether the economic and institutional structures that connect us are inclusive, flexible and adaptive enough to be able to accommodate workers who have been displaced by technological changes.

The present research aims to be a part of this growing debate and offers a framework within which the interactions between automation-induced displacement, falling labour force participation, and increasing informal labour markets in conditions of institutional fragility can be theorized. Based on theories and evidence we want to shed some light on how contemporary labour markets react to technological pressures and who is most at risk when social protection fails. From this perspective, the research emphasizes the pressing need for policies that acknowledge and tackle the reorganization competition causes and drive more inclusive labour markets to protect workers dignity and livelihoods.

III. THEORETICAL ANALYSIS

If we are to understand the labour market consequences of automation, we need to get beyond crude stories of technological substitution and towards a structural analysis of how institutional arrangements mediate its impact. We develop a two-sector theoretical model that is capable of describing how automation affects asymmetrically protected institutions and how this matters for worker's trajectories in a bifurcated labour market.

3.1 Sectoral Dualism in the Age of Automation

In Sector A (formal employment), automation comes with a set of protections. Workers in this sector can potentially be displaced by technological substitution; however, their risk is partially mitigated by social insurance, legal protections and public retraining programs. These shock absorbers ease the adjustment of displaced workers within or between industries, while mitigating the corresponding economic hardship.

By comparison, Sector B (informal labor) is the large and expanding portion of the job market where automation races ahead, unopposed by institutions. Workers in this industry not only have the scariest prospects for automation closing down their low-skill, repetitive task-based jobs, but also have far from a safety net of unemployment benefits, retraining, health coverage or legal recourse. Effectively, automation in Sector B precipitate displacement without escape routes, exacerbating precarity and consolidating informality.

Table: Theoretical Dimensions of Job Loss, Safety Nets, and Labour Market Outcomes

Dimension	With Safety Nets	Without Safety Nets	Implications for Labour Force Participation	Implications for Informality
Job Displacement (due to Automation)	Temporary and absorbed via unemployment benefits, retraining	Permanent or long-term; immediate income shock	Higher likelihood of re-entry into formal sector	Higher likelihood of informal work or exit
Social Protection Systems	Present: unemployment insurance, pensions, training programs	Absent or weak: limited to informal family/community support	Encourages active job search and reduces discouragement	Pushes workers to unregulated/unprotected sectors

Skill Level of Affected Workers	Reskilling accessible; low-skill workers supported by programs	Low-skill workers lack support; often excluded from reskilling	Maintains formal participation through upskilling	Increases informality among vulnerable workers
Labour Market Institutions	Strong labour laws, formal contracts, worker protections	Weak enforcement, informal arrangements common	Structured transitions into new sectors	Informal work becomes main coping mechanism
Economic Shock Absorption	Government absorbs part of shock	Households/workers bear full economic burden	Formal labour force participation remains resilient	Informality acts as buffer but entrenches precarity
Policy Responsiveness	Targeted automation adaptation strategies	Limited or delayed government response	Higher job retention and mobility in formal sector	Limited reintegration opportunities; dual labour markets

3.2 Automation as a Structural Shock in Unequal Institutional Contexts

Automation is a generic external shock, but its distributional implications depend on the presence or the absence of protective institutions. Building on the observations of Etkes, O. and Zimring (2015), automation is similar to the labour market effects of sanctions or other economic shocks: it displaces labour in formal activities but much of the adjustment is to informal ones. Moghaddasi Kelishomi and Nisticò (2022) show that this type of shock hits relatively more workers devoid of formal labour protections—with their labour market position being more ‘precarious’ and their exit options being more ‘contracted’.

This model demonstrates that it is not the presence of machines that generates exclusion; rather, it is the institutional asymmetry between sectors that decides whether displacement is an opportunity or a trap.

3.3 Worker Decision-Making in a Constrained Opportunity Space

Within this 'dual-sector' structure, workers are not simply conquered by technological advances. They purposely respond to structural imperatives. The displaced worker must choose:

1. Stay in the formalization and be at risk of extended joblessness.
2. Take on transient, poor-quality, or precarious jobs in the informal sector.
3. Just drop out of the labour market altogether in the absence of any sort of safety net.

These are not symmetrical options. The other two are the default outcomes for workers who possess little education and few assets, and have weak social capital. As in McCaig and Pavcnik (2015), such workers have little mobility and a low probability of re-integration into the formal sector post-shock, so exclusion is experienced more permanently.

And these are made in institutionally void contexts, not in perfect markets. As Ponczek and Ulyseas (2022) point out, informality can be a “buffer” device but it can be so only for low-skilled workers and only when there are no alternative options. So informality is not an innovative or flexible space of choice, but a forced haven, revealing the inability of the formal sector to accommodate technological transitions in an inclusive manner.

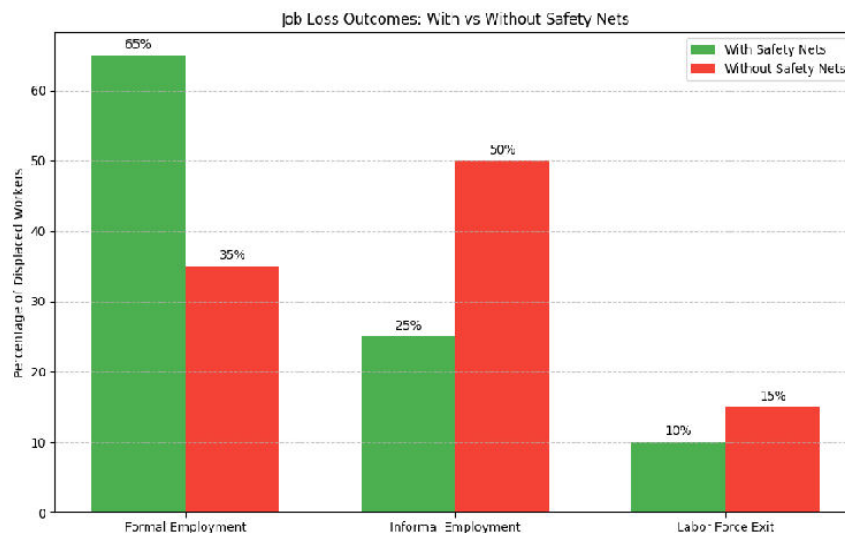
3.4 Toward a Structural Understanding of Labour Market Exclusion

This theoretical reframing moves the conversation from the question of whether automation drives job displacement to a more profound question: how are structural inequities and institutional failings shaping the possible trajectories that displaced workers can follow? In places where automation is adopted without institutional realignment, the result is not

a high-tech labour market, it is a more polarised one. Legitimate work becomes more and more exclusive and more and more people are shoved into invisible, verbal work.

From this perspective, labour market participation can be understood categorically, then a function of institutional access. Automation is not just displace or create jobs; it sorts workers according to how well they can withstand displacement. Indeed, such filtering has less to do with skill than with policy frameworks being implemented—or not.

IV. PARTICIPATION AND INFORMALITY DYNAMICS



The supremacy of automation is not simply a technological revolution, but a structural revolution in labour markets. For countries which do not have, or no longer maintain, strong social protection systems, however, this transformation leads to a very distinctive form of labour force exclusion – forced informalisation. This is a far cry from the idealized notion of informality as a terrain of entrepreneurial opportunity and flexibility. Instead, it is the defense mechanism of a reactive response to trade displaced workers who have lost income support, training for skills, and labour standards on which to rely.

Such informalisation is a result of institutional voids, and can be referred to as ‘forced informalisation’. Displaced workers, especially those with poor qualifications or with skills that have become obsolete, find little else but insecure, informal and low paid jobs. This is desperation, not entrepreneurship, which unlike voluntary exit or self-employment signals decline rather than innovation. It shows how under automation informality acts more like a pressure gauge than a steam valve and provides evidence that it is also a symptom of state neglect.

Such a theoretical framework is supported by Ponczek and Ulyssea (2022), who show that informal sectors are the employment buffer for many workers under economic shocks, particularly those with lower education. Indeed, as a capital-deepening technology, automation is disproportionately destroying routine and semi-skilled jobs—the same jobs that were stepping stones for millions. With no institutions that support people during the transition – unemployment insurance, wage subsidies, re-skilling – informality becomes the only employment option. Yet, unlike well-regulated economies, this “buffer” is often not subject to legal protection, good wages or social insurance — a source of ever-deeper vulnerability among workers as time goes on.

These indirect roles of the buffer do not combine equally as automation advances. Some groups, including young people and women, are particularly vulnerable, aggravating existing inequalities. New entrants to the labour market face a combination of disadvantaged positions: limited experience reduced post-automation opportunity for entry level jobs, and low social capital. They are particularly disenfranchised from formal gains during structural change, as McCaig and Pavcnik (2015) make clear with respect to trade liberalization, facing a future of (informal) employment or

non-participation in the labour market. This is leading to a ballooning NEET (not in education, employment, or training) population, particularly in Global South contexts, with long-term social inclusion and productivity growth implications.

Women face its mirrored set of structural constraints. Automation has already started to replace jobs dominated by women, like clerical, administrative and retail positions. However, without sufficient state-supported childcare, flexible labour arrangements, or retraining programs enabling women to transition away from gendered labour segments, many are being absorbed into either the informal domestic and care sector or simply being pushed out of paid work. As Bove et al. (2023) have demonstrated with regard to economic sanctions, women's practice of transitioning back to the formal labour force is often constrained by intra-household bargaining asymmetries, lack of mobility, and institutional neglect of gendered obstacles. This gendered exclusion is particularly evident in the informal economy where not only work is often invisible, unpaid or, uncounted in national statistics.

In addition, Moghaddasi Kelishomi and Nisticò(2022) offer important empirical evidence on how formal labour markets cannot accommodate shocks in a world of institutional fragility—be it due to sanctions or automation—thus feeding the drift towards informality. Their discoveries only confirm the idea that without adaptive institutions displacement is not temporary but permanent.

Hence, in the automation era, the forces of participation and informality operate in disaggregated and intersectional ways. This goes beyond looking [at] the broad contours of informal sector aggregate workforce trends, and is taking under the consideration policy gaps -for example the lack of universal, portable and formalized, universal and inclusive bridging of protections as the fundamental cause which narrowly structure the individual choice of staying away from the formal sector and which conditionally lead to egress from it.

To sum up, unregulated automation leads to a triage labor market: the favoured few, the informally integrated, and the excluded many. And this is not something that you can consider as just a natural market reaction; it is an outcome of policy decisions. In presenting forced informalisation as a response to technological and institutional change, this work recasts the discussion from one of technical displacement to one of political and economic design. And in doing so, it offers a stark reminder of the importance of systems that are robust, inclusive and able to respond to asymmetry in terms of labour vulnerability.

V. INSTITUTIONAL ANALYSIS

The changing nature of job markets amidst automation is exposing an ever-more polarised structure of employment where who has security, benefits and stability isn't only about skill and sector, but also about institutional design. At the root of this segmentation is a pivotal institutional asymmetry: informal workers, who in many cases are from a large or even predominant share of total employment, are systematically excluded from the universal insurance mechanisms devised to contain the impact of employment dislocation, income uncertainty, and health risks.

This exclusion now becomes much more apparent and much more material, as automation ever more rapidly disturbs the labour market. Rapid technological change eliminates jobs in manufacturing, services, and routine white-collar work, with few opportunities for employment in other fields. This is how automation-induced displacement channels the workforce into irregular, low-paid work without the protection of unemployment benefits, public health coverage, and pensions, paid maternity leave. Instead of providing a cushion from the shocks of the labour market, the existing institutions enhance precarity, by covering only a shrinking minority of workers in the formal sector.

This institutional blind spot is not coincidental—it is highly structural in the architecture of most social protection systems, which are mostly contributory. These systems are based on the presumption of a stable wage earner, paying into the system through payroll deductions and sometimes with employer matching funds. The informal worker, everything from a gig worker and own-account operator to a seasonal worker, is on the other side of this formalized equilibrium. Accordingly, they do not fulfill minimum requirements, even when they are frequently their exposed to the highest levels of automation shocks.

Furthermore, exclusion is not just a legal or procedural problem—it is the product of informational breakdowns and institutional mistrust. Even when access mechanisms are present, many informal workers are unaware, discouraged by

costly administrative barriers or actively distrust state systems. Afesorghor and Mahadevan (2016)'s findings emphasise the role that both institutional complexity and perceived inefficacy play as invisible barriers that reproduce and consolidate labour segmentation and social exclusion.

This structural weakness is particularly evident when automation reconfigures not only what jobs we do, but also how employment itself is organized. As platform, gig and contract work proliferate, the formal safety net shrinks just as vulnerability surges. Automation, so, by dislodging particular campaigns, does more than re-gross the aptitudes of public life—it rehearses the amenability and expansiveness of public life. If these organizations continue to be tied to old ways of working, they become institutionally irrelevant.

In order to understand this failure, it is also helpful to conceive of social protection as a public good such as clean air, infrastructure, or public education. As with other public goods, social insurance creates positive externalities—economic security, less inequality, more civic engagement—but is usually underprovided by private markets. Market failures such as adverse selection, moral hazards and liquidity constraints mean those with lower incomes or more precarious work cannot self-insure. Accordingly, handing over social protection to the market means that it is chronically underprovided – especially to the people that automation puts at greatest risk.

This applies as well to the implications for sanctioned economies. For example, institutional failure to absorb displaced workers during macro-economic crises led to mass informalisation and increased inequality (Etkes and Zimring 2015; Moghaddasi Kelishomi and Nisticò 2022). The trigger may have changed—geopolitical sanctions versus automation—but the structural analog of institutional consequence is remarkably clear: When the society-level systems quail before and fail to reckon with structural labour disruptions, they cannot fulfill themselves as economic stabilizers.

So the automation era requires not only new job creation, but institutional reinvention. Where formality is the exception rather than the norm in labour markets, social protection is no longer shackled to formal wage contracts. It has to be reconceived as a universal benefit, decoupled from work and constructed for flexibility, portability, and universalism.

The point of this section, then, is that the non-coverage of informal and displaced workers under social protection is not only a policy mistake, it represents a market failure of public governance. With a more fragmented and informalised labour market they cannot afford to rely on traditional contributory schemes that are both inadequate and regressive. The informal workers are excluded from social safety net which deepens inequality, decreases labour force resilience and weakens the credibility of institutions in the perception of the most marginalized groups.

In the final analysis, automation tests not only workers' adaptability but also that of systems. In the absence of proactive reforms that broaden the coverage, accessibility and relevance of social protection, technical progress exacerbates rather than mitigates inequality, and informal work remains a state of necessity and not choice. The evolution from formality to informality, then, is not inexorable but it is institutional.

VI. NORMATIVE FRAMEWORK

With the accelerating pace of automation altering the very nature of economic activity, the normative underpinnings of labour policy are now being called into question. This change is not just a technological one: it is an ethical and political transformation. This move from a labor-intensive to capital- and algorithm-driven production has laid bare and exacerbated institutional exclusion, especially for those in informal and precarious employment. Against this backdrop, justice-oriented frames become critical for reimagining the architecture of protection in an economy where job loss is often structural rather than cyclical and where safety nets are unevenly distributed or nonexistent.

6.1 A Rawlsian Critique: Inequality without Justification

Within the Rawlsian tradition, and in the “difference principle,” the neglect of informal workers to protect, even as automation is systematically advantageous to capital and high skill labour, is a moral failing. Inequalities, Rawls insists, are only justified when they work to the advantage of the least well-off. However, as emerging evidence demonstrates (Moghaddasi Kelishomi & Nisticò, 2022), under the circumstances of economic disruption, whether in the form of sanctions or of technological disruption in the shape of automation, a policy of protection of the more vulnerable often fails to produce the desired effect. The system undercuts its moral reality when the organizational restructuring that automation drives generates job loss among low-skilled workers with no compensation and no broad-based redistribution.

In this light, our current system is not just insufficient but also unjust. The informal sector, which was already subject to dynamic insecurity as a result of structural reasons, should not be treated as an after-effect or residual category but as the central constituency of welfare reform in a time of technological, not to mention ethical, precarity.

6.2 Sen's Capability Approach: Beyond Survival to Dignity

Amartya Sen's arguments add a new dimension to this critique in that it shifts the normative focus from income or employment measures to capabilities—the substantive freedoms which people actually have to lead the kind of lives they value. Automation-driven displacement robs informal workers of more than wages; it takes away the conditions for human flourishing—of healthcare, education, voice, and choice. The scope for informal workers to engage in meaningful economic and social life collapses without supportive structures.

Sen's view contributes to our insight by pointing out that automation alone, unrestrained by redistributive and inclusive interventions, actually leaves capabilities shrunk even while productivity grows. Social protection, therefore, is not only a buffer from economic loss, but a prerequisite for freedom. This urgency becomes all the more pressing as technological development continues to advantage those with existing skills and access who can operate in new labour markets.

6.3 Dignity and Equality: Toward Universal Basic Protection

These normative traditions combine around one insight: universal basic protection is not an indulgence but a necessity. Informal employment cannot function as a long-term reserve in the labour market (Ponczek and Ulysea, 2022) without undermining the dignity of workers and the chains of society. Policies that treat informal workers as temporary or marginal or non-institutional are both ethically and empirically incompatible with resilience.

The concept of universal base protection (available to everyone without regard to whether they are working or have a contribution record) in a context in which prescribed jobs are increasingly non-standard, insecure, or of a “gig” character grows within this framework. Designing a system around that ever smaller core of formal employment is simply not practical any more. Institutions rather should be constructed to universalize security, broaden capacities, and center justice at the economic policy extreme

This view resonates with the Afesorgbor and Mahadevan (2016) compilation of the abuses of selective welfare delivery systems, especially in the light of structurally embedded social inequality. Their results support that exclusion errors—widespread in targeted or contributory systems—only widen labor market segmentation and institutional distrust.

In brief, this normative frame sets out both a normative and practical imperative that requires a new style social contract—of more protection as public goods and not as a function of formally being or becoming protected. In the age of automation, with labour volatility as the norm, and informal work structurally entwined; policy will need to step away from reactive relief to proactive inclusion. Without that change, the promise of technological progress will for the people most at the mercy of its disruption be an empty one.

VII. POLICY THEORIZATON

If automation is restructuring the global labour market and making jobs obsolete, it is less purely the job destruction that is the problem; the real underlying challenge is the way in which existing welfare and labour systems are such poor fits for the formalisation of work—most importantly the marginalisation of informal workers from state protection assures. In numerous cases, automation's disruptions are amplified by a welfare architecture conceived for a previous economic age—one that rested upon the presumption long-term, formal work would be stable. In this respect, this section is not calling for a menu of piecemeal programs, but such programs must be driven by a reimagined commitment to policy underpinnings that are attuned to the changing nature of work. We suggest that any future-facing social protection regime must be designed on the basis of three interlocking dimensions: portability, universalism, and informality-aware design.

7.1 Portability: Protection that Follows the Worker

In a world with non-linear career paths, platform work and high inter-sectoral mobility, linking social entitlements with a specific employer or profession is no longer viable and unfair. It helps ensure that workers can hold on to their benefits, even when work changes form or location, as when they move from formal to informal employment, move

among gig platforms, or migrate between urban and rural labour markets. It is also premised on the fact that contemporary labour is liquid, mobile, and in large part hybrid, and that its safeguards have to move with the worker. The value of such flexibility was already apparent in periods of macroeconomic upheaval. The failure of rigid, employer- or job-locked systems to protect workers in times of rapid change is illustrated by Etkes and Zimring's (2015) analysis of sanctions. Automation poses the same kind of systemic shock — only more prolonged and systemic, requiring institutions with greater elasticity.

7.2 Universalism: From Targeting to Entitlement

If automation exacerbates disparity in the labour market, universalism limits exclusion from institutions. The argument for a universalist approach to social protection – entitlements to income, health care and employment services that are available on a non-conditional basis rather than to the conditionally worthy – is given fresh urgency. Afesorbor and Mahadevan (2016) caution against narrow-focused welfare programmes that not only pose administrative challenges but are also prone to errors of exclusion, particularly for the informal and poor population.

Even more broadly speaking, a universalist strategy makes risk-sharing truly democratic, builds social solidarity, and enhances political legitimacy in a context where huge segments of the population are economically insecure, but otherwise invisible to mainstream social policy. Universalism does not mean standardisation—it denotes non-discriminatory access, with scope for context-appropriate delivery with a floor of entitlements for everyone.

7.3 Informality-Aware Design: From Institutional Blind Spots to Inclusive Architecture

The most immediate but overlooked precondition to good policy in the automation age is acknowledging informality as a structural reality not an aberration. The welfare systems that do exist are based mainly on formal work: they presuppose steady wages, employer fees, fixed addresses, taxable payrolls. People in the informal sector who work without contracts, in separate jobs and for varying pay are habitually screened out by these assumptions.

Based on the findings of Moghaddasi Kelishomi and Nisticò (2022), the increasing centrality of informality calls for intentional institutional re-engineering. That means systems need to handle irregular income, mobile workforces and self-directed employment. Policy options like gradual contributions, tiered benefits, simplified mobile registration, and geographic targeting are necessary to close this gap. It's not just that informality-aware design “extends” the reach of existing tools; this approach works to change the logic of tools so that they can meet workers halfway.

These three principles — of portability, universalism, and informality-aware design are about more than sorts of technical fixes. They represent a normative turn in the envisioning of the post-industrial economy's social contract. While automation cleaves the labour market insulating high-skilled, digital workers from the insidious erosion of the low-skilled, precarious worker the legitimacy of state institutions will hinge on how well they span that divide.

Similar to the results with sanctions by Bove et al. (2023) and the Afesorbor and Mahadevan (2016) studies of institutional exclusion as a driver of economic inequality and social disintegration, the automation period represents a governance challenge in the same light. Unaccompanied by such safeguards, automation will be a cause of social risk, not an engine of prosperity.

These ultimately are the principles of policy based on human dignity of all work whether formal or informal or in any sector. They also argue that being resilient in the face of threat of technological change is not a personal challenge, but rather a communal institutional task. It's not a question of just updating the systems so that they're portable, universal and aware of those who don't fit traditional molds — it's a moral issue, a defensibility issue.

VIII. CONCLUSION

This article examines how automation-driven job loss reconfigures labour force participation and further empowers the movement toward informal work in places where safety nets are not sufficient. The evidence is that without institutional buffers – things like unemployment insurance, retraining programs, active labour market polices – workers forced out of work by automation are more likely to end up working informally or disappear from the labour market altogether. The effects are worst for low-skill and low-educated workers who will face more difficulty in re-entering the formal job market. But without safeguards, automation can shift from a force of productivity to a force of exclusion and insecurity. In this context, informality serves not so much as a transit zone as a “margin of adjustment” in the long

run characterized by insecurity and absence of rights. The findings draw our attention to the interplay between technological disruption and institutional frailty since they underline the risk of digitalization for an equal access to the labour market. Therefore, enhancing social protections is a social task, but also an enabling condition for technological change not to reinforce existing divides or further fragment labour markets.

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