





RESEARCH ARTICLE

# Pooling and repooling risk: The limits of Insurtech platforms in inclusive insurance

Yannick Perticone  and Jean-Christophe Graz 

Institute of Political Studies, University of Lausanne, Lausanne, Switzerland

**Corresponding author:** Yannick Perticone; Email: [yannick.perticone@unil.ch](mailto:yannick.perticone@unil.ch)

## Abstract

This article investigates the promise of Insurtech to expand the frontier of the insurance market to include vulnerable populations around the world. It contributes to current debates on the proliferation of new technologies for financial inclusion as embedded in contemporary forms of platform-based capitalism. We argue that Insurtech's promises fall short of expectations because of the contradiction between the principles of platform scalability and insurance risk pooling. Such contradictions lead Insurtech platforms to unpool risk rather than provide innovative technologies to pool it. This ultimately limits the expansion of markets for inclusive insurance as Insurtech platforms struggle to scale up the market through their supposedly disruptive technology. Our analysis draws on a range of regulatory reports, complemented by in-depth interviews with Insurtech executive officers. The article offers insights into the contradictory principles currently driving the digital inclusive insurance market, as well as the limits to the ongoing global expansion of platform capitalism.

**Keywords:** financial technology; inclusive insurance; Insurtech; platform capitalism; risk

## Introduction

According to promoters of the financial inclusion agenda, the global market for its services is estimated at close to 4 billion people worldwide; yet only a fraction of this number – estimated at 179 million – have dedicated insurance coverage (IIF and Accion, 2018; Microinsurance Network, 2021). This gap in coverage epitomises the difficulties encountered in promoting insurance products as a privileged risk management tool supporting the broader development agenda. Insurance technology firms, also known as 'Insurtech', have recently taken over from more conventional market actors with the mission to expand the market (Cenfri, 2017; 2019; Microinsurance Network, 2022). The aim of Insurtech is to support an emerging middle class which is digitally connected but in danger of falling into poverty. It also pledges to overcome the lack of information on uninsured customers by developing alternative datasets. Ultimately, it promises to improve the calculation of risk assessments by providing a highly personalised pricing of premiums. Yet questions remain regarding the extent to which Insurtech is likely to fulfil its promises towards the vulnerable populations of the world.

Several studies have investigated the link between Fintech and the political economy of financial inclusion. Of particular interest for this article are Bernard's (2019b) analysis of the neoliberal framework underpinning the technological turn in insurance and

Aitken's (2022) investigation of how such Insurtech use well-known insurance techniques without necessarily being able to extract value from them. Both authors stress the limited impact of insurance technologies on the consolidation and expansion of the insurance market for poor populations. Other studies situate Fintechs' advances in financial inclusion within the recent shift of global capitalism towards platforms (Langley and Leyshon, 2020; 2022; Clarke, 2019; Roitman, 2023). Building on Langley and Leyshon's (2022) account of the platforms used to expand financial services through Fintechs in Africa, we look at the particular processes supporting this expansion. While Langley and Leyshon view FinTech as shaped by three processes – reintermediation of monetary and financial relations, consolidation through partnerships, and capitalisation from venture capital – we regard market expansion in the field of inclusive insurance as being based on other processes. Contrary to other Fintechs, the creation and expansion of inclusive insurance markets primarily depend on the scalability of platforms and their capacity for pooling risks – the principle at the core of insurance.

Our analysis of the relation between platforms' scalability and risk pooling builds on studies in the sociology of markets, the international political economy of insurance, and the rise of platform capitalism. In particular, we draw on Michel Callon's concept of 'the economy of qualities' (Callon et al., 2002; also Çalışkan and Callon, 2010), using it to analyse processes through which Insurtech platforms qualify and requalify targeted populations as a priceable risk. We combine this approach with insights from the sociology and international political economy of insurance that help us to drill deeper into its principles and contradictions (Doyle and Ericson, 2010; Ewald, 1991; Gowri, 1997; Graz, 2019; Lobo-Guerrero, 2017). Finally, the literature on platform capitalism helps us to appraise some of the structuring effects and contradictory dimensions regarding scalability of market expansion (Narayan, 2022; Pfothenauer et al., 2022; Srnicek, 2016; 2018). Combining these three strands of scholarship allows us to foreground how the qualification and expansion of the inclusive insurance market depends on what we appraise here as processes of interoperability, valuation, and aggregation.

The first of these three dimensions, *interoperability*, designates what underpins the ecosystem used by Insurtech platforms to scale up the pool of their market. The second, *valuation*, focuses on the moment at which a monetary value is assigned to the qualification of the risk covered by the insurance policy. The third, *aggregation*, highlights tensions in the principle of insurance in risk pooling, which surface when trying to design personalised premium prices. Our empirical analysis allows us to identify key contradictions in these three dimensions. We stress that the interoperability infrastructure is dysfunctional, that the valuation moment is characterised by dissonance, and that the aggregation of risk results in the exclusion of important segments of the customer base (in contrast to the claims of the inclusive insurance industry). We thus argue that Insurtech's promises fall short of expectations because of a contradiction between the principles of platform scalability and insurance risk pooling. This contradiction leads Insurtech platforms to unpool risk rather than provide innovative technologies to pool it. As a result, Insurtech platforms struggle to scale up their market. As we highlight in our conclusion, such limits to the expansion of platform capitalism in the domain of inclusive insurance has further implications regarding the relevance of private insurance for poverty alleviation and, more broadly, inclusive development policies.

Methodologically, the article combines document analysis with in-depth semi-structured interviews. The documentary analysis includes official documents produced by the International Association of Insurance Supervision (IAIS) (IAIS, 2012; IAIS and CGAP, 2007) and related expert reports published by the Centre for Financial Regulation and Inclusion (Cenfri) (Cenfri, 2017; 2019), Insight to Impact (Insight2Impact, 2019), and the Microinsurance Network (Microinsurance Network, 2021; 2022). All documents were available online and published between 2016 and 2021. Documents were selected according

to their ability to provide detailed information on the rationale motivating the inclusive insurance industry to promote Insurtech platforms and expand their market. To complement the documentary analysis, we also conducted in-depth semi-structured interviews with chief executive officers and managers of 15 Insurtech platforms and digital wallet platforms. Due to anonymity requirements, we cannot provide further detail regarding the location and the names of platforms or of their representatives. Our choice of platforms, however, was guided by critical case sampling based on four criteria: first, having a digital infrastructure mediating the economic relationship between an insurance company and a final customer; second, collecting traditional and alternative data on customers; third, applying data analytics for risk assessment; and fourth, aiming at achieving financial inclusion through insurance services. Interviews were conducted from November 2019 to November 2021. Due to the pandemic, most interviews were conducted online via video communication. The interviews provided a vital window into the risk assessment methods set up by Insurtech platforms, helping to substantiate or contradict the findings from the documentary analysis (Eisner, 2017). Inspired by previous studies conducted on platform-mediated labour (Doorn and Badger, 2020), we draw on this combination of sources to develop a comprehensive picture of processes used by insurance development actors and Insurtech platforms.

The remainder of the article is structured as follows. First, we provide some background on leading insurance actors supporting the digital inclusive insurance agenda. We then review relevant scholarship on the recent advances of Fintechs in financial inclusion, before presenting our theoretical framework and core argument. After this we substantiate the analysis, shedding light on risk pooling and repooling processes. We conclude by outlining our contribution and discussing further implications of our work, specifically regarding the distinction between private and social insurance.

### **From microinsurance to digital inclusive insurance markets**

The provision of insurance services has a long history, going hand in hand with the expansion of capitalism through colonialism and free trade imperialism. Maritime underwriting and coverage for large investments in manufacturing such as sugar mills were key to the construction of an early global safety net (Borscheid and Haueter, 2012). Yet the evolution of insurance specifically dedicated to poverty alleviation around the world, quite interestingly, begins with the International Labour Organisation (ILO). This particular type of insurance can be traced to the early 1990s, when the ILO, together with donors and NGOs involved in mutual health organisations, coined the concept of microinsurance as a community-based form of social protection for informal workers (Dror and Preker, 2002). The programmes that evolved from such initiatives were closely related to the Millennium Development Agenda adopted in the wake of social crises resulting from the structural adjustment programmes of the 1980s and 1990s.

The first major challenge for microinsurance was its positioning vis-à-vis market principles. The ILO adopted the market-oriented approach promoted by the World Bank and large insurance and reinsurance companies, while a more community-based approach took shape through the Delhi-based Micro Insurance Academy created by David Dror, who pioneered the initiative at the ILO before parting company with his former employer to develop this alternative project. For-profit microinsurance gained momentum with the creation of the Microinsurance Network, formerly known as the CGAP (Consultative Group to Assist the Poor) Working Group on Microinsurance of the World Bank, which framed poverty alleviation in terms of vulnerability and risk management (ILO, 2006; 2012; see also Bernards, 2022; Best, 2013). Paving the way for micro-risk management was not only perceived as a tool to mitigate the occurrence and impact of harmful events but was also

deemed by certain development actors as an opening for excluded populations to capitalise on opportunities (Taylor, 2016). Microinsurance providers worked together with the active involvement of large and globalised insurance companies.

In the 2010s, limited growth in the sector led to a shift in the microinsurance agenda which mirrored a broader shift in development discourse from microfinance to financial inclusion (Bernards, 2020). As Mader (2018: 3) points out, the financial inclusion agenda responded to the failures of microfinance programmes by proposing ‘new practices, new guiding ideas, new theories of change and a new invitation to live by finance’. Mader’s argument stresses two points that are relevant to understanding the significance of rising, digitally driven microinsurance provision. First, technology firms are reframed as part of a new set of players dealing with poor populations. Second, the broader financial inclusion agenda does away with the distinction between the use of finance for production and the use of finance for consumption (the latter having previously been labelled as ‘bad finance’). Rather, the focus is now on offering financial services to all, to fulfil specific needs for everyone.

With the promotion of mobile phones and many other digital options based on platforms, the microinsurance agenda which had traditionally targeted ‘low-income households’ (ILO, 2006: 12) broadened its target group to include ‘unserved’ populations (IIF and Accion, 2018). This digital turn to inclusive insurance juxtaposes the territoriality framework of microfinance (Roy, 2010) with the categorisation of targeted populations according to indexes of global income distribution (Verbeek and Rodarte, 2015). This new categorisation represents an attempt by insurance development professionals to frame the targeted market beyond the Global North-South divide by putting the emphasis on a group that can pay a premium regularly. As Garance Wattez-Richard, Head of Emerging Customers at AXA Insurance, explains, ‘the team targets those too rich to be poor and too poor to be rich whose income is below 20\$ per day, but high enough to purchase a premium’ (IIF and Accion, 2018: 12). The industry’s objective is to cover an ‘endangered emerging middle class’ that uses digital devices daily – thus allowing the insurance providers to harness their activities and data to improve risk assessments (IIF, 2016) – but which is considered at risk of falling (back) into the poverty trap because it is still excluded from the mainstream financial sector (IIF and Accion, 2018).

With low-income populations seen as a promising market, the targeted group is reframed and extended to cover a broader precarious population. Insurance professionals share the view that digital technologies are key levers for such market segments (IIF, 2016). Prospective analysis of the industry regards platform business models, machine learning, and alternative data sources from precarious populations that use smartphones daily – especially for work – as part-and-parcel of the innovative solutions needed to improve risk assessment calculations, reduce operational costs, provide more convenient on-demand services and, eventually, scale up coverage; the industry bets on platform data analytics to transform the very nature of risk as these enable new ways to ‘create, capture and analyse valuable information that can help insurers better calculate and manage risk associated with new types of customers’ (IIF and Accion, 2018: 8).

The expansion of digital technologies and the enlargement of market prospects are thus the two main drivers moving community-based microinsurance programmes towards a for-profit, digital, and platform-oriented inclusive insurance agenda. In the next section, we review existing studies regarding this rise in the digital provision of financial and insurance services. We draw on this scholarship as we explore how Insurtech seeks to fulfil its promise towards the supposedly most vulnerable populations of the world.

## Fintech and Insurtech for financial inclusion

Over the last few years, there has been a flurry of studies assessing the role of digital technology in financial inclusion. Two strands of scholarship are of particular relevance for appraising the implications of Insurtech for vulnerable population of the world. The first examines the dynamics of Fintech platforms in expanding the credit market. The second focuses on the limits of digitalisation in the context of insurance and microinsurance.

Insurtech is a by-product of the use of IT innovation in financial products for development purposes. A small but growing range of studies situates the advance of Fintech for financial inclusion within the broader organisation of platform capitalism. These have focused extensively on the provision of credit through platform business models. Clarke (2019), for example, illustrates the institutional dynamics underpinning the development of inclusive credit by platform firms. He shows how the expansion of money lending through platforms is dependent upon state actors and private firms framing credit provision as an infrastructure that is integral to debt-based economic growth models.

Langley and Leyshon (2020; 2022) instead point to the activities of platform firms in expanding financial services. As already noted, platforms do not simply disintermediate but also *reintermediate* financial relations by extracting rent from fees and data analysis. This reflects a consolidation of the market by monopolising new market structures of retail banking rather than increasing competitiveness. Platforms thus benefit from important capitalisation as investors rely on platform promises in applying cutting-edge data analysis technology and in generating higher revenues than re-regulated established banks. Roitman (2023) offers a slightly different perspective on platform firms. She does so through the lens of the market device and by illustrating the specificities of value creation through platforms. Indeed, what she calls the ‘float’ – namely, a form of financial value working as a liquidity pool generated by mobile companies, mobile money issuers, and commercial banks – provides insight into patterns of value subjugation and autonomisation that nuance existing accounts. Platforms for financial inclusion do not operate through a smooth process of financial expansion.

In spite of these different accounts of how platform firms expand the provision of financial services, the literature tends to amalgamate financial with insurance technologies. Yet insurance services for development purposes, and their digitalisation, are often not successful even on their own terms.

Regarding the digitalisation of insurance as such – which is the second point we would like to address here – some studies also shed light on how digitalisation can be constrained by regulatory and infrastructural obstacles that limit the application of behaviour-based insurance personalisation (McFall and Moor, 2018; Meyers and Van Hoyweghen, 2020). Such potential limits prompt us to delve into how the industry uses digitalisation to score risk in the provision of microinsurance services. Bernards (2022) views the advent of digital technologies in microinsurance as reinforcing existing failures in the organisation of the microinsurance market. Similarly, Aitken (2022) reads recent attempts to manage risk via remote sensing platforms in the domain of climate-related coverage as the latest strategy to rehabilitate microinsurance in the face of its failings. Both studies highlight the limits of digital technologies to boost the microinsurance market.

Against this background, the literature tends to amalgamate financial with insurance technologies. Yet insurance technologies operate on different principles to those used in Fintech, in particular regarding the pooling of risk devised for expanding markets for the poor. Building on Roitman as well as Langley and Leyshon, we think it of crucial importance to examine the specific qualification-requalification process performed by Insurtech platforms and to consider the way this reframes patterns of financial inclusion and exclusion. To do so, it is necessary to investigate in detail the process by which

platform firms qualify the targeted population as a priceable risk. In what follows, we hone in on the relationship between the core insurance principle of risk pooling and potential limits to its scope and scale in the context of the digital inclusive insurance market.

### **Insurtech platform as market qualifier**

Platform firms face many potential difficulties in scaling up the inclusive insurance market. We posit three dimensions of digital insurance that are central to all Insurtech platform activities: interoperability, valuation, and aggregation. These dimensions are embedded within a broader process of qualification–requalification at work in establishing similarities and differences among risks to be exchanged. When it comes to the world of insurance, we describe this as a continuing process of pooling and repooling risk. And as we will see, this process can sometimes be at odds with the platform principle of scalability.

The interoperability of platform firms is arguably the main function that enables the firm to express all its features, create new market encounters, and expand the market. This is our first analytical category. Interoperability enables network and winner-takes-all effects on which platforms bet to raise capital, absorb competitors, and pave the way towards market monopolisation (Kenney and Zysman, 2016; Srnicek, 2016; 2018; Langley and Leyshon, 2017). The interoperability of a firm's business model and cloud-based infrastructure to scale up a market is thus a central feature of the shift towards platform firms (Choudary, 2015; Pfothenauer et al., 2022). As Narayan (2022: 912) points out, firms rely on 'external providers of hyper-scalable information technology (IT) resources'. Platforms thus take advantage of their system of data collection and analysis to gain the upper hand against rival firms. In other words, the higher the number of participants, the larger the volume of granular data available to hone products and services, thereby shaping a monopolistic advantage (van Dijck et al., 2018; Poell et al., 2019; Srnicek, 2016).

In terms of the underlying cloud infrastructure, platforms also rely on the interrelation of techno-organisational processes, including virtualisation (a range of software that can be supported by the same physical server), on-demand computing (platform services delivered on a pay-per-use basis), and web-based modularity (software being connected by standardised application programming interfaces rather than being designed by developers from scratch) (Narayan, 2022). Eventually, firms reach new customers via reintermediation processes that monopolise economic structures in retail, money, and finance (Langley and Leyshon, 2022).

Each mechanism mentioned above has its own importance in driving platform firms towards market expansion and monopolisation. However, the interoperable feature of platforms stands as the core function to explain all the patterns of scalability of Insurtech platforms. However, there is little mention in existing studies about the difficulties involved in this race towards scalability. Yet processes of market expansion are rarely smooth and linear. Numerous inconsistencies and contradictions shape the organisation of markets. We should thus take due account of such potential snags when examining platforms' capacity to reach scale in the inclusive insurance market.

In addition to interoperability issues, platform firms rely on processes of valuation to assess and price new entities or populations. This is our second analytical category. Studies have shown how the organisation of markets relies on a continuous qualification and requalification of goods and services. Prior to any market transaction, as Callon et al. (2002) suggest, products to be exchanged must go through a specific metrological operation that defines and objectifies their qualities. The process of qualification thus aims at establishing a 'constellation of characteristics [or qualities], stabilised at least for a while, which are attached to the product and transform it temporarily into a tradable good

in the market' (Callon et al., 2002: 199). The qualification and requalification process fixes the activity of valuation – that is, the set of narratives, mechanisms, dispositives, and tools constituting value – and simultaneously, its measurement. Valuation works as an activity qualifying goods and services 'assigning to each quality constituted a monetary value' (Vatin, 2009: 252), turning 'things and people into [the] object or subject of valuation' (Muniesa, 2011: 27).

The valuation process remains dynamic and potentially conflictual, as several perspectives on how a product is defined and qualified can co-exist and/or collide. As Çalışkan and Callon (2010) underline, markets depend on calculative devices that remain fraught, partial, open to debate, and prone to failure. To describe such dynamics, we draw on the musical metaphor of 'dissonance' used by Antal, Hutter, and Stark (2015: 6). In the field of music, a dissonance is a moment in which the harmonic setting of sound runs against the arrangement anticipated as a result of aesthetic expectations of the genre. It can either be resolved back into the expected ordering of notes, persist, or adjust to a new resolution. When applied to moments of valuation, this reveals the plural or contending ways in which new or unknown phenomena can be given a value. As Stark (2009: 27) puts it:

dissonance occurs when diverse, even antagonistic, performance principles overlap. [...] The result of this rivalry is a noisy clash, as proponents of different conceptions of value contend with each other [...] or can generate new combinations of the firms' resources [to be productive].

We contend that Insurtech platforms, as supposedly disruptive technologies for new insurance markets, continually face such dissonance.

Questions of valuation lead us to consider the insurance principle on which insurtech platforms rely – namely, aggregation. This is our third analytical category. It epitomises the sequence out of which groups of populations, with different risk exposures, are aggregated. Put it in other words, aggregation reflects the assemblage of different pools of risk.

Some studies on insurance have highlighted the global reach and power of insurance as an institution of informal governance triggering new spaces for market development (Graz, 2019: 114–72; Lobo-Guerrero, 2012; 2017; 2019; Strange, 1996: 122–34). As a result, major concerns include the (un)insurability of new risks (Bougen, 2003) and the quantification of uncertainty by actuarial risk rating or non-actuarial knowledge (Ericson and Doyle, 2004). Insurance works as a technology of risk transformation that makes uncertainty 'fungible' (Lobo-Guerrero, 2017: 5), i.e., 'something amenable to trade and exchange'. To this end, the creation of an insurance market depends on risk management making extensive use of mathematical calculus. As was well understood by Frank H. Knight in his celebrated book, *Risk, Uncertainty and Profit*, '[t]he application of the insurance principle, converting a larger contingent loss into a smaller fixed charge, depends upon the measurement of probability on the basis of a fairly accurate grouping into classes' (Knight, 1971: 246). Insurance relies on statistical tables establishing the regularity of certain events to calculate such probabilities, which, as noted by Ewald (1991: 202), 'wields an evaluation of the chances of an event to occur'.

This only works with a large volume of data widely recognised as valid. To guarantee the promised financial protection, the insurer's task is to spread risks across the largest and most diversified set of policyholders, to reduce the company's exposure to a certain type of claim, or even a single claim too big to pay. The insurance principle rests precisely on such aggregation, or pooling, of disseminated risks. It combines high and low risks and makes a probabilistic calculation based on a large collection of data in order to put a price tag on the premium paid for coverage. Risk pooling mixes different customers' risk

exposures, allowing insurers to rely on the law of large numbers to design their probabilistic models and to spread the cost of covering the insured-against event among all policyholders. Pooling is thus supposed to distribute potential losses according to variance in type, geographical location, frequency, and size – or, in other words, according to what, where, how often, and how severe the event may be. As Graz (2019: 118) points out, '[a]ll in all, the larger, the longer, and the more granular the information gathered, the better the probability calculated – and, most likely, the higher the company's profits'.

While risk pooling – the core principle that makes insurance profitable – is based on mechanisms of collectivity and solidarity, its empirical implementation raises crucial issues. Building on the work of Gowri (1997), Doyle and Ericson (2010) suggest that this might be the first irony of insurance. There are indeed two fundamental conceptions of insurance which are constantly in tension: it could be understood as 'a transfer of risk between two people or as a relationship of risk-sharing among a pool' (Doyle and Ericson, 2010: 227). If understood as a risk-sharing mechanism, insurance supposes social solidarity. This reflects a high form of aggregation with a large array of diversified risk. Conversely, if understood as a transfer of risk, the use of actuarial risk management in insurance markets thwarts pooling mechanisms by splitting groups of prospects into ever-smaller fractions with the purpose of individualising risk or even excluding prospects from any schemes. This mechanism illustrates a form of low-risk aggregation. Contemporary insurance practices tend to privilege the individualising rather than the pooling of risk, and such segmentation and unpooling of risk undermines 'the risk-socialising potential of insurance' (Doyle and Ericson, 2010: 232).

To sum up, our theoretical framework introduces three dimensions shaping the activities of Insurtech platforms in their attempt to expand the market. These are interoperability, valuation, and aggregation. The following empirical section will highlight the potential contradictions of the inclusive insurance market that result from the opposing principles of insurance pooling and platform scalability. It is from this perspective that we appraise limits to the expansion of platform-based inclusive insurance markets.

### **Pooling and repooling risk**

In this section, we show how the qualification process of inclusive insurance services unfolds in a succession of pooling and repooling exercises. We first demonstrate how the interoperable ecosystem is constrained by forms of dysfunctionality, specifically when it comes to data circulation. We then sketch how valuation is characterised by dissonance as two different assessment frameworks operate in contradiction to each other. Finally, we point out how mechanisms of risk aggregation by premium personalisation result in further exclusion. Our analysis thus demonstrates how the pooling and repooling of risk by platforms tends to be contradictory, often further segmenting and unpooling risk.

### **Interoperability**

Platforms are praised by insurance development professionals as an appropriate way to reach scale by intermediating market encounters with a broader emerging middle class. As sectoral platforms, Insurtech companies can easily plug-in and provide their services as part of other platforms such as mobile wallet, ride-hailing, or social media apps. They can build upon their network effect to reach a larger number of people and seek market encounters beyond unserved populations with pools of poor populations (Insight2impact, 2019). The interoperable apparatus of platforms configuring new market encounters is



thus guided by the principle of risk pooling as it targets and embeds in insurance schemes new types of uncertainties which are deemed less risky.

However, our findings suggest that the implementation of such platform ecosystems is falling short of expectations. Previous studies already demonstrate that technologies such as Big Data, when applied to finance, are much less integrated than expected and, more generally, their implementation tends to be a messy affair, full of gaps and inconsistencies (Campbell-Verduyn et al., 2017; Kitchin, 2014). What our results show is that even though the interoperable infrastructure is set up to exchange datasets without friction, in practice, the circulation of data is limited for a number of reasons.

First, there is reluctance among platform partners to enforce data-sharing agreements (Insight2impact, 2018). For instance, an Insurtech platform based in Indonesia provides accident insurance policies to drivers of a ride-hailing platform. The platform manager disclosed to us that this ride-hailing platform only shares the basic data needed to create the policy, to avoid competitive pressure:

Big platforms are very careful when it comes to sending data to third party entities. Data is their biggest asset, isn't it? Therefore, the data we receive is very limited. For instance, to design an accident policy for ride-hailing drivers, we only manage to retrieve from the platform the number of trips a driver does per day. (Interview with an Indonesian Insurtech platform manager of strategic partnership, August 2020)

Data is treated as an asset that brings the platform a significant competitive advantage. It therefore rarely shared, and when it is, data is sent in sets that show broad tendencies of a group of customers rather than individual attributes.

Second, several of our informants brought up limitations in building up partnerships and therefore accessing customers' data (Interview with an Indonesian insurance platform manager of strategic partnership, August 2020). For example, an Insurtech platform with operational bases spread across Southeast Asia and Sub-Saharan Africa collaborates with telecommunication companies to distribute insurance policies. As such, the Insurtech platform is not integrated into the payment infrastructure of the mobile operator. Thereby, data regarding customers' transactional history is exchanged on an aggregate level, but no individual data is transferred through the platforms:

We do not use data that are not ours. Like [telecommunication company X] does not send their data about their customers, saying 'look, they are doing these things that are not related to insurance, here is the data'. Instead, mobile operators tell us directly 'look, 20% of your subscribers pay to buy lottery tickets, what can we do with that connection?' (Interview with an Insurtech platform chief executive officer, July 2020)

Eventually, such reluctance also stems from the uncertainty around the regulations and the repercussions of these regulations in terms of data sharing (Insight2impact, 2018). As many national regulations comply with the European General Data Protection Regulatory framework, Insurtech platforms are limited in accessing personal data as platforms are not allowed to share personal identification information with third-party partners located in another country (European Commission, 2016). This claim corroborates the account of the chief commercial officer of a digital wallet company operating in Indonesia that partnered with a foreign insurance company to sell non-life insurance products. The digital wallet firm shares with the insurance company only aggregated datasets showing tendencies, behaviours, and customer attributes: 'no individual data leaves the platform' (Interview with an Indonesian-based digital wallet chief commercial officer, September 2020). This

makes it difficult for Insurtech platforms to draw up personalised premium pricing, a feature promoted by insurance development actors and discussed below.

In sum, difficulties leveraging the interoperable ecosystem to repool risk have an impact on the ability of platforms to configure and scale up their market encounters. Platforms' inherent tendency towards market monopolisation, both by enclosing data and by limiting the accessibility of individual data related to regulations on data sharing, compromise the functionality of the platform ecosystem. These dysfunctional patterns show the extent to which the repooling of risk – which is supposed to support the requalification of the market – is at odds with the expected scope of platforms' scalability and the potential incorporation of the emerging middle class within inclusive insurance schemes.

### **Valuation**

In May 2022, the Microinsurance Network – an international multi-stakeholder and non-profit association for insurance development – released a report examining how digital platforms might support the distribution of insurance policies to micro, small, and medium-sized enterprises. The document points out that the challenges constraining insurance adoption for this category of enterprises include high levels of heterogeneity, an information gap, a lack of knowledge of the enterprises' risk management needs, and trust deficits (Microinsurance Network, 2022: 3). Similarly, in its 2019 report entitled *Insurtech for Development*, the Centre for Financial Regulation and Inclusion, a global thinktank and non-profit entity subsidised by Financial Sector Deepening Africa and UK Aid, sketches five main challenges facing the inclusive insurance market; of these, a 'lack of information on consumers' stands as the first problem (Cenfri, 2019: 21). The report stresses that the limited engagement of uninsured populations with the formal sector (e.g., minimal ownership of official documentation coupled with low levels of formal employment) impacts the quality of the data that insurance companies require on their customers. The report explains:

[...] reliable information on asset ownership, health and claims behaviour for insurance purposes is vital for risk profiling, product design, sales, servicing, payments collection and claims assessment. (Cenfri, 2019: 21)

As discussed above, insurance works by applying actuarial calculations to forecast future events, thereby transforming uncertainty into priceable risk (Lobo-Guerrero, 2017). Such calculative practices for risk assessment rely heavily on the collection of detailed and reliable information (Graz, 2019). In light of the low uptake in inclusive insurance related to the information gap on uninsured customers, insurance development actors identified digital platforms as the most promising technologies for the collection and refinement of large volumes of fine-grained data. In addition, the rising use of smartphones and growing expenditures on digital infrastructures in developing and emerging economies have supported inclusive insurance market initiatives to harness alternative data. Alternative data come from a range of sources, from geographic information systems (GIS), reporting on social media activity, transactional payment history, and mobile phone metadata, to satellite data in the case of index-weather insurance. The specificity of these multi-sourced datasets compared to traditional insurance data gives platforms the ability to track customers' behaviour on a daily basis. Thus, Insurtech platforms carry out a process of valuation by transforming future uncertain events – such as the probability of a driver having a car accident – into monetary terms based on granular, real-time, and non-traditional information.

This last point is important for grasping how platforms are mobilised in the repooling process. It demonstrates that targeted populations are entirely part of the process of requalification, as they are the protagonist of the valuation moment. By contributing daily to the production and updating of the dataset, customers actively participate in shaping and classifying their own risk propensity and financial valuation. Hence Insurtech platforms structure the transformation of uncertain events into risk – the activity of risk qualification – by leveraging the daily life of customers. And it is precisely this activity that is being valued by the platform. As Casilli (2019: 60) points out, beside the platform's capacity to collect and analyse data, 'it is the work of qualification that platform's users accomplish that enables platforms to create value'. Thus, the arrangement of the inclusive insurance market goes through platform firms as the main device requalifying the risk propensity of uninsured customers for a particular event.

Yet, our findings show that the merging of traditional and non-traditional data faces inconsistencies as both datasets do not necessarily share the same assumptions and representations of the populations targeted. Indeed, populations can be charged higher premiums for insurance coverage independently from the collection and analysis of alternative data. For instance, in Colombia, since 1988, all registered vehicles must carry a liability insurance coverage called Seguro Obligatorio de Accidentes de Tránsito, commonly known as SOAT (Ley 33; see Ministerio de Transporte, 1986). The policy pays for physical harm or death due to vehicular accident. The policy is underwritten by major insurance companies such as AXA and Mapfre, and the distribution is outsourced to intermediaries. Since 2021, a revised statute has allowed intermediaries to provide a premium discount for policyholders with a low propensity for vehicle accidents (Ley 2126; see Ministerio de Transporte, 2021). Against this background, Insurtech platforms have entered the market as intermediaries claiming to provide more accurate risk assessment and purporting to serve more people by incentivising driving behaviours which lead to a lower likelihood of crashing. The inclusion of non-traditional data is key to their risk model:

In total, we analyse 35 variables among car, personal and transactional information that we cross with data on vehicle accidents. The calculation generates a risk score from which we decide whether the policyholder will be charged with the full or discounted premium price. (Interview with a Colombian-based Insurtech platform chief technology officer, September 2020)

In this case, the moment of valuation is considered to price risk according to objectified, personal information which rewards prudent driving behaviours. Nevertheless, the valuation moment is to be understood in the context of the complex platform ecosystem in which insurance companies, the risk underwriters, have a say in who is covered. According to our informant, Insurtech platforms in Colombia are pressured by their partner insurance companies *not* to provide accident insurance to populations living in specific regions of the country:

In some regions of our country, insurance companies do not sell their products. As many cases of fraud have been reported in the past, the population living in these regions are deemed too risky. (Interview with a Colombian-based Insurtech platform chief technology officer, September 2020)

Compelled to consider some populations as *de facto* unreliable and fraudulent, platform firms face strident dissonance in the antagonistic performance principles upon which they price the risk of potential new customers. They assemble two contradictory value systems for measuring worth. On one hand, Insurtech platforms value the risk propensity of an

individual by processing large amounts of alternative data in addition to a more conventional risk assessment. They claim that such engrained techniques lead them to be more inclusive. The prospect of having more people covered by insurance would thus be a result of the higher accuracy of Insurtech risk calculus. On the other hand, the quotation above reveals how risk is also assessed by normative preconditions and, in this case, built on stereotypes. Colombia being a country where the social construction of racial categories is historically anchored in geographical spaces (Leal, 2010), the region deemed ‘too risky’ concentrates on populations descendent of slaves characterised as ‘black and mulattos’ (Hudson, 2010). The valuation moment thus reflects dissonances between value frameworks in the pricing of risk propensity of uninsured populations. The above quote shows that alternative data-based risk measurement comes into conflict with sites of valuation rooted in the legacy of class- and race-based systems of knowledge that rank and frame patterns of inclusion/exclusion *a priori* to any probabilistic risk measurement (Perticone et al., 2022). These normative preconditions block participation on the platform by segments of the targeted population, preventing the possibility of turning people into subjects of valuation, and thus thwarting the process of requalification aimed at pooling risk.

In sum, the collection of both traditional and alternative data carries the seeds of dissonance, as contradictory sites of valuation collide. This impedes access to insurance coverage because, faced with the problem of repooling risk, Insurtech platforms struggle to requalify and ultimately scale up their market.

### **Aggregation**

The inclusive (and micro) insurance market faces the dilemma of how to insure high-risk populations with low premium prices. In response, insurance development actors have, over the years, designed innovative risk transformation and risk-transfer mechanisms, such as parametric insurance and household derivatives, respectively, to make insurance affordable to unserved and poor populations (Aitken, 2015; Johnson, 2020). Insurtech platforms leverage their alternative and real-time datasets to promote a new price-calculation method called price personalisation (A2ii, 2018a). They see this as a game changer for purposes of financial inclusion as it rewards compliant behaviours with low coverage fees (A2ii, 2018b). The industry emphasises the capacity of platforms to engineer such methods of risk calculation thanks to tailor-made offers based on the working capital needed for unserved people (CGAP, 2020; World Bank, 2018). As the Centre for Financial Inclusion and Regulation states in its 2019 report:

In countries with very low insurance penetration, any access to more types of data, coupled with the newest tools to analyse this data cost-effectively, can enable more tailored insurance products to consumers, identify new consumer groups and drive scale in uptake. (Cenfri, 2019: 14)

The underlying inclusive logic aimed at tailoring premium prices rests on the assumption that offering lower premium prices for compliant behaviour will reduce the risk undertaken by the insurance company, make the service more affordable, and reach lower-income segments. In short, the price mechanism is expected to result in greater inclusion on the principle of risk pooling and platform scalability by identifying new consumer groups to reach market scale.

However, our empirical research speaks against such expectations regarding the mechanism of price personalisation used by Insurtech platforms. For example, in Kenya, several Insurtech platform initiatives aim to provide accident insurance to ride-hailing independent contractors. These platforms work as applications that can be downloaded on

any smartphone and claim to provide an easier, cheaper, and faster accident insurance by adopting a customer-centric approach (Interview with a Kenyan-based Insurtech platform chief executive officer, November 2020). Built as a cloud platform able to integrate diverse partners on its infrastructure with its Application Programming Interfaces, the platform leverages real-time data collected through the application and social networks to assess the accident-risk propensity of a driver. As the informant explains:

We partnered with a data scientist that helped us scrape data from a social media platform as well as retrieve geographical information on the driver's journey. [...] We came up with a risk score that indicates if the driver uses or not congested roads that might increase the probability of having an accident. In that case the premium price would be higher. (Interview with a Kenyan-based Insurtech platform chief executive officer, November 2020)

Basically, socio-demographic data for risk assessment are complemented with driving behavioural data collected through smartphone metadata and GIS. This enables the platform to track a driver's acceleration and brake patterns concomitantly with the vehicle's mileage and the geographical journey of the driver. Insurtech firms then input the metrics into an algorithm that predicts the likelihood of a customer having an accident (Interview with a Kenyan-based Insurtech platform chief executive officer, October 2020). They can thus assign to each driver a numerical risk score, from which good drivers are distinguished from bad drivers. Good drivers benefit from a reduction on their premiums whereas bad drivers will be charged full price or even be excluded from the service altogether. The scale of price valuation is personalised and premiums are defined as a unique individual value, where the burdens of a future event are not shared equally among customers.

Such practices bring us back to the 'irony of insurance' and tensions between sharing and transferring risk. In risk-sharing schemes, insurance pricing tables use actuarial techniques to convert objectified risks into probability statements (Barry et al., 2003). By ordering the likelihood of future events into defined groups of risk, the calculation assigns individuals to a specific group with a premium being paid according to the level of risk shared within that insured pool (Meyers and Van Hoyweghen, 2020). Each person of the same risk group pays the same amount.

As the example above shows, however, the mechanism of price personalisation used by Insurtech platforms tends to privilege the principle of risk-transfer over risk-sharing. It leans towards 'atomising' risk into ever-smaller groupings of insured pools (Portas, 2021). As such, it does not entirely align with an individualised transfer of risk, but the emergence of data-driven risk assessment embedded in strategies of premium personalisation is acknowledged as a way to monitor risk that drastically reduces risk pools (Cevoloni and Esposito, 2020; Doyle and Ericson, 2010). Thus, price personalisation brings together practices of risk atomisation that have important consequences in terms of discrimination (Fourcade, 2016; Krippner and Hirschman, 2022; Moor and Lury, 2018). Without any form of risk-sharing, insurance companies exacerbate existing discriminative patterns of pricing based on actuarial calculation, charging higher premium prices for high risk but easily excluding bad risk from their portfolio.

In this way, the expectation of insurance development actors concerning the ability of platforms to scale up a market by aggregation and providing price personalisation collides with the basic insurance principle of risk pooling. The practice of requalification by atomising risk tends instead to *unpool* risk and thereby undermines the risk-sharing mechanism of insurance.

## Conclusion

Insurtech platforms are firms which are expected to expand the insurance market to uninsured and low-income people across the world. Contrary to the distinctive processes of platformisation underpinning the expansion of the credit market mediated by Fintechs, Insurtech platforms attempt to requalify and expand the insurance market by relying on principles of platform scalability and insurance risk pooling that we sketch through three categories: interoperability, valuation, and aggregation. However, the theoretical frame and empirical evidence presented in this article suggest that the pooling-repooling process entails important contradictions. No wonder, then, that Insurtech is falling short of its promise to make the insurance market more inclusive.

Our argument and findings join an array of studies that emphasise the limited scope of private insurance schemes for development purposes, given their tendency to exclude bad risk or proliferate uncertainties when insurance contracts fail to pay out (Aitken, 2022; Bernards, 2019b; 2022; Johnson, 2020). We contribute to this literature by highlighting how interoperability, valuation, and aggregation generate powerful contradictions in private insurance. The collision between principles of platform scalability and insurance risk pooling is expressed by a dysfunctional ecosystem that constrains platforms' interoperability; by a valuation moment characterised by dissonance; and by the exclusion of targeted customers resulting from the premium-pricing mechanism used by Insurtech. Rather than reinvigorating and scaling up the market by pooling risk, Insurtech platforms tend to unpool it, generating new patterns of financial exclusion and limiting the expansive feature of platform capitalism when deployed in specific markets.

These inconsistencies bring us back to the debate between private and social insurance. Microinsurance was originally conceived as an alternative form of social insurance. Defined as locally and community based, microinsurance was expected to involve autonomous units whose members decided collectively which risk to cover, via a non-profit mechanism of risk sharing (Dror and Jacquier, 1999). This original conception of microfinance now seems far away indeed. The market-driven agenda of microinsurance and the push for Insurtech platform firms to reach unserved and low-income populations have brought micro- and inclusive insurance closer into alignment with capital accumulation than with socio-economic improvement. As such, they are increasingly jeopardising the solidarity principle on which microinsurance was initially conceived.

Hence, it would be worthwhile to reflect more thoroughly on the aims of the platform-based inclusive insurance agenda and on how these intersect with those of international development. Instead of investing in new business models and scouting uninsured populations worldwide, why not consider how to de-scale and de-commercialise the agenda, perhaps even how to reinscribe the state as the primary risk holder and provider of universal social measures without discrimination? This would entail a reorientation of the ontological framework of insurance, based as it is on discriminatory-probabilistic calculus. There is a need, therefore, on both an academic and political level, to consider carefully how digital insurance technologies might be used differently. Not for discriminatory purposes, i.e., for deciding whose uncertainties can be secured and priced, but for providing community-based and not-for-profit insurance schemes that could be of benefit to all. This is even more pertinent as Artificial Intelligence penetrates the insurance industry, processing more datasets for personalising covers, but relying on the same principle of unpooling risk and, therefore, excluding people at the margins.

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