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Cannibalizing the Informal Economy: Frugal Innovation and Economic Inclusion in Africa

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Abstract

Frugal innovation focuses on engagement with the informal economy for the 'co-creation' of low-cost, decent quality goods and services for the poor. While representing informal actors as agents rather than just consumers of innovation, frugal innovation models fail to recognize informal economies as economic systems in their own right, treating them instead as a pool of workers and organizational resources to be tapped for the benefit of external innovators. In this paper I will examine how frugal innovation models selectively transform informal economic and institutional systems around formal economic interests, reconfiguring informal opportunities and the distribution of gains in ways that promote adverse incorporation of informal actors rather than mutual benefit. I will examine four mechanisms of adverse incorporation operating within frugal innovation models: copying, free-riding, eliminating nodes of accumulation, and shifting risk. Drawing on case studies of M-Pesa and micro-insurance, I will illustrate the often selective and disempowering effects of frugal innovation, which operate to reconfigure informal economic systems in ways that divert profits and control away from informal operators.

Introduction

Frugal innovation has emerged as a novel approach to improving the economic inclusion of the poor. Concerned with more than just 'getting the prices right' for poor customers, frugal innovation seeks to improve welfare and promote agency among lower income groups through the collaborative development of high-quality, low-cost goods and services. Known by a variety of terms, including 'inclusive innovation', 'disruptive innovation', 'pro-poor innovation' and 'grassroots innovation', frugal innovation emphasizes the 'co-creation' of affordable, accessible and aspirational products through active collaboration between formal and informal actors (Cozzens and Sutz 2012; Hart 2005; Knorringa et al. 2016; Paunov 2013). Frugal innovation focuses on the value-sensitive redesign of goods and services for low-income markets, drawing on locally embedded knowledge and networks, thus holding out the possibility of inclusion of the poor as more than just consumers. 'Because of its focus on including low-income producers and consumers in the innovation value chain, frugal innovation is expected to disrupt existing capital-intensive and top-down forms of innovation, contributing to more inclusive forms of development (Knorringa et al. 2016: 143)

Yet these fervent declarations of interdependence between formal and informal innovators are accompanied by a persistent tendency to ignore the realities of informal economies as organized systems with distinctive economic interests and dynamics of accumulation. The salience of informal economic systems is particularly acute in Sub-Saharan Africa, where 66% of those working outside of agriculture have for decades, even centuries, earned their living in a wide range of informal economic activities (ILO 2013; Vanek et al. 2014). Over time, Africa's vast informal economy has developed complex networks and informal commercial systems through which people have pursued their livelihoods and created sites of accumulation as well as survival (Gregoire and Labazee 1993; Little 2003; Lourenco-Lindell 2004; MacGaffey and Bazenguissa-Ganga 2000; Meagher 2003). In the frugal innovation literature, an emphasis on inclusion, 'co-creation' and 'partnerships' is based on an assumption of complementarity between the formal and informal economies, in which linkages with multinational corporations, NGOs, governments and other formal sector actors can be used to overcome the limitations of informal economic arrangements at the bottom of the pyramid. There is little awareness within the frugal innovation literature that informal economic actors, particularly in Africa, are not necessarily small-scale, and not necessarily poor.

Understanding the implications of frugal innovation models for low-income communities calls for a closer look at how frugal innovation affects the organization and divergent interests operating within African informal economies, where the majority of Africa's non-agricultural population earn their livelihood. These issues will be addressed here by posing the question, 'What makes frugal innovation frugal?' While proponents of frugal innovation emphasize the role of complementarity and synergies in reducing costs and improving use value, a growing number of commentators have drawn attention to more problematic mechanisms and effects of corporate efforts to engage with the informal economy. They call for greater attention to the underlying processes and power relations at work in the development of frugal innovation if collaboration with low-income actors is to be genuinely inclusive (Ansari, Munir and Gregg 2012; Elyachar 2012; Fressoli et al. 2014; Seyfang and Smith 2007). As Fressoli et al. (2014:278) point out, 'inclusion is not an unproblematic, smooth endeavour; rather, in practice it can also involve uneven, unequal, incomplete and sometimes antagonistic processes and outcomes'. A sharper focus on how frugal innovation reshapes institutional arrangements in the informal economy shows that frugal innovation is as much about power as about inclusion, and raises new questions about the motives and terms of inclusion.

In this paper I will examine the ways in which frugal innovation models reshape African informal economies. I argue that discourses of inclusion and collaboration are frequently just a cover for selectively reconfiguring informal economic and institutional systems around formal economic interests in order to reduce costs and increase corporate profits. The next section of the paper will explore how strategies of frugal innovation promote inclusion of informal producers and consumers. Here, I will focus on the efforts of formal firms and frugal innovators to work with informal producers, consumers, and institutions, and to render the informal economy more 'legible' to outside businesses, in order to construct low cost, workable market arrangements. A third section will examine whether these collaborative arrangements represent relations of complementarity or capture of informal economic systems in the service of more powerful business interests. Attention will focus on how frugal innovation models promote the reconfiguring of informal institutional orders and labour markets to render informal economies useful to global capital. A fourth section will detail four specific strategies through which frugal innovation models ‘cannibalize’ informal economic systems in the interest of formal sector profit. These are identified as Copying, Free-Riding, Short-circuiting Informal Accumulation, and Shifting Risks. Drawing on case studies of mobile money in Kenya and micro-insurance in South Africa and Ethiopia, a fifth section will illustrate the often selective and disempowering effects of frugal innovation, which operate to reconfigure informal economic systems in ways that divert profits and control away from informal operators. A concluding section will draw attention to the possibility of more genuinely inclusive models of innovation in which engagement with the informal economy focuses on power relations as well as partnerships, nurturing as well as frugality, and equity as well as inclusion.

Frugal Innovation: Beyond Cost Cutting?

Proponents of frugal innovation argue that frugality is about more than just reducing costs. It is also about restructuring innovation systems for more active collaboration with the poor. There is a strong emphasis on process innovations involving the reorganizing of design, production, distribution and payment systems in order to engage with the poor as agents rather than as passive consumers of innovation (Knorringa et al. 2016; Paunov 2013). Proponents argue for the need to ‘take low-income groups seriously as customers or producers, suppliers, and workers rather than as beneficiaries of someone else’s largesse or assistance’ (Karamchandani, Kubzansky and Frandono 2009: 10). This requires looking beyond the merely technical elements of design to engage with the social and organizational dimensions of innovation that emerge in the processes of diffusion of new products and services within low income communities – what Foster and Heeks (2013) refer to as ‘innofusion’. As Foster and Heeks (2013:298) explain, poor distributors and consumers are often regarded as passive channels of product dissemination, rather than as agents in the innovation process: ‘The insufficiency of such a view is readily recognized, with evidence from the scaling of ICT systems that agents are active innovators… This has indeed, been recognised in some of the more recent BoP literature though without, as yet, a detailed analysis of the nature of innovations undertaken by these lower-level actors (e.g., Simanis and Hart, 2009).’

The emerging consensus in frugal innovation camps is that frugality is primarily a product of collaboration rather than exploitation. While Knorringa et al. (2016) highlight the polarization of debate over this issue, proponents of frugal innovation remain unswayed by criticisms of putting profits before people. In the wider inclusive market literature, which includes frugal innovation and the related Bottom of the Pyramid (BoP) perspectives, engagement between formal and informal actors is viewed as complementary, organized through ‘non-traditional partnerships’, in pursuit of ‘common benefit’ (Anderson, Markides and Kupp 2010; Cozzens and Sutz 2012; Sanchez and Ricart 2010; Webb et al. 2010). Proponents of inclusive markets celebrate the value of ‘connectivity’ between the formal and informal economies, which forms a basis for the formation of new ‘business ecosystems’ made up of a wide range of non-traditional business actors, including multinational firms, NGOs, universities, donors, government policy-makers, and informal firms (Sanchez and Ricart 2010; Simanis and Hart 2009:85). Cozzens and Sutz (2012:25-6) draw attention to the role of such parternships in 'bridging formal and informal settings', stressing the need for such parternships to '[b]e as close to the community as possible and [at] the same time assure linkages to wider networks able to provide support; add "formality" in all possible ways taking care to do this by fine tuning previous informal ways of doing things instead of ruling them out…'.

Inclusive market perspectives contend that the outcome of formal-informal collaboration promises to be a 'win-win' for corporate capital as well as for African workers and consumers in the continent's vast informal economies. Low-income communities across Africa are plagued with high unemployment, declining economic opportunities, collapsing infrastructure and a lack of desperately needed investment. At the same time, declining opportunities in developed country markets have combined with rapid expansion of informal economies and low-income consumer populations in many emerging markets to make collaboration with the informal economy increasingly attractive to international firms (Economist 2006; London and Hart 2011; Meagher 2016; Prahalad and Hart 2002). Corporate investors are increasingly aware that informal economies constitute a potential source of profit and a rich institutional ecosystem that can be adapted to facilitate engagement with bottom of the pyramid markets. For inclusive market scholars, the challenge of reaping these high-volume, low-margin opportunities is not to create formal institutions, but to make informal arrangements 'legible' to capital with a view to incorporating them into new low-cost business systems. The emphasis is on acquiring 'native capability', understanding local business practices, mapping local markets and consumer behaviour, and building local partnerships (Anderson, Markides and Kupp 2010; Simanis and Hart 2009; Webb et al. 2010; World Resources Institute 2007). As Hart and London (2005:33) explain, 'In the informal sectors, relationships are grounded in social – not legal – contracts…Successfully operating in this space requires a capability to understand and appreciate the benefits of the existing social infrastructure, not complain about its lack of Western-style institutions'.

Frugal innovation builds on these inclusive market insights to seek a middle-ground between top-down and bottom-up approaches to innovation and economic development, facilitating the 'co-creation' of new products and new business ecosystems for the mutual benefit of formal as well as informal actors (Knorringa et al. 2016; London and Hart 2011; Rivera-Santos and Rufin 2010). On the one hand, multinational corporations provide missing resources needed to catalyse effective innovation, including capital, managerial expertise, technology and research and development facilities. On the other, the informal economy provides local knowledge, local organizational networks, systems of relational contracting, and workers for 'last mile' distribution arrangements. This partnership helps to reduce the transaction costs of innovation and engagement with the BoP by bridging the 'institutional voids' characteristic of informal markets (Rivera Santos and Rufin 2010; Webb et al. 2010). In the telecommunications sector, Anderson et al. (2010:16) describe how non-traditional partnerships with informal actors were used to reduce transaction costs of setting up base stations in slums and rural areas by allowing multinational partners to benefits from local entrepreneurs' 'basic commercial acumen, entrepreneurial spirit, and a deep understanding of how to manage the local environment'. As Knorringa et al. (2016:146) observe, 'More so than conventional types of innovation and technology networks, frugal innovation may allow the incorporation of the values of Asian and African producers and consumers in the design, production, marketing and distribution of frugal products, systems and services'.

Complementarity or Capture?

The focus on complementarity, legibility and inclusion suggests that frugal innovation models are essentially benign in their efforts to engage with rich informal business ecosystems to access low-income markets. However, the emphasis on complementarity tends to gloss over the reality of informal economies as distinct economic systems. They are only recognized in terms of the organizational resources they provide to multinational business, without any awareness of how frugal innovation systems affect the viability of wider informal economic business systems and livelihoods arrangements. Frugal innovation and BoP literatures tend to focus on the micro-enterprise end of the informal economy, while ignoring its wholesale and global dimensions. Yet decades of research have highlighted the existence of large-scale informal economic systems, including transnational trading and remittance networks, and complex enterprise clusters. Dynamic ethnic, religious and occupational trading networks from West, Central and East Africa reach across Africa and as far as the United States and China to move millions of dollars of foodstuffs, imported consumer goods and second-hand clothes and consumer durables under the radar of the formal global economy (Ebin 1993; Egg and Herrera 1998; Little 2003; MacGaffey and Bazenguissa-Ganga 2000; Neuwirth 2012). Informal remittance networks now send more resources to African countries than foreign aid flows (IFAD 2009; Maimbo and Ratha 2005). In Somalia alone, money transfer networks known as 'hawala' transmit an estimated $1 billion per year into the war-torn nation, supporting a functioning economy despite the absence of a functioning state for much of the past 25 years (Lindley 2009; Lindley 2010; Little 2003). In a number of African countries, large informal enterprise clusters produce a range of low-quality consumer goods, including furniture, shoes, garments, light engineering and even computers, which supply regional as well as local markets (Dawson 1992; Meagher 2007; Oyelaran-Oyeyinka and McCormick 2007).

Rather than constituting a collection of atomized micro-enterprises, these large-scale informal economic arrangements are regulated by ethno-religious and occupationally-embedded commercial institutions involving credit, apprenticeship and brokerage networks, and informal regulatory and sanctioning mechanisms (Austen 1987; Beuving 2006; Egg and Herrera 1998; Lindley 2009; Meagher 2010). Moreover, informal economic systems generate opportunities for accumulation as well as basic livelihoods, shaping informal career paths in production, service and trading activities that can lead to middle-class incomes and even considerable wealth (Gregoire and Labazee 1993; MacGaffey and Bazenguissa-Ganga 2000; Meagher 2003; Prag 2013). Yet frugal innovation models treat the informal economy as little more than a pool of labour and institutional resources to be mixed and matched according to the needs of multinational business linkages with the bottom of the pyramid.

Instead of regarding informal economies as systems in their own right, they are represented as institutional spare parts that can be used to fill gaps in the weak institutional and regulatory environments of low-income communities of the developing world. Notions of 'second-best institutions' and 'hybrid governance' reinforce the tendency to relate to informal economies as 'found institutions' operating on the ground in developing countries that can be drawn on to construct low-cost, workable economic arrangements in areas of weak or absent formal institutions (Dixit 2004; Raeymaekers, Menkhaus and Vlassenroot 2008; Rodrik 2008).

Focusing on the complementary character of frugal innovation tends to gloss over how such initiatives selectively transform informal institutional systems around corporate economic interests, suppressing and cannibalizing rather than strengthening informal economic systems. The focus on making informal economies legible to capital is not just about learning to understand and engage with their innovative capacities; it is also about restructuring and governing them in line with the needs of global markets (Elyachar 2012; Dolan and Roll 2013). Inclusive market commentators highlight the importance of 'working' informal economic spaces to construct inclusive systems – classifying, restructuring and managing informal economic systems to meet the needs of global business (Dolan and Rajak 2016; Dolan and Roll 2013; Elyachar 2012; Mair, Marti and Ventresca 2012). These 'techniques of governance' serve to reformat informal economic systems and value chains in ways that privilege the reduction of formal sector costs and while increasing formal sector control.

The result is that inclusive engagement is highly selective -- meaning that some informal actors and innovative ideas are included, while others are excluded. Just as colonial authorities once made distinctions between 'usable' and 'unusable' parts of Africa, inclusive market innovators now use their native capabilities to distinguish between 'usable' and 'unusable' informal workers and institutions (Dolan and Roll 2013; Ferguson 2006; Meagher 2015). Inclusive business models tend to cite a commitment to poverty alleviation to justify the selection of women, youth and migrants as preferable informal workers, although it is worth noting that these are also the key sources of cheap and vulnerable labour within the informal economy (Portes, Castells and Benton 1989). In addition to highlighting preferred categories of usable workers, inclusive business models distinguish between useable and unusable local institutions. Rotating credit groups, funeral societies and small enterprise associations are identified as effective informal institutions, while informal wholesalers, money-lenders and practices of female seclusion are rejected as obstructive of market development.

Despite claims about 'co-creation', many commentators on inclusive business innovation view the corporate actor as the 'cornerstone of the ecosystem', treating the informal economy as full of potential, but incapable of efficient or large-scale self-organization, despite considerable evidence to the contrary. There is an underlying belief that it 'takes tremendous imagination and creativity to engineer a market infrastructure out of a completely unorganized sector' (Prahalad and Hart's 2002:6), requiring multinational actors to reshape value chains and develop trust and contracting arrangements to 'align incentives' of low-income participants around corporate interests (Sanchez and Ricart 2010:147; Elyachar 2012; Prahalad 2010; Simanis and Hart 2009). The result is a mode of innovation that Fressoli et al. (2014:281) refer to as 'insertion': 'The *insertion* mode of institutional engagement proposes to read grassroots creative capacities in ways that make it legible and useful for existing innovation systems…mainstream institutions seek to insert and capture ideas, elements and even models from GIMs [Grassroots Innovation Models], adapting them to their own agendas and practices'.

A closer assessment of underlying process and power relations shows that these apparently inclusive processes of innovations are often selective and disempowering for informal actors, rather than transformative. As Fressoli et al. (2014:278) point out, 'within the context of increasing interest in inclusive models of innovation, it is important to realize that though inclusion is a fashionable word at the moment, it involves a diversity of interpretations and ways of framing what gets included, and what remains excluded'. Discourses of collaboration and inclusion tend to mask conflicts of interest, fragment informal economic networks and social capital, and subordinate poor communities to the economic logics of international business (Ansari, Munir and Gregg 2012; Arora and Romijn 2011; Cross and Street 2009; Dolan and Roll 2013). Seyfang and Smith (2007:598) highlight the need for a deeper understanding of power relations and divergent agendas within innovation partnerships in order to assess who gains and who loses from frugal and grassroots innovation arrangements.

While frugal innovation is oriented toward collaborative arrangements that work for global capital, it is less clear that they improve economic opportunities for informal workers, entrepreneurs and consumers. The tendency to relate only to the micro-enterprise end of the informal economy, and the selective incorporation of informal actors and institutions by corporate actors suggest that formal-informal relations are characterized less by complementarity than by 'adverse incorporation', which refers to inclusion on disadvantageous terms (Du Toit 2004; Meagher, Mann and Bolt 2016). Further concerns about the terms of inclusion are raised by the fact that talk of partnerships between formal and informal actors are accompanied by little discussion of the distribution of gains (Arora and Romijn 2012:486).

Cannibalizing the Informal Economy

If the informal economy is viewed as a larger system, rather than as a set of institutional raw materials, the problematic character of many frugal innovation strategies become evident. Processes of selective inclusion, suppression of competing informal actors and institutions, and restructuring of value chains and business ecosystems around corporate interests reveal a dynamic of adverse incorporation rather than mutual benefit. Bill Maurer (2012:599) characterizes this as a strategy to 'Take what is already there and scale it up. Use people's own experimentation and everyday, routine innovation as prototype…. Much of this formalizes [or normalizes] what had been informal..'. Instead of promoting better jobs and wages for informal actors, frugal innovation tends to cannibalize the informal economy for the institutions and workers needed to promote formal sector profits. Four mechanisms of cannibalizing the informal economy can be identified: Copying, Free-Riding, Eliminating Nodes of Accumulation, and Shifting Risks.

Copying

The strategy of copying from the informal economy is widely encouraged in the inclusive market literature, with particular reference to micro packaging, 'leveraging' local knowledge, and identifying market opportunities. These practices are more delicately referred to as 'adapting products and processes' by the UNDP (2008: 18) report 'Creating Value for All'. Numerous BoP commentators celebrate micro-packaging as an important 'innovations' for reaching BoP markets (Karamchandani, Kubzansky and Lalwani 2011; London and Hart 2011; Mendoza and Thelen 2008). Yet anyone who has ever visited a developing country will recognize that micro-packaging has been a mainstream strategy of informal economy retailers for more than half a century, if not longer. Indeed, in their classic article on West African trading practices, Bauer and Yamey (1951:746) drew attention to '…the breaking of bulk into minute quantities… At the petty retail stage sugar is sold in lots of three cubes, trade perfume by the drop, salt by the cigarette tin and cheap biscuits by the small heap of three or six. The small purchases are the result of low incomes and low capital…'. In current times, the bulk breaking of sugar, margarine or milk powder into single serving units packaged in plastic wrap is ubiquitous in roadside markets and informal low-income retail stalls across Africa and beyond. While one may argue that corporate emulation of micro-packaging in single serving branded sachets of margarine or washing powder improves sanitation and reduces the risk of product adulteration, it also allows large-scale capital to capture the bulk of the margins for micro-packaging that previously went to informal micro-retailers.

'Leveraging local knowledge' represents a further dimension in which copying from the informal economy is celebrated as a frugal innovation strategy. Prahalad and Hart (2002:9) celebrate the Body Shoppe's 'discovery' of shea butter and pineapple as beauty products – which means that they found that local women in West Africa used and traded them for this purpose already. Copying local products that generate large markets within the informal economy is another favoured form of frugal innovation. Branded versions of informal product innovations such as selling water in plastic sachets, or cheap micro-packaged washing powder are praised as 'pioneering' and 'innovative', despite the overt recognition that these strategies were directly copied from local informal and small-scale firms, whose profit margins are eroded in the process (Prahalad and Hart 2002:5; Karamchandani et al. 2011:6).

Free-riding on Local Networks

A second popular tactic of cannibalizing the informal economy involves what is euphemistically referred to as 'leveraging soft networks', or 'leveraging the strengths of the poor', which means reducing costs by free-riding on informal community or economic networks and institutions (Chelekis and Mudambi 2010; Karamchandani, Kubzansky and Lalwani 2011: 5; London and Hart 2011; Mendoza and Thelen 2008: 440; UNDP 2008:20). As Mendoza and Thelen (2008:440) explain, 'Marketing strategies built on leveraging community networks may also be considered as examples of leveraging soft networks. These types of innovations could not only help lower the cost of marketing products; they could also tap the comparative advantage on market information that the community members might have.'

A wide range of informal networks and institutions have been targeted for corporate free-riding, including rotating credit groups (ROSCAs), producer cooperatives, informal enterprise associations, informal hawking networks, and relational contracting (Rivera Santos and Rufin 2010; Mendoza and Thelen 2008; Karamachandran et al. 2011; UNDP 2008; London and Hart 2011). These are hailed by frugal innovators as 'pioneering' low-cost distribution channels, or 'contracting innovations' that can simply be appropriated to reduce costs. In a report on building inclusive business models, Karamchandani et al. (2009:72) bluntly state that 'The reason why enterprises are increasingly engaging low-income segments as suppliers lies almost wholly with its cost function: their labor is inexpensive and, in most cases, underpriced. …Moreover, low-income workers will generally underprice – if they price at all – their capital, equipment, and land assets.'

In contrast to claims of complementarity, recent ethnographic studies of micro-insurance, micro-credit, and other branded products and services have highlighted the aggressive appropriation of social networks and informal institutions to access informal labour and consumer markets on the cheap, at little benefit to informal actors. Despite discourse to the contrary, BoP labour is treated primarily as a cost, rather than as a co-beneficiary of 'mutual value creation'. Indeed, a downward flow of benefits is often checked by the use of formal contracts, bureaucratic complexities and other forms of corporate discipline to 'align incentives' and protect corporate profits (Bahre 2012; Dolan and Rajak 2016; Hietelahti and Nygren 2011). A high turnover of sales agents in BoP distributive networks indicates that the benefits are often slow to trickle down (Arora and Romijn 2011:484; Dolan and Rajak 2016).

Free-riding on informal organizational infrastructure often depends on enlisting NGOs or social enterprises to 'tap' these informal institutional resources for the benefit of corporations. 'Many locally embedded NGOs possess the resources and network relationships needed to create and manage links between multinationals and BOP markets. As such, NGOs can serve as effective alliance partners to MNEs … for exploiting opportunities in BOP markets' (Webb et al. 2010:568). Ultimately, the objective is not to draw the poor out of informality, but to benefit from the cost advantages of keeping them informal. London et al. (2010: 583) (2010:583) confirm that 'BoP ventures operate as a bridge, straddling the formal and informal sectors. Rather than trying to formalize the informal, these ventures focus instead on identifying existing strengths in the informal sector….to utlilize and enhance existing resources, such as self-help groups and social networks…'. In the process, the social capital of the poor is hijacked by corporate capital in the service of formal sector profits, constituting a new form of 'accumulation by dispossession' (Elyachar 2012; Cross and Street 2009).

Short-circuiting Informal Accumulation

In addition to identifying informal strategies, products, and institutions that are useful to capital, frugal innovation also involves marginalizing those that are not. This is a widely recommended tactic for corporate actors interested in engaging with BoP markets (Karamchandani, Kubzansky and Lalwani 2011; Metzger et al. 2010: 37; Rivera-Santos and Rufin 2010). It often involves the side-lining of informal manufacturers and the delegitimation of informal commercial intermediaries, including informal wholesalers, brokers and moneylenders, who may absorb a higher share of profits into the informal economy. As Paunov (2014:32) explains, 'monopolistic structures in intermediary services; transporters, traders, commission agents and wholesalers may take between 30% and 45% of final market values… Cutting out intermediaries by directly sourcing from lower-income producers and/or relying on them for distribution can be an effective and profitable business model'. Karamchandani et al. (2009:7) call this strategy 'deep procurement', highlighting the need to bypass informal business intermediaries that will have a strong interest in opposing supply-chain innovations that displace them from the system of accumulation.

The issue is not that informal business intermediaries are unnecessary, but that they absorb profits. Frugal innovators call for the replacement of informal business intermediaries by NGOs or social enterprises who will facilitate access to these difficult to reach markets and workers without expectations of profit. This serves to restructure value chains away from informal nodes of accumulation in which profits are captured within the informal economy. Resistance by informal commercial intermediaries to being excluded from the value chain is represented as corruption or monopolistic behaviour. Conversely, social enterprises and NGOs are regarded as 'honest brokers' who facilitate economic inclusion of the poorest (Webb et al. 2010:567; Dolan and Roll 2013; Dolan and Rajak; Elyachar 2012; UNDP 2008). What is glossed over in the analysis is that profits are still being generated in these frugal value chains, but NGOs facilitate the capture of profits by corporate partners, rather than allowing them to be absorbed by local manufacturers, wholesalers and traders within local communities. As Webb et al. (2010:560) explain 'We describe NGOs as unique local alliance partners for multinationals to facilitate their entrepreneurship processes, serving society's social needs while positioning the multinationals to gain financial benefits.' The assumption is that 'society's needs' are only those of the poorest, not their more successful relatives, neighbours or townspeople who provide local sources of assistance and chart accessible paths of economic advancement for those with limited access to education or connections. It is not clear that eliminating these local nodes of accumulation within the informal economy improves local opportunity and resource distribution.

Shifting Risks

Despite talk of mutual benefit, inclusive business partnerships achieve frugality largely by shifting costs and risks onto informal actors. In addition to free-riding on informal marketing networks, frugal re-engineering of BoP distribution channels through micro-credit-based payment solutions and micro-franchising arrangements force informal entrepreneurs to absorb marketing costs, turnover risks, and interest payments within their very low margins (Karamchandaran et al. 2011; Anderson et al. 2010; Prahalad and Hart

2002). A number of studies have detailed how celebrated BoP programmes such as Care International's Rural Sales Programme, Grameen 'Phone Ladies', and Avon in South Africa and Brazil transfers risk onto poor women by requiring them to buy equipment or goods up front on credit, leaving them to cope with increasingly saturated markets, falling returns and in some cases the social opprobrium of transgressing cultural boundaries (Bateman 2010; Chelekis and Mudambi 2010; Dolan and Roll 2013; Dolan and Scott 2009). A tendency to target less poor consumers in the early stages of frugal innovation ventures is often justified by the claim that innovations will reach the poorest as prices fall; yet this also signals an inherent risk for informal entrepreneurs and workers in frugal distribution chains, who buy goods on credit, only to be faced by falling prices.

It has also been noted that pressures to 'tap individual's social networks' for marketing goods through personal ties places growing stress on informal social support networks (Bahre 2012; Dolan and Scott 2009). Delayed payment and financial pressures within low income communities place increasing strains on social networks, eroding rather than strengthening local social capital. While relieving large corporations of the costs and risks of formal employment in unstable low-income markets, engagement with informal distribution systems simply transfers these costs and risk onto the shoulders of poor informal actors, often women and youth. Worse still, frugal innovators' partnerships with donors and government divert scarce resources from directly supporting local enterprise development or local formal sector job creation. Instead, a rhetoric of inclusion focuses development resources on funding the re-engineering of value chains in favour of corporate interests focused on trapping informal actors at the micro-enterprise end of the chain. Clearly, one person's inclusion is another person's exploitation.

Frugal Innovation in Practice: The Cases of Mobile Money and Micro-Insurance

Frugal innovation strategies draw heavily on inclusive market tactics of appropriating informal products, institutions, and nodes of accumulation. This not only intensifies economic risks for informal actors, but fragments and hollows out informal economic systems as a whole. Selective processes of inclusion subject informal economies to practices of exploitation and asset stripping which leave behind a weakened and increasingly fractious informal economic infrastructure. Attention is focused on the new frugal value chains being created, while ignoring the cannibalized informal economic ecosystem that is left behind. Two cases will suffice to illustrate the adverse and disempowering effects of frugal innovation strategies from an informal economy perspective: the case M-Pesa, the Kenyan mobile money system; and the case of micro-insurance in South Africa and Ethiopia.

Mobile Money in Kenya

Kenya's mobile money system, M-Pesa, is an icon of successful frugal innovation. It uses the mobile phone to extend cheap money transfer and savings facilities to millions of unbanked workers and consumers across Kenya. Piloted in 2006, M-Pesa had over 2 million subscribers in its first year of operation, and now boasts just under 20 million M-Pesa accounts (Foster and Heeks 2013; Onsongo 2013; Paunov 2013: 50; Safaricom 2016). It would be fair to say that M-Pesa was a product of an interaction between formal and informal innovation activities, but it is more difficult to characterize the process as complementary or leading to mutual benefit. Indeed, the role of informal innovations, actors and institutional arrangements are systematically underplayed, while the benefits have been captured overwhelmingly by the lead firm, Vodafone, and its Kenyan subsidiary, Safaricom.

It is widely recognized that mobile money in Kenya was first pioneered by local users sending airtime to others via mobile phone as a means of transferring money (Jack and Suri 2011; McKemey et al. 2003; van der Boor, Oliveira and Veloso 2014: 1589). The cooperation of local shopkeepers and traders at the receiving end allowed recipients to convert texted scratch card codes into cash. This practice was ultimately commercialized by Safaricom, working with funding by Vodafone and the British international development agency, DfID. However, the first pilot focused on mobile payment solutions for the micro-finance industry, was a failure. It was users themselves who began using the system as a form of mobile money, and subsequently innovated additional services such as micro-savings (Foster and Heeks 2013:301; Osango 2013; van der Boor et al. 2014:1600). Foster and Heeks (2013:311) observe that 'end users were arguably the main innovators during the first pilot phase'.

In addition to the role of users, a wider range of informal institutions played a role in the success of M-Pesa. Rotating credit groups, hawala remittance networks and informal shopkeepers practices and networks played a central role in shaping local familiarity with agent-based financial pooling and transfer systems, as well as providing the infrastructure and practices that underpinned the rapid expansion of M-Pesa. More than 50% of Kenyan adults belong to rotating credit groups, locally known as chamas, the Somali hawala networks operate widely across the country. But, as Foster and Heeks (2013) point out, the role of local innovation did not end with the early establishment of M-Pesa. The rapid development of the agent network was intimately involved with informal commercial practices through which M-Pesa dealers were able to create and govern sub-agents who extended the reach of the mobile money systems across wide swaths of the country. Registered M-Pesa dealers subcontracted their activities to sub-agents from outside Safaricom's system, taking a cut of their commission in return for less stringent financial requirements and terms of entry. These informal arrangements contributed a further range of product and process innovations, including rent and utilities payments, purchasing groceries, as well as more effective systems of float management in poor and remote areas, and more secure bookkeeping protocols (Foster and Heeks 2013; Maurer 2012).

These innovations, often based on 'unconventional partnerships' in slums and rural areas, were so successful that they were adopted by Safaricom. An article by Bill Maurer (2012:599) on the rise of M-Pesa notes the extensive interplay between formal and informal innovation systems: 'the artificial divide between designers and consumers is even more evident when it is the supposed 'end'-users whose experimentation has actually originated some of the innovations.' Yet, having benefited from extensive informal innovation and the use of a low-cost informal business infrastructure, Safaricom proceeded to centralize control over the management of the system and the distribution of gains. The 'aggregator model' inaugurated in 2010 reduced the number of dealers from hundreds to about 10, each of which was responsible for 2,000 or more agents. Having observed that agents could be made to carry out M-Pesa activities for lower commissions, Safaricom drastically expanded the role of these cheaper sub-agents, while narrowing the number and increasing the responsibilities of better-remunerated dealers. Foster and Heeks (2013:206) note that 'the new strategy sought to shift both managerial control and the locus of innovation upwards', allowing the 'capture and incorporation' of the highly successful informal innovations. The upshot is a perfect demonstration of copying local innovations, free-riding on shopkeeper networks and practices, eliminating upper tier agents, and shifting costs onto the agent networks, while Safaricom monopolizes the gains.

Micro-Insurance

The micro-insurance industry offers a contrasting tale of high expectations and poor performance. In the wake of the remarkable success of micro-credit, the micro-insurance industry has become an intense cite of frugal experimentation in the effort to create new micro-finance products. Given the high vulnerability of the poor to shocks amid inadequate safety nets, micro-insurance has been estimated to have a potential market of $-80-90 billion worldwide. But, as a number of studies have noted, these figures represent enthusiastic supply in search of demand (Da Costa 2013; Véron and Majumdar 2011). Industry professionals struggle to devise a workable product design that can square the circle of high-risk, low-income insurance, while economists and other industry researchers have gravitated toward the study of mutual aid societies in developing countries to identify workable institutional arrangements 'in the wild' (Callon 1998; Da Costa 2013; Midgley 2012). The bulk of the micro-insurance industry is based in India, where it survives on heavy state subsidies and a compulsory linkage with agricultural loans.

In Africa, the key bright spot in the micro-insurance sector has been in the area of funeral insurance. Estimates by Roth (1999) that poor South Africans spend approximately fifteen times the average monthly income on funerals has encouraged a sense that a viable market has been located. But engagement with a 'second best' informal institution is seen as essential for bringing down the cost of product design. Dercon et al. (2006:687) emphasize the need to move beyond 'social capital' and 'traditional social welfare' perspectives to focus on 'on well-defined networks or associations formed with a specific focus on insurance….and with well-defined rules and obligations, in the form of membership rules, specific contributions and fines related to deviant behavior'. Indigenous funeral savings institutions in selected African societies seem to fit the bill. Since the early 2000s, a number of studies have focused attention on funeral societies, especially in South Africa and Ethiopia, as potentially effective models for the design of micro-insurance products (Dafuleya and Gondo 2010; Dercon et al. 2006; Roth 2001; Tadesse and Brans 2012). Funeral societies are viewed as an ideal means of reducing transaction and monitoring costs, as well as identifying a source of market demand.

While other forms of micro-insurance remain relatively unsuccessful, a micro funeral insurance product appears to be gaining ground in South Africa. One strategy used by the insurance company Hollard, involves imitating the service offered by local funeral societies (Karamchandani 2011). By copying the product and free-riding on local familiarity with the service, Hollard proceeded to cut out the burial societies by grafting on formal sector payment points and cell phone management and processing. Another model involves using funeral societies as intermediaries between insurance companies and customers (Bahre 2012). However, this model deprives burial societies of control over premiums and payouts, threatening the relations of trust on which the system depends. Moreover, Bahre (2012) found that costs are often downloaded onto networks of local insurance agents, who work on commission and are required to pay for petrol and phone calls, while contracts and bureaucratic rules are used to limit space for representing the economic interests of agents or customers. In Ethiopia, studies support linking funeral societies into micro-finance institutions, despite the recognition that the regulatory requirements of doing so would undermine access by the poorest to this informal risk management institution (Dafuleya and Gondo 2010; Dercon et al. 2006). Once again, a reliance on strategies of copying, free-riding, eliminating competing informal players, and shifting costs and risks onto local agents and poor customers produces a form of frugality that looks more like adverse incorporation and accumulation by dispossession than complementarity or genuine inclusion (Bahre 2012; Da Costa 2013).

Conclusion: Frugal at Whose Expense?

Models of innovation that draw global capital into the development of products and services to improve welfare and economic inclusion of poor informal actors in African countries are an admirable idea in principle. However, the quest to engage with informal workers and consumers requires a closer look at innovation through an informal economy lens in order to recognize potential conflicts of interest between formal and informal participants (Seyfang and Smith 2007). From an informal economy perspective, frugal innovation models perpetuate a tendency to treat informal forms of organization as found resources rather than as complex livelihood systems, and to gloss over the power relations and divergent economic interests involved in formal-informal partnerships. Treating informal economies as systems in their own right means looking beyond how they can serve the interests of frugal innovators, to consider how they currently serve local interests and aspirations within poor communities. Being truly inclusive would require frugal innovation models not only to move away from pervasive strategies of copying, free-riding, bypassing and shifting risks, but also to broaden the notion of 'mutuality' to include greater influence for informal partners over system design and the distribution of profits.

Recognition of informal economies as systems involves recognizing the role of successful as well as poor participants and supporting rather than eliminating paths of informal economic advancement. Regarding informal economies as institutional raw materials for reducing the cost of corporate engagement with the poor glosses over the significant investments in time, resources, aspiration and business innovation that has gone into the creation of these informal systems over decades and even centuries. Strategies of cannibalizing informal economies for parts not only erode capacity and mobility within the informal livelihood systems; they encourage a tendency to undervalue the role of informal partners, practices and institutions. As Julia Elyachar (2012) argues, constructive engagement with the BoP requires greater recognition of the creativity and institutional innovation expended in creating these systems of survival and accumulation in the first place. Citing Robbins (2007: 32 in Elyachar 2012), Elyachar makes the point that ‘Infrastucture needs to be made visible, in order to see how our present landscape is the product of past projects, past struggles’. Cannibalizing these informal business infrastructures for corporate profit both devalues and destabilizes the complex informal systems on which a majority of local livelihoods and advancement strategies depend across Africa.

When the informal economy is brought properly into view, it is clear that frugal innovation is as much about power as it is about inclusion. In assessing what frugal innovation has to offer the poor, it is necessary to ask the question, ‘frugal in whose interest, and at whose expense?’ The terms of inclusion are shaped by the ability of informal actors to articulate their own interests rather than being drafted into arrangements defined from above. Where inclusive rhetoric and partnership arrangements between formal and informal actors gloss over differences in interests and agendas, frugal innovation can degenerate into a mechanism of adverse incorporation for informal business systems. Making frugal innovation a source of empowerment for informal actors means according them real influence over innovation processes and the distribution of gains across profits, wages and pricing at the BoP. This requires greater mobilization of state and donor resources around the needs of informal business systems, bolstering the organizational capacities and accumulation opportunities of informal activities rather than merely subsidising the cost-cutting objectives of corporate capital. Making frugal innovation more inclusive depends on strengthening the occupational organization and bargaining power of informal actors with a view to improving their leverage in frugal design and distribution arrangements.

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