

Land, debt and trust in the making of biometric capitalism

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A new kind of capitalist infrastructure is emerging on the African continent. The core of this new economy is shaped by the development of centralised and linked biometric identification and credit scoring databases. Over the last two decades the administrative arrangements of banking and civil registration systems in Ghana, Kenya and Nigeria have been rebuilt by local elites, multinational donors and cellular network providers. These very different countries share a common history as British colonies, and they have also recently adopted a set of technological and institutional policies that extend and elaborate on forms of biometric government that were first developed in South Africa, another former British colony. The South African precedent, including the interventions of firms based there, is one important part of this story. But in several respects what is happening in each of these countries takes the logic of the model of biometric financialisation considerably further than anything that is possible in South Africa. Biometric institutions in the other ex-colonies are the products of an explicit embrace between public civil registration systems and private banking interests that is not possible in South Africa. Indeed, quite dramatic institutional changes are being funded primarily by the banks in the effort to improve their capacities for assessing credit worthiness and debt servicing. In Morocco, Rwanda and in Ethiopia, it is the state – independent of private firms – that is driving the expansion of biometric identification and, following India's Aadhaar project, weaving it into the bank's transaction switching infrastructure.

Biometric financial services are not close to displacing mining's contributions to GDP on the continent, nor do they approach the centrality in the lives of ordinary people currently taken up by subsistence farming, informal trade and artisanal mining.¹ The growth of informal gold mining on the continent, which now sees over ten million people producing small amounts of gold for a daily wage of less than \$5 is a mirror image of biometric finance. As non-western central banks and wealthy families, often from the same countries, scramble to secure internationally fungible assets, gold has been restored as a global monetary asset. Gold dust in the ground in the eastern DRC, Burkina Faso, Sudan, Ghana and ten other African countries, has become the mechanism through which tens of millions of the continent's poorest people tap into the financial resources in Dubai, Zurich and New York. One driver of this demographic wave of artisanal miners is the unusual way in which it serves – quite unlike the other mineral and agricultural commodities -- as money in the areas in which it is mined. Because gold supports a host of illegal or heavily taxed transactions across the continent, miners can sell the partially processed gold *dore* for a price that is often higher than what it will earn in Dubai or New York. The other key driver is that gold is a distinctive form of property on the continent – working anonymously, independent of state and private institutions, and with a system of pricing that functions universally. In this sense, the potency of artisanal gold mining and biometric finance both reflect the fragility of formalised property systems on the continent.

¹ UNCTAD, "World Investment Report: Transnational Corporations, Extractive Industries and Development," 2007, http://www.unctad.org/en/docs/wir2007_en.pdf; Sara Berry, *No Condition Is Permanent: The Social Dynamics of Agrarian Change in Sub-Saharan Africa* (Madison WI: University of Wisconsin Press, 1993); S. Ellis and J. MacGaffey, "Research on Sub-Saharan Africa's Unrecorded International Trade: Some Methodological and Conceptual Problems," *African Studies Review* 39, no. 2 (1996): 19–41.

Debates about private property have a special place in the historiography of the continent. Thirty years ago Thornton insisted that it was the absence of land as property that fostered the expansion of slavery on the continent. “Slavery was widespread in Atlantic Africa,” he argued, “because slaves were the only form of private, revenue-producing property recognized in African law.” Zeleza, Mkandawire and Inikori all disputed this claim, itemizing private property in many forms and pointing, in particular, to the demographic effects of the slave trade on the development of a market in land. “When market opportunities emerged in the late nineteenth and twentieth centuries, as population grew and agricultural production for export and for the domestic market expanded,” Inikori insists, “no culture or land laws prevented the evolution of private property rights in land in the major African countries.”² Yet the specific administrative arrangements of colonial government on the continent – which Berry calls “hegemony on a shoestring” – did have the effect of over-turning these late 19th efforts to build institutions of private property in land. The scholarship on this problem is also deep and interesting – ranging from Berry’s work on the politics of uncertainty in land holding to Sackeyfio-Lenoch and Moguerane on the colonial administrators’ efforts to constrain the litigiousness of African land holders.³ Mamdani and Mantena, separately, have shown that colonial governance in the late 19th century was philosophically preoccupied with the idea that African society needed to be protected from financial markets. More recently a host of contemporary researchers have stressed the importance of defending security of tenure in the face of the disruptive, and sometimes violent, financialisation of family land holdings. Here Shipton’s ethnographic work on the effects of hypothecation on family land holdings in contemporary Kenya has been especially influential, but there is similarly eloquent work in South Africa.⁴ Researchers – many of them associated with PLAAS – have succeeded in blocking Hernando de Soto’s effort to “give everyone a right to property rights.”⁵ For most of the rural poor on this continent (with the possible exceptions of people in Rwanda and Ethiopia), land is not likely to become a formal financial asset in our lifetimes. States usually have other plans in mind for land allocation. Again, Boone and Ntsebeza have separately

² Joseph E. Inikori, *Africans and the Industrial Revolution in England: A Study in International Trade and Economic Development* (Cambridge University Press, 2002), 15, https://books.google.co.za/books?hl=en&lr=&id=IRJDv5tmF1MC&oi=fnd&pg=PP2&dq=inikori&ots=1fsro6Fys_&sig=n-i2rZ1K3nOFhdQuZkb90rY5y50.

³ Naaborko Sackeyfio-Lenoch, *The Politics of Chieftaincy: Authority and Property in Colonial Ghana, 1920-1950* (Boydell & Brewer, 2014); Khumisho Moguerane, “Black Landlords, Their Tenants, and the Natives Land Act of 1913,” *Journal of Southern African Studies* 42, no. 2 (2016): 243–66; William Beinart, Rosalie Kingwill, and Gavin Capps, eds., *Land, Law and Chiefs in Rural South Africa: Contested Histories and Current Struggles* (Johannesburg: Wits University Press, 2021).

⁴ Parker MacDonald Shipton, *The Nature of Entrustment: Intimacy, Exchange, and the Sacred in Africa* (Yale University Press, 2007), <http://books.google.co.za/books?hl=en&lr=&id=RPEB1E4-yAIC&oi=fnd&pg=PR9&dq=Parker+Shipton,+The+Nature+of+Entrustment&ots=FTpn4hfLgu&sig=i-RO6EqAOeV6NITm6RZJihs1bTw>; Parker MacDonald Shipton, *Mortgaging the Ancestors: Ideologies of Attachment in Africa* (Yale University Press, 2009); Rosalie Kingwill, “Land and Property Rights: ‘title Deeds as Usual’ Won’t Work,” *Econ3x3*, August 2017, <http://www.econ3x3.org/article/land-and-property-rights-title-deeds-usual-won%E2%80%99t-work>; Peter Delius and William Beinart, “Securing the Land: From Customary Land Tenure to Registered Titled Land?,” *Land in South Africa: Contested Meanings and Nation Formation*, Edited by Khwezi Mabasa and Bulelwa Mabasa 26 (2021).

⁵ Hernando de Soto, *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*, 1st ed. (Basic Books, 2000); Ben Cousins and Donna Hornby, “Will Formalising Property Rights Reduce Poverty in South Africa’s Second Economy? Questioning the Mythologies of Hernando de Soto,” 2005; Rosalie Kingwill et al., “Mysteries and Myths: De Soto, Property and Poverty in South Africa,” *GATEKEEPER SERIES-INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT SUSTAINABLE AGRICULTURE AND RURAL LIVELIHOODS PROGRAMME* 124 (2006); Celestine Nyamu Musembi, “De Soto and Land Relations in Rural Africa: Breathing Life into Dead Theories about Property Rights,” *Third World Quarterly* 28, no. 8 (2007): 1457–78.

demonstrated the ongoing centrality of – typically informal – political controls over land to those who hold the levers of real power across the continent.⁶ It is this intractability of assets in landed property, more than the dependence on mobile devices and micro-credit, that gives biometric capitalism its distinctive form.

These states confront two other intractable problems of long-term social structural change that are distinctive on the planet. The first, which is closely related to the limited forms of capitalist transformation, is their informational weakness, mainly derived from the constrained forms of administration that were sustained by colonial rule. In short, all of the colonial states on the African continent (in contrast with, for example, the colonial Raj, the Japanese in Korea, or even the Spanish in Peru and Mexico) had a clearly restrained curiosity about their native subjects, a will to know that was confined to the settler population or to carefully delimited labour districts. This was a common feature of the Belgian, British, French and Portuguese colonies, although their forms and histories are interestingly different in each case.⁷

Most of these colonies (and here the contrast with India is especially enlightening) did not collect meaningful census data on their African subjects. In the post-colonial period census data is also incomplete, non-existent or contested for almost all countries. Most births and most deaths are still not officially recorded, and the invisible infrastructures of registration that support states and personal identification elsewhere -- of land, people, property and tax – exist, presently, only for a small minority. Bureaucratic systems of identification are, thus, very weak. Africanists are fond of pointing to the very extensive ethnographic scholarship that the colonial state fostered in place of the infrastructure of written administration that emerged elsewhere, but – interesting and important as this work was – these anthropological investigations cost a tiny fraction of the time and treasure required to construct the order Foucault described as the “power of writing,” and they had few meaningful economic benefits, except as justifications for administrative short-cuts and as the basis for securing poor peoples’ access to land.⁸ Instead the colonial state relied on labour and hut taxes that could be levied at the economic core or administered by rural aristocrats. Over the course of the 20th century – as more judicial and revenue authority was transferred to the aristocrats -- these revenue systems weakened.⁹

The second, closely related, major dilemma is the existing and projected pace of demographic growth on the continent. To put the problem in its mildest form, most African states have experienced dramatic increases in population over the last sixty years, going from comparatively low population densities to some of the highest ever recorded. There is a rich debate in African economic history over the facts and implications of the populations

⁶ Catherine Boone, *Property and Political Order in Africa: Land Rights and the Structure of Politics*, Cambridge Studies in Comparative Politics (New York: Cambridge University Press, 2014).

⁷ See the essays and historiographical review in Keith Breckenridge and Simon Szreter, eds., *Registration and Recognition: Documenting the Person in World History*, Proceedings of the British Academy 182 (Oxford: Oxford University Press, 2012); Keren Weitzberg, “The Unaccountable Census: Colonial Enumeration and Its Implications for the Somali People of Kenya,” *The Journal of African History* 56, no. 03 (November 2015): 409–28, <https://doi.org/10.1017/S002185371500033X>.

⁸ Saul Dubow, *Racial Segregation and the Origins of Apartheid in South Africa, 1919-36* (Oxford: Macmillan in association with St Antony’s College, 1989), chap. 1; Helen Tilley, *Africa as a Living Laboratory: Empire, Development, and the Problem of Scientific Knowledge, 1870-1950* (University of Chicago Press, 2011), chap. 6; Delius and Beinart, “Securing the Land”; Peter Delius, *A Lion Amongst the Cattle: Reconstruction and Resistance in the Northern Transvaal* (Oxford: James Currey, 1996); Luvuyo Wotshela, “Quitrent Tenure and the Village System in the Former Ciskei Region of the Eastern Cape: Implications for Contemporary Land Reform of a Century of Social Change,” *Journal of Southern African Studies* 40, no. 4 (2014): 727–44.

⁹ Keith Breckenridge, *Biometric State: The Global Politics of Identification and Surveillance in South Africa, 1850 to the Present* (Cambridge: Cambridge University Press, 2014), chap. 4.

supported on the continent and of variation in specific regions. Disputes over the size of the population in the century between 1800 and 1900 – mainly reflecting the weakness and unreliability of colonial demographic reporting – are still not resolved¹⁰. And there is some disagreement about the astonishing predictions for African demographic growth released by the United Nations in 2015, which, in short, insist that 5 billion people – half of the global population – will live on the African continent in 2100 at the highest densities of human settlement ever recorded.¹¹ Yet the basic parameters of demographic change over the last century, and their implications for states and economies are not in dispute. Where the population on the continent was between 50 and 140 million people in 1800 – remaining static owing to the effects of the slave trade and colonial conquest for the next century – by 1950 it had grown significantly to approximately 230 million. Over the next fifty years the continent's population grew four-fold to 1 billion. It is now 1.2 billion and certain – regardless of the increasingly frantic contraceptive interventions of the World Bank and the Global Fund – to reach at least 2 billion by mid-century. For individual states this is a janus-faced change of the first magnitude, offering demographically – driven economic growth and formidable problems of regulation, especially in the continent's enormous cities. It is these structural dilemmas, usually unstated and unrecognised, that sustain the very widely supported interest in automated, networked, biometric identification and surveillance systems.¹²

Governments, donors and banks are deliberately aiming biometric registration systems at the formalisation and institutionalisation of many, perhaps all, forms of economic activity. Whether it is the effort to identify bank account holders, eliminate ghost workers, track cash transfer recipients, capture market transactions, register land holdings, identify artisanal miners or strengthen tax receipts, biometric registration systems have ambitious surveillance goals, goals that far exceed anything currently planned (for voting citizens) in the OECD countries. Nor is it obvious that these coalescing projects will fail – here Ghana's now venerable E-Zwich project, which continues to provide the Ghana central bank and the government with a tool for payments to grantees provides a powerful example of overweening ambition and techno-institutional tenacity. Both arms of this formalisation – the biometric identification systems and their twinned credit history databases – are being fostered by the institutionalisation agenda at the World Bank.¹³ Yet, even here biometric government is the

¹⁰ On the low side see John Iliffe, *Africans: The History of a Continent* (Cambridge: Cambridge Univ Pr, 1995); and Morten Jerven, "The Emergence of African Capitalism," in *The Cambridge History of Capitalism / Edited by Larry Neal and Jeffrey G. Williamson*, ed. Larry Neal and Jeffrey G. Williamson, vol. 1, 2 vols. (Cambridge: Cambridge University Press, 2014); For the high Paul Tiyambe Zeleza, *A Modern Economic History of Africa* (Dakar, Senegal: CODESRIA, 1993); and Patrick Manning, "African Population, 1650–2000: Comparisons and Implications of New Estimates," in *Africa's Development in Historical Perspective*, ed. Emmanuel Akyeampong et al. (Cambridge University Press, 2014), 131–50, <https://books.google.co.za/books?hl=en&lr=&id=Kv4OBAAAQBAJ&oi=fnd&pg=PR7&dq=rh-bates+akyeampong&ots=IHGwTVmLyG&sig=rZuF1qhjPnWj6Ea2gALUMpi-mkM>.

¹¹ Department of Economic and Social Affairs : Population Division, "World Population Prospects : Key Findings and Advance Tables" (New York: United Nations, 2015), http://esa.un.org/unpd/wpp/publications/files/key_findings_wpp_2015.pdf; Patrick Gerland et al., "World Population Stabilization Unlikely This Century," *Science* 346, no. 6206 (2014): 234–37; For mild criticism, see Floyd Norris, "Population Growth Forecast From the U.N. May Be Too High," *The New York Times*, September 20, 2013, <http://www.nytimes.com/2013/09/21/business/uns-forecast-of-population-growth-may-be-too-high.html>; Edward Paice, *Youthquake: Why African Demography Should Matter to the World* (Head of Zeus Ltd, 2021).

¹² See Shem Gichimu, "Credit Reference Bureaus, Loans Advancement and Recovery Performance by the Higher Education Loans Board of Kenya" (University of Nairobi, 2013), <http://erepository.uonbi.ac.ke/handle/11295/60387>.

¹³ Alan Gelb and Caroline Decker, "Cash at Your Fingertips: Biometric Technology for Transfers in Developing Countries*," *Review of Policy Research* 29, no. 1 (2012): 91–117; Alan Gelb and Julia Clark, "Identification for

product of local political agents and, importantly, local banks using their own money in an effort to identify and exploit new markets¹⁴. In a similar way, as Debos shows, the proliferating voter-registration projects being pursued in almost every country on the continent have changed from being donor-funded, outsider systems, with rapid obsolescence to indispensable, locally-owned tools of state building and reform.

Coalescing biometric registration systems, and especially the ordering and moralising functions of the credit scoring databases, have produced some new forms of institutional co-ordination. Algorithmic scoring can surpass the specific administrative weaknesses of the bureaucratic registration, and identification, arrangements inherited from colonial rule, and the corrosive effects of informal financial transactions on the streets and in boardrooms. Yet the results are still profoundly ambiguous leading to both rigid exclusion and a more recognisable moralization. These processes of moralisation are most visible in South Africa where biometric transfers and credit scoring databases, despite three decades of intense political conflict, serve as pervasive and apparently indispensable agents of social and economic co-ordination. This, it is important to notice, is a technological function, different from the historically formed political norms and organisations that Hall and Soskice¹⁵ have in mind. But their effects are similar. Where the *Arbeidsburo* and the *Bewysburo* were key to the planning and control of the Apartheid economy at least before 1985¹⁶, the same regulatory functions with different political effects are now performed by the biometric population register, social grants network and the private moral assessments that are available in the credit bureaux. All of this in a highly liberalised economy. These co-ordination functions persist despite, and are often in conflict with, the formally supported institutions of national political co-operation like Nedlac and the National Planning Commission. The result has been a quite dramatic expansion of the financial services sector in the South African economy, with very widely distributed social effects¹⁷

What place is there for political conflict in the understanding of this new order? A bewildering theoretical problem that emerges from the close-study of these credit-risk technologies is their apparent imperviousness to political struggle. Here the South African story is especially provocative. For two decades that state, dominated in this instance by the Communist Party, has gone to war against the credit surveillance apparatus, successfully demanding and imposing repeated amnesties for those trapped by the terms of what James has called Credit Apartheid.²⁵ Yet the credit surveillance technologies have endured undiminished, retaining their functions as oracles of respectability for landlords, employers, and lenders. For scholars trained in the marxist tradition of Robert Brenner²⁶ and EP

Development: The Biometrics Revolution" (Centre for Global Development, January 28, 2013), <http://www.cgdev.org/content/publications/detail/1426862/>; Mariana Dahan, "Identification for Development (ID4D) Integration Approach Study" (The World Bank, January 1, 2015), <http://documents.worldbank.org/curated/en/2015/09/24867667/identification-development-id4d-integration-approach-study>.

¹⁴ See Thandika Mkandawire, *Institutional Monocropping and Monotasking in Africa* (Oxford University Press, 2009) on the foreignness of earlier Bank efforts.

¹⁵ *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (Oxford [England]; New York: Oxford University Press, 2001), 1–170; Vishnu Padayachee, "Introducing Varieties of Capitalism into the South African Debate: Uses and Limits," *Transformation: Critical Perspectives on Southern Africa* 81, no. 1 (2013): 5–32, <https://doi.org/10.1353/trn.2013.0017>.

¹⁶ Breckenridge, *Biometric State*, chap. 5; Douglas Hindson, *Pass Controls and the Urban African Proletariat* (Johannesburg: Ravan Press, 1987).

¹⁷ Deborah James, *Money from Nothing: Indebtedness and Aspiration in South Africa* (Stanford, California: Stanford University Press, 2015).

²⁵ James, *Money from Nothing*.

²⁶ "Agrarian Roots of European Capitalism," in *Brenner Debate: Agrarian Class Structure and Economic*

Thompson²⁷, in which politics and struggle are key determinants of the form of capitalism itself, the ability of the credit surveillance systems to shrug off these conflicts is disconcerting, to say the least.

Yet the power of private biometric financial infrastructures can also generate intense political and economic conflicts, as the history of the South African firms Net1 shows.³¹ Technologically Net1 offers an especially pure form of what might be described as biometric money. Unlike many of the other banking products offered in this economy, which typically query the biometrics on a central database or a local card, Net1 encrypted the payment itself with the user's biometrics. Every transaction contained the identifying biometrics of the payer and the recipient, and the history of the transaction (again biometrically encrypted) stored in the memory of a proprietary smart-card and a central database. The mesh of oversight that was possible using the Net1 system closely resembles the meticulous record created by the new Distributed Ledger Technology (popularly called block-chain), with the added surveillance bonus that the transactions are tightly connected to the physical presence of their users, and monitored centrally. Ghana's ten year old E-Zwich system was the first national experiment with Net1's cashless economy – and it reveals a great deal about the capacities and limits of this kind of electronic money. Net1's target market was that portion of the global population who live without robust access to a telecommunications network – this is both an asset and a liability, as many wealthier customers reject being channelled through a system that is separated from the global banking infrastructure. The company attracted a great deal of controversy over its relatively short life, but – viewed at an analytical distance – their rigidly controlled systems work well for those who have little choice about how to arrange their banking. For unconditional cash transfers like Ghana's LEAP, which reaches over a hundred thousand households in extreme poverty, E-Zwich is an unambiguous benefit. The Net1 system is clearly repugnant to many of those who earn wages and suppose that they have a moral right to determine the forms in which they are paid. Yet the balance between these two groups of users is not yet clear. Cash transfers – often funded externally – may yet be as powerful in the expansion of biometric capitalism as formal employment or private banking.

Yet, as the conflicts in South Africa from 2014 to 2019 show, the success of biometric finance can also be the cause of its undoing. Net1's strategy of building an inescapable infrastructure of payments for grant recipients -- and for the thousands of retail outlets that sought to attract them -- led the company and the country to a national moral and political crisis of trust. The outcome has been devastating for the company, for many of the political elites associated with the firm, and, most importantly, for the infrastructures of the South African welfare state. Whether the biometric welfare order will survive in the hands of a chronically weak Postal Service remains an open question. The Department of Home Affairs has turned, simultaneously, to a much more coercive strategy for the population register – naively aiming to deploy machine learning, facial recognition and genetic testing to address the overwhelming sense of insecurity and disorder that citizens now feel. The final political effects of biometric finance have yet to be assessed.

Development in Pre-Industrial Europe, ed. T. Aston and C. Philpin (Cambridge: Cambridge University Press, 1985).

²⁷ especially *Whigs and Hunters: The Origins of the Black Act* (New York: Pantheon, 1975).

³¹ Keith Breckenridge, "The Global Ambitions of the Biometric Anti-Bank : Net1, Lockin and the Technologies of African Financialization," *International Review of Applied Economics* 33, no. 1 (2019): 93–118, <https://doi.org/10.1080/02692171.2019.1523836>.

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