

## A New Approach to Land Tenure Security in Africa?<sup>1</sup>

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### Abstract

Contending that tenure insecurity under informal customary institutions dampens incentives for investment and contributes to low agricultural productivity in much of Sub-Saharan Africa, policy makers have tried to formalize customary land use through the provision of *de jure* rights to users.

In this article we describe the challenge of low agricultural productivity in Sub-Saharan Africa and review the available evidence on the effects of the policy responses throughout the region. Our findings indicate that formalization of land rights alone is unlikely to bring agricultural productivity in Sub-Saharan Africa close to the level observed in the rest of the world. However, the time window used is often too short to credibly assess the effect of the land rights formalization programmes on agricultural productivity. Besides, the formalization of land rights in rural areas raises a number of concerns about the land tenure security of the least powerful and least informed.

While it may be too soon to assess the long-term effect of the land rights formalization programmes in Sub-Saharan Africa, other approaches to increase tenure security are tested.

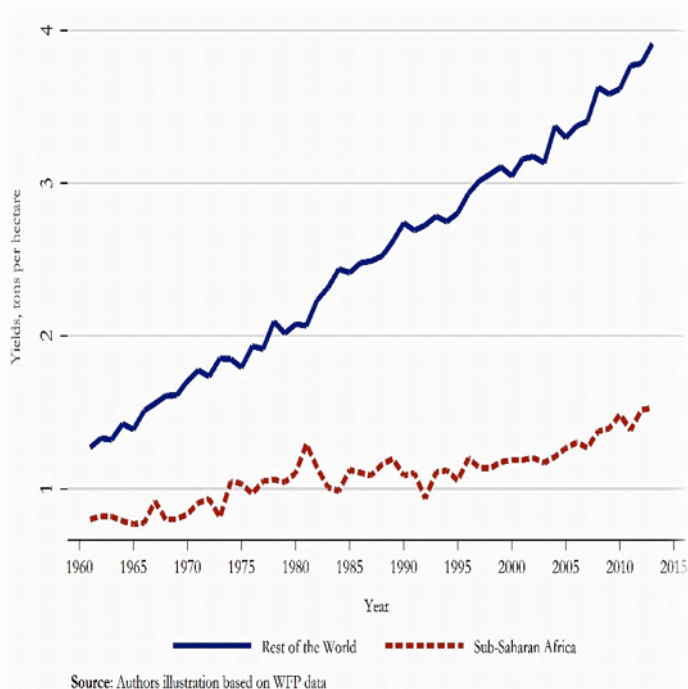
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## 1. Setting the Scene

Many Sub-Sahara African countries exhibit impressive performances in economic growth over the past decade – such as Ethiopia, Ghana, Liberia, Mozambique, Rwanda, Tanzania and Zambia. The positive growth prospects, together with the end of civil wars and a wave of democratization, have raised optimism for the region in policy and research circles. Despite an increasing regional and international integration and a gradual – but slow – shift to service industries in many of these countries, the lion's share of the economic growth is still coming from the agricultural sector. Indeed, in 2012, the agricultural sector in Sub-Saharan Africa was estimated to contribute to one third of the gross domestic product (GDP) of the region (World Bank, 2013).<sup>1</sup>

**Figure 1:** Evolution of Cereal Yields across Regions (1960-2013)



<sup>1</sup> World Bank, 2013. “World Development Indicators [Data file].” Available from World Bank Web site: <http://wdi.worldbank.org/table/4.2>. Accessed: 2014-10-24.

Moreover, more than half of the labour force in Sub-Saharan Africa is still engaged in the agricultural sector.<sup>2</sup> Despite the central role of agriculture in most of the economies in the region and the positive performance in recent years, the agricultural performance in Sub-Saharan Africa is still very much lagging behind in international comparisons.<sup>3</sup> Figure 1 illustrates this situation by looking at the evolution of cereal yields in Sub-Saharan Africa between 1960 and 2013. While the rest of the world experienced gradual and substantial productivity gains throughout the entire period, land productivity remained stable in Sub-Saharan Africa. Nevertheless, the positive economic performance in Sub-Saharan Africa, outlined earlier, coincides with a gradual improvement in yields since the early 2000s. Still the picture leads to ask the obvious questions: why are agricultural yields in Sub-Saharan Africa so much lower than in other regions and why is Sub-Saharan Africa not catching-up? This is not at all a new question but has already engaged economists for decades.<sup>4</sup> Potential explanations for the low yields in Sub-Saharan Africa can loosely be categorized into two groups: (i) Ecological determinants and

<sup>2</sup> IMF, 2012. “Sub-Saharan Africa: Maintaining Growth in an Uncertain World.” World Economic and Financial Surveys, Regional Economic Outlook, International Monetary Fund, Washington, DC.

<sup>3</sup> See World Bank, 2007. *World Development Report 2008: Agriculture for Development*. World development report,

<sup>4</sup> See e.g. Binswanger, H. P. and Deininger, K., 1997. “Explaining Agricultural and Agrarian Policies in Developing Countries.” *Journal of Economic Literature* 35(4), 1958–2005.

Collier, P. and Gunning, J. W., 1999a. “Explaining African Economic Performance.” *Journal of Economic Literature* 37(1), 64–111.

Collier, P. and Gunning, J. W., 1999b. “Why Has Africa Grown Slowly?” *Journal of Economic Perspectives* 13(3), 3–22.

technological limitations, and (ii) institutional features and behaviours.<sup>5</sup> Following the first line of arguments, Sub-Saharan Africa's poor agricultural performance is mainly explained by adverse natural resource endowments, geographic and climatic conditions such as highly volatile rainfalls and poor soil quality less favourable for crops grown in Africa. Studies alluring to the importance of climate trends in explaining agricultural performance in Sub-Saharan Africa include Nicholson (1994), Collier and Gunning (1999a) and Bloom and Sachs.<sup>6</sup> This view, however, is contested, since most available evidence shows that agricultural potential in Africa is not worse than in South-East Asia for instance. Deininger and Byerlee (2011) argue that the potential global supply of land suitable for rain-fed cultivation is mainly concentrated in Sub-Saharan Africa.<sup>7</sup> Moreover, counter to the conventional wisdom, most of the suitable land is reasonably closer to markets in Sub-Saharan Africa, compared to East and South Asia – the regions that have topped productivity growth in the agricultural sector. In contrast to East and South Asia where only 23% of suitable land is within 6 hours to a market place, in Sub-Saharan Africa this proportion is estimated at 47%.

**Table 1: Current Yield Relative to Estimated Potential Yields**

Region	Maize	Soya bean	Sugar cane
Asia (excluding West Asia)	0.62	0.47	0.68
Europe	0.81	0.84	n.a.
North Africa and West Asia	0.62	0.91	0.95
North America	0.89	0.77	0.72
Oceania	1.02	1.05	0.91
South America	0.65	0.67	0.93
Sub-Saharan Africa	0.2	0.32	0.54

Source: Fischer and Shah (2010)

Note: n.a. = not applicable.

<sup>5</sup> We should also add challenges related to measurement of land size yields in Africa.

<sup>6</sup> Bloom, D. E. and Sachs, J. D., 1998. "Geography, Demography, and Economic Growth in Africa." *Brookings Papers on Economic Activity* 29(2), 207–296.

<sup>7</sup> Deininger, K. and Byerlee, D., 2011. *Rising Global Interest in Farmland*. The World Bank.

Extending this line of argument, Table 1 indicates that Sub-Saharan Africa, in contrast to other regions, still has large unrealized potential for productivity improvements. While Asia and Oceania, are about to or have already reached the frontiers of production of popular crops, such as maize, oil palm, soya bean and sugar cane, there is still high potential for these crops in Sub-Saharan Africa. The low agricultural productivity growth in Sub-Saharan Africa is therefore not likely to be explained by the region already reaching its potential – to the contrary. Further evidence from the agricultural NGO Sasakawa, which has operations in 14 Sub-Saharan African countries, supports this view (see table 2). Using available best technologies, on-farm demonstrations in selected Sub-Sahara African countries suggest that a substantial margin of productivity gains exists in Africa.

**Table 2: Maize Yield in Demonstration and Farmers' Plots in Sasakawa Countries**

Country	Maize yield, tons per hectare			Farmers' plots	Increase over farmers' plots (%)
	Demonstration Plots				
	1993	1994	1995		
Ghana	3.3	3		1.3	150
Tanzania	2.4	4.8		1.4	208
Benin	3.2			1	187
Togo	3.3			1.2	187
Ethiopia	5.2	5.5	5.7	1.7	220

Sasakawa-Global 2000 Files. Assessed on November 2014.

The evidence suggests that it is not the geographic and ecological factors that are driving the productivity differential between Sub-Saharan Africa and the other regions. The high unrealized potential and the positive evidence from demonstration plots suggest that it might be more a question of adoption and training of the "right" practices and hence more of a behavioural question.

The second line of argumentation basically picks up on this proposition, pertaining of institutional features and/or behavioural

patterns that aim to explain why African farmers do not invest and adopt more efficient technologies. Low levels of education amongst farmers in Sub-Saharan Africa, and a lack of infrastructure and utilities (e.g., roads, electricity, water networks and irrigation pipelines) are likely to be part of the explanation.<sup>8</sup> Other factors, which have been stressed in the literature, include incomplete insurance, a lack of credit markets and insecure property rights.<sup>9</sup> Together these point to market imperfections and weaknesses of the state or local institutions in charge of the provisioning of basic public goods.

In this note, we focus on the role of *property right*. This is motivated by the fact that access to land throughout much of Sub-Saharan Africa is mostly governed by customary rules upheld by local chiefs. Under this system, land tenure security varies dependent on observable – gender – and unobservable – social status and political power – of the landholder and the landholding – such as types of trees planted.<sup>10</sup> The costs associated to acquiring and safeguarding land rights may, it is argued, be the roots

underpinning low agricultural yields in Sub-Saharan Africa.

In Section 2 we review the literature on the link between property rights and productivity. Then, we describe the policy response in Section 3. Section 4 gives a quick review of the empirical evidence of the effect of some of the policies implemented in Sub-Saharan Africa and Section 5 concludes and gives a few recommendations for future research.

<sup>8</sup>Biswanger, H. P., Khandker, S. R., and Rosenzweig, M. R., 1993. “How Infrastructure and Financial Institutions Affect Agricultural Output and Investment in India.” *Journal of Development Economics* 41(2), 337–366.

Boserup, E., 1985. “Economic and Demographic Interrelationships in Sub-Saharan Africa.” *Population and Development Review* 11(3), pp. 383–397.

Platteau, J.-P., 1996a. “The Evolutionary Theory of Land Rights as Applied to Sub-Saharan Africa: A Critical Assessment.” *Development and Change* 27(1), 29–86.

<sup>9</sup>Fafchamps, M. and Pender, J., 1997. “Precautionary Saving, Credit Constraints, and Irreversible Investment: Theory and Evidence from Semiarid India.” *Journal of Business & Economic Statistics* 15(2), 180–94.

Karlan, D., Osei, R. D., Osei-Akoto, I., and Udry, C., 2012. “Agricultural Decisions after Relaxing Credit and Risk Constraints.” Working Paper 18463, National Bureau of Economic Research.

Rosenzweig, M. R. and Wolpin, K. I., 1993. “Credit Market Constraints, Consumption Smoothing, and the Accumulation of Durable Production Assets in Low-Income Countries: Investment in Bullocks in India.” *Journal of Political Economy* 101(2), 223–44.

<sup>10</sup>Brasselle, A.-S., Gaspart, F., and Platteau, J.-P., 2002. “Land Tenure Security and Investment Incentives: Puzzling Evidence from Burkina Faso.” *Journal of Development Economics* 67(2), 373–418.

Udry, C., 2012. *The Oxford Companion to the Economics of Africa*, chap. Land Tenure. Oxford University Press, pages 410–415.

## 2. The Role of Property Right and Land Tenure Insecurity

A *property right* refers to socially recognized structures of allowable individual actions. It determines how a resource is used for consumption and/or income generation.<sup>11</sup> Ultimately, a system of property rights provides the incentives and devises the constraints that shape human interaction, whether political, social or economic.<sup>12</sup>

Starting from an historic perspective, in their seminal work Acemoglu et al., find a strong correlation between the colonial legacy, i.e. “successful” European settlement, and the development of “good” institutions, i.e. laws and secure property rights<sup>13</sup>. While richer colonies attracted a more extractive style European colonialism, which consequently left them poorer, poorer destinations received more inputs also with respect to institutional. Acemoglu et al. (2001) show that a high level of enforcement of property rights in European settlement colonies set those colonies on a growth path that resulted today in higher levels of GDP. In contrast, economic growth and development today are lower in extraction colonies where the colonial power did not settle.

In the same vein, there is a well-established literature which shows that the enforcement of private property rights,

which allow to legally exclude others from using a good or asset, within an effective legal framework should in theory increase agricultural productivity and spur economic development.<sup>14</sup> Three channels are discussed in the literature through which productivity gains can be realised in these contexts. First, the codification and enforcement of property rights reduce expropriation risks and promotes long term investments.<sup>15</sup> Second, enforceable property rights lower transaction costs and allow productive farmers to purchase land from less productive farmers, thus making both parties better off.<sup>16</sup> Third, a clear definition of property rights reduces asymmetric information about land ownership rights and can allow individuals to use their land as collateral for loans.<sup>17</sup> Nevertheless, to be effective, the ability to use land as collateral requires a number of conditions, including the presence of a properly functioning credit market.<sup>18</sup> The theoretical predictions of the effect of property rights on productivity suggest that places where property rights are clearly defined and enforced should be more productive. This has given greater prominence to the role of the state in

<sup>11</sup> Alchian, A. A. and Demsetz, H., 1973. “The Property Right Paradigm.” *The Journal of Economic History* 33(1), pp. 16–27.

Besley, T. and Ghatak, M., 2010. *Property Rights and Economic Development*, vol. 5 of *Handbook of Development Economics*, chap. 0. Elsevier, pages 4525–4595.

Demsetz, H., 1967. “Toward a Theory of Property Rights.” *The American Economic Review* 57(2), pp. 347–359.

<sup>12</sup> North, D., 1990. *Institutions, Institutional Change and Economic Performance*. Political Economy of Institutions and Decisions, Cambridge University Press.

<sup>13</sup> Acemoglu, D., Johnson, S., and Robinson, J. A., 2001. “The Colonial Origins of Comparative Development: An Empirical Investigation.” *American Economic Review* 91(5), 1369–1401.

Acemoglu, D., Johnson, S., and Robinson, J. A., 2002. “Reversal Of Fortune: Geography And Institutions In The Making Of The Modern World Income Distribution.” *The Quarterly Journal of Economics* 117(4), 1231–1294.

<sup>14</sup> Besley, T. and Ghatak, M., 2010. *Property Rights and Economic Development*, vol. 5 of *Handbook of Development Economics*, chap. 0. Elsevier, pages 4525–4595.

<sup>15</sup> Banerjee, A. V., Gertler, P. J., and Ghatak, M., 2002. “Empowerment and Efficiency: Tenancy Reform in West Bengal.” *Journal of Political Economy* 110(2), 239–280. Besley, T., 1995. “Property Rights and Investment Incentives: Theory and Evidence from Ghana.” *Journal of Political Economy* 103(5), 903–37.

Feder, G. and Feeny, D. H., 1991. “Land Tenure and Property Rights: Theory and Implications for Development Policy.” *World Bank Economic Review* 5(1), 135–53.

<sup>16</sup> Lanjouw, J. O. and Levy, P. I., 2002. “Untitled: A Study of Formal and Informal Property Rights in Urban Ecuador” *The Economic Journal* 112(482), 986–1019.

<sup>17</sup> Alston, L. J., Libecap, G. D., and Mueller, B., 1999. *Titles, Conflict, and Land Use: The Development of Property Rights and Land Reform on the Brazilian Amazon Frontier*. Economics, cognition, and society, University of Michigan Press.

Carter, M. R. and Olinto, P., 2003. “Getting Institutions ‘Right’ for Whom? Credit Constraints and the Impact of Property Rights on the Quantity and Composition of Investment.” *American Journal of Agricultural Economics* 85(1), 173–186.

De Soto, H., 2010. *The Mystery Of Capital*. Transworld.

<sup>18</sup> Woodruff, C., 2001. “Review of de Soto’s *The Mystery of Capital*.” *Journal of Economic Literature* 39(4), 1215–1223.



codifying and protecting such rights.<sup>19</sup> Ultimately, the theory of property rights raised hope among policy makers putting land rights formalization back on the political agenda.

### 3. A Bird's Eye View on Land Rights Interventions in Sub-Saharan Africa

Assuming that informal customary institutions exhibit less incentives for investment and thus forgoing potential advancements in agricultural productivity, policy makers in Sub-Saharan Africa have passed land laws as early as 1911 to formalize customary land use through the provision of formal documentary evidence of land rights to landholders. In line with the recent revival of the property right debate among policy makers and academia, over 40% of the countries in Sub-Saharan Africa passed a land law since 2000 (see Figure 2 for illustration).

Prior to 1990, the newly independent states launched a series of land reforms to pacify “masses of impoverished peasants (or small tenants) who represent a threat to political stability and channel the rural population into the state apparatus to ensure better political control”.<sup>20</sup> Hence, from 1960 to 1990, which also corresponds to the period where cereal yields stagnated the most in Sub-Saharan Africa, land reform either meant nationalization, whereby land ownership rights rest with the state, or privatization (Alden Wily, 2011).<sup>21</sup>

<sup>19</sup> Ali, D. A., Deininger, K., and Goldstein, M., 2014. “Environmental and Gender Impacts of Land Tenure Regularization in Africa: Pilot Evidence from Rwanda.” *Journal of Development Economics* 110(C), 262–275.  
Baland, J.-M. and Bjorvatn, K., 2013. “Conservation and Employment Creation: Can Privatizing Natural Resources Benefit Traditional Users?” *Environment and Development Economics* 18(03), 309–325.

Field, E., 2007. “Entitled to Work: Urban Property Rights and Labor Supply in Peru.” *The Quarterly Journal of Economics* 122(4), 1561–1602.

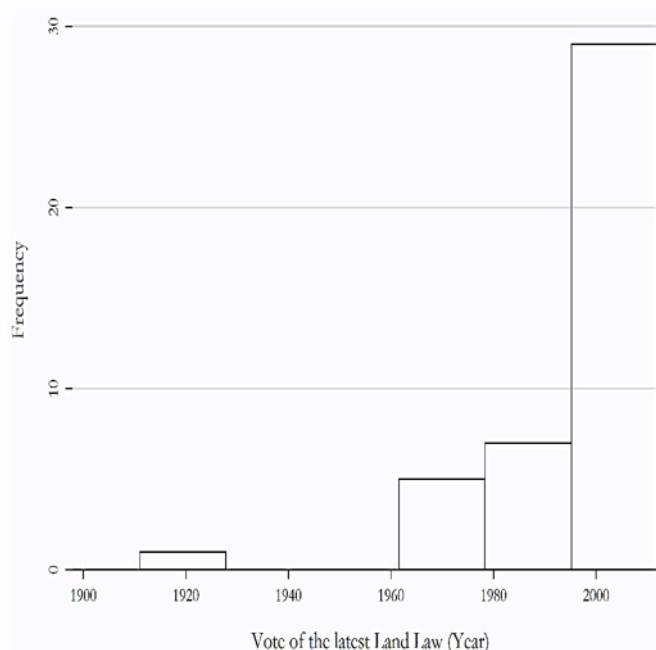
Goldstein, M. and Udry, C., 2008. “The Profits of Power: Land Rights and Agricultural Investment in Ghana.” *Journal of Political Economy* 116(6), 981–1022.

<sup>20</sup> Platteau, J.-P., 1996a. “The Evolutionary Theory of Land Rights as Applied to Sub-Saharan Africa: A Critical Assessment.” *Development and Change* 27(1), p70.

<sup>21</sup> Alden Wily, L., 2011. “Land Reform in Africa: A Reappraisal - Rights to Resources in Crisis: Reviewing the Fate of Customary Tenure in Africa.” Brief 3 of 5, The Rights and Resources Initiative, Washington DC.

Countries which undertook land privatization put in place a legal framework and a central administration to document individual land rights. Landholders with private land ownership rights were allowed to register their land. However, privatization of land rights through titling raised a number of questions.

**Figure 2:** Number of Land Reforms in Sub-Saharan Africa (1900-2014)



Source: Author's illustration based on various data included Alden Wily (2011) and Byamugisha, (2013).

The process was complex and the responsible administration often understaffed or ill-equipped.<sup>22</sup> In Somalia Roth et al. (1994) argue that privatization through land titling was mostly for the wealthy and educated elites that could afford the high price of registration and had a good knowledge of registry procedures.<sup>23 24</sup>

<sup>22</sup> Atwood, D. A., 1990. “Land Registration in Africa: The Impact on Agricultural Production.” *World Development* 18(5), 659 – 671.

Bruce, J. W., 1993. “Do Indigenous Tenure Systems Constrain Agricultural Development?” In “Land in African Agrarian Systems,” , edited by Crummey, D. and Bassett, T. Madison, WI: University of Wisconsin Press, pages 35–56.

Platteau, J.-P., 1996a. “The Evolutionary Theory of Land Rights as Applied to Sub-Saharan Africa: A Critical Assessment.” *Development and Change* 27(1), 29–86.

<sup>23</sup> Roth, M., Unruh, J., and Barrows, R., 1994. “Land Registration, Tenure, Security, Credit Use, and

Similar observations were also reported in Kenya, Rwanda and Uganda.<sup>25</sup>

As a result, very few land titles have been issued in these countries, especially in rural area. Most titles were issued for properties located in cities and towns, which account for less than one percent of the land area of Sub-Saharan Africa.<sup>26</sup> In rural areas, Byamugisha estimates that even now only about ten percent of the occupied rural land is registered in Sub-Saharan Africa.<sup>27</sup> Besides, there is very weak empirical evidence on the nexus between land rights and investment needed to improve agricultural growth.<sup>28</sup> Several reasons have been identified for this. First, as land remained relatively abundant in the region, customary tenure systems may provide sufficient security to still facilitate investments for agricultural production. Second, the credit markets are thin and further limit the set of investment choices. Third, land titles are sought after by wealthy households that do not need them to enhance investment on their plots. Finally, the majority of studies on the issues is still based on observational rather than experimental data which limits causal inference. However, there is evidence that more complete land rights enhance certain types of investment more than others, such as fallow rather than land improvement.<sup>29</sup>

Given that in many contexts that implemented centralized land registration programmes the expected investment

and productivity increases have not materialized, several countries – including Benin, Burkina Faso, Cote d'Ivoire, Ethiopia, Ghana, Madagascar, Rwanda and Tanzania – have started to experiment with community driven approaches, mostly in rural areas (see figure 3 for illustration).

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Investment in the Shebelle Region of Somalia.” In “Searching for Land Tenure Security in Africa”, edited by Bruce, J. W. and Migot-Adholla, S. E. Dubuque, Iowa: Kendall/Hunt Publishing, pages 199–230.

<sup>24</sup> Applicants have to pay all the costs for site visits, surveys and maps plus the time and expenses involved in travels and procedures.

<sup>25</sup> Bruce, J. W. and Migot-Adholla, S. E., 1994. *Searching for Land Tenure Security in Africa*. Dubuque, Iowa: Kendall/Hunt.

<sup>26</sup> Schneider, A., Friedl, M. A., and Potere, D., 2009. “A New Map of Global Urban Extent from MODIS Satellite Data.” *Environmental Research Letters* 4(4), 044003.

<sup>27</sup> Byamugisha, F. F. K., 2013. *Securing Africa's Land for Shared Prosperity: A Program to Scale Up Reforms and Investments*. World Bank Publications, 228 pages.

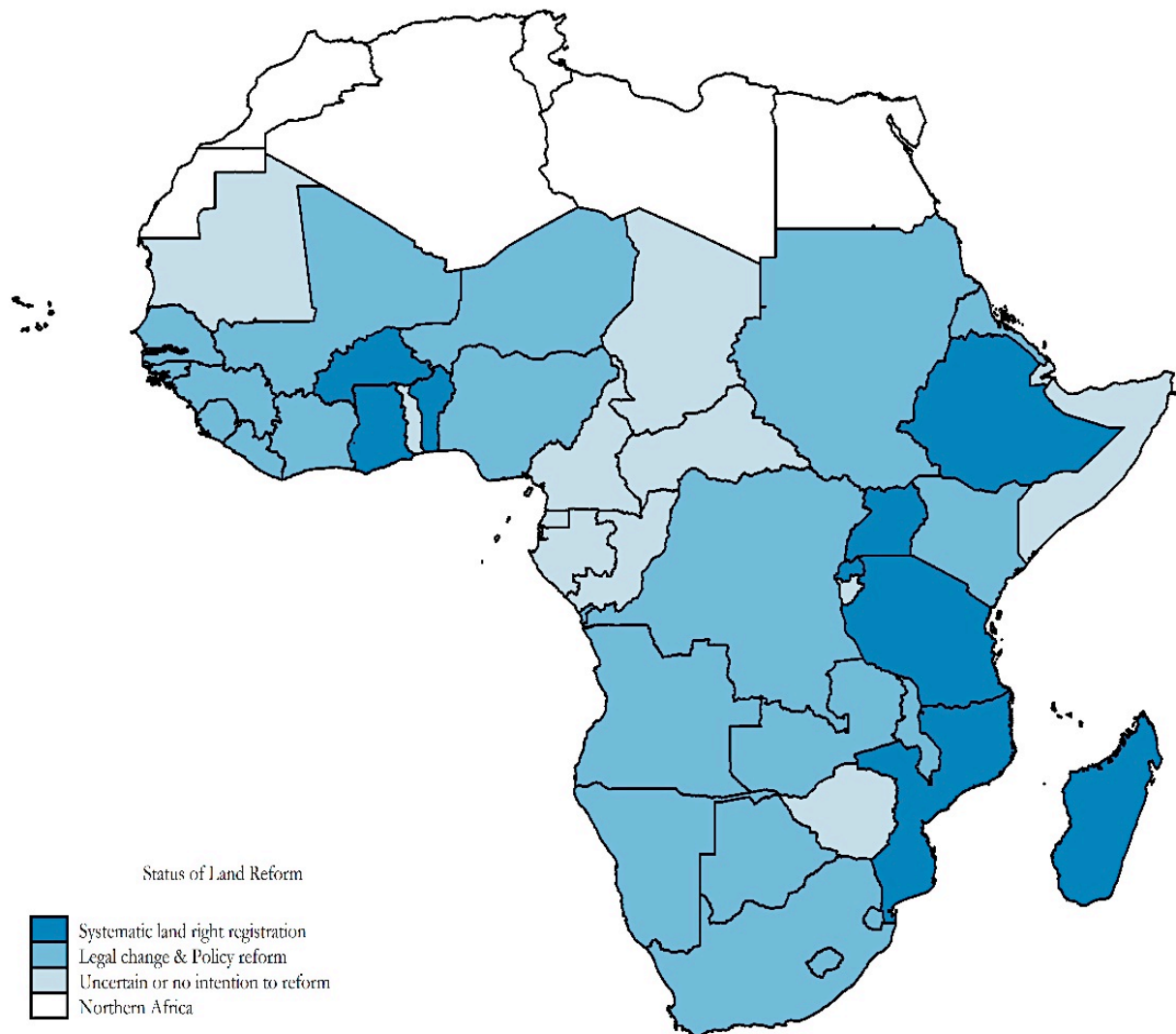
<sup>28</sup> Fenske, J., 2011. “Land Tenure and Investment Incentives: Evidence from West Africa.” *Journal of Development Economics* 95(2), 137 – 156.

<sup>29</sup> Fenske, J., 2011. “Land Tenure and Investment Incentives: Evidence from West Africa.” *Journal of Development Economics* 95(2), 137 – 156.

Udry, C., 2012. *The Oxford Companion to the Economics of Africa*, chap. Land Tenure. Oxford University Press, pages 410–415.



**Figure 3:** Land Registration Programmes in Sub-Saharan Africa (2005-2014)



Source: Author's illustration based on various data included Alden Wily (2011) and Byamugisha (2013).<sup>30</sup>

The new approach embeds the resolution of land disputes, the demarcation of plots, the recognition of individual land rights within customary practices and provides documentary evidence of those rights. Furthermore, the community driven approach not only registers private land rights but seeks to provide legal recognition to land rights held under

customary tenure systems.<sup>31</sup> They also use lower-cost approaches and systematically demarcate several plots at once, making them an affordable policy option for developing countries.

<sup>30</sup> Alden Wily, L., 2011. "Land Reform in Africa: A Reappraisal - Rights to Resources in Crisis: Reviewing the Fate of Customary Tenure in Africa." Brief 3 of 5, The Rights and Resources Initiative, Washington DC.  
Byamugisha, F. F. K., 2013. *Securing Africa's Land for Shared Prosperity: A Program to Scale Up Reforms and Investments*. World Bank Publications, 228 pages.

<sup>31</sup> Colin, J.-P., Le Meur, P.-Y., and Léonard, E., 2009. *Les Politiques d'Enregistrement des Droits Foncières: Du Cadre Légal aux Pratiques Locales*. Hommes et Sociétés, Karthala, 538 pages.

Cotula, L., Toulmin, C., and Hesse, C., 2004. "Land Tenure and Administration in Africa: Lessons of Experience and Emerging Issues." Tech. Rep., IIED (International Institute for Environment and Development)

Lavigne Delville, P., 2014. "Competing Conceptions of Customary Land Rights Registration (Rural Land Maps PFRs in Benin), Methodological, Policy and Policy Issues" *Cahiers du Pôle Foncier* 5, 24.

## 4. Effects of the Formalization of Land Rights

Apparently, only the land rights formalization programmes in Ethiopia and in Rwanda have been empirically studied using an experimental or quasi-experimental setting.<sup>32</sup> There is no empirical study which has measured the causal effect of the formalization of land rights in Benin, Burkina Faso, Cote d'Ivoire, Ghana, Madagascar or Tanzania. However, in Madagascar Bellemare (2013) finds no evidence of an impact of land titles on agricultural productivity using cross-sectional data and concludes that informal arrangements were enough to secure investments.<sup>33</sup> Fenske (2011), in a cross-sectional analysis of the relationship between land tenure and investment in six West African countries, finds no difference in investment in Benin across owned and not-owned plots, except for a shift in fertilizer use from rented to inherited plots<sup>34</sup>. The author also examines within-household investments and finds that, while male labour is less likely to be used on wives' plots, these plots are more likely to receive fertilizer and pesticides.

In Ethiopia, a number of empirical studies have assessed the impact of the issuance of land certificates on investment and productivity. In the Tigray region, Holden *et al.*, (2009) find that, up to eight years after the issuance of land certificates, plot productivity increased by 45%.<sup>35</sup> This corresponds to a yearly growth rate of 1.76%. The programme also led female-headed households to engage more in land rental markets as landlords.<sup>36</sup>

Deininger *et al.*, 2011 investigate the impact of the land certification programme in the Amhara region in Ethiopia twelve months after the issuance of land certificates.<sup>37</sup> The authors find that the receipt of land certificates significantly reduced fear of land loss by ten percentage points, increased the propensity to rent out land by nine percentage points, and increased the propensity to invest in soil and water conservation measures by 20 percentage points.

Rwanda's large-scale land tenure regularization (LTR) programme also offers important insights on the effect of land rights formalization programmes. Ali *et al.*, (2014a) assessed the short-term impact of the LTR's pilot<sup>38</sup>. They find that the LTR increased soil conservation investments among male-headed households by approximately ten percentage points and the impact for female-headed households – at 19 percentage points – was nearly twice as large. They find no effect on credit and land market activities. As Ali *et al.*, (2014) do not measure yields, it is not possible to provide any estimate of the impact of the LTR on plot productivity.

<sup>32</sup> An experimental setting is a situation where some participants to the experiment are randomly chosen to receive a treatment while the rest (of the participants) receive nothing. A quasi-experimental setting is any setting where controlling for some characteristics, it is possible to claim that the rule allocating the treatment across the participants is random.

<sup>33</sup> Bellemare, M. F., 2013. "The Productivity Impacts of Formal and Informal Land Rights: Evidence from Madagascar." *Land Economics* 89(2), 272–290.

<sup>34</sup> Fenske, J., 2011. "Land Tenure and Investment Incentives: Evidence from West Africa." *Journal of Development Economics* 95(2), 137 – 156.

<sup>35</sup> Holden, S. T., Deininger, K., and Ghebru, H., 2009. "Impacts of Low-Cost Land Certification on Investment and Productivity." *American Journal of Agricultural Economics* 91(2), 359–373.

<sup>36</sup> Holden, S., Deininger, K., and Ghebru, H., 2011. "Tenure Insecurity, Gender, Low-cost Land Certification

and Land Rental Market Participation in Ethiopia." *Journal of Development Studies* 47(1), 31–47.

<sup>37</sup> Deininger, K., Ali, D. A., and Alemu, T., 2011. "Impacts of Land Certification on Tenure Security, Investment, and Land Market Participation: Evidence from Ethiopia." *Land Economics* 87(2), 312–334.

<sup>38</sup> Ali, D. A., Deininger, K., and Goldstein, M., 2014a. "Environmental and Gender Impacts of Land Tenure Regularization in Africa: Pilot Evidence from Rwanda." *Journal of Development Economics* 110(C), 262–275.

## 5. Conclusion and recommendations

To conclude, there is evidence that cereal yields rose worldwide except in Sub-Saharan Africa. The average yearly growth rate of cereal yields in the rest of the world between 1961 and 2013 is 2.2% against 1.25% in Sub-Saharan Africa. Holden et al. (2009) find formalization of land rights in Ethiopia led to a yearly growth rate of 1.75% of productivity. Assuming this result holds for other part of Sub-Saharan Africa, it seems unlikely that formalization of land rights alone will bring cereals yields in Sub-Saharan Africa close to the level observed in the rest of the world.

However, this effect is measured eight years after the beginning of the land rights formalization programme. This time window may be too short to credibly assess the real of land rights formalization on agricultural productivity. Households and other economic agents may need time to experiment with the documentary evidence of their land rights in order to engage in more productive use of their resources. For instance, land tenure security is less likely to increase if households fear that the programme will facilitate expropriation by the government or tax increase. In the long run, however, as land tenure security becomes solely determined by the documentary evidence of land rights – and less by observable and unobservable characteristics of the landholders – land could be allocated to its best use without jeopardizing the rights of the landowner. Likewise, credit institutions may feel confident that a land with a formal documentary evidence of land rights can be used as collateral for credit necessary to undertake longer-term investments.

Nevertheless, the formalization of land rights in rural areas raises a number of concerns about the land tenure security of the least powerful and least informed. While, access to information about the land rights formalization programmes may be improved, through sensitization programmes for example, the issuance of formal land certificates may create a new *focal point* and change expectation and coordination between individuals (see

Kranton and Swamy, 1999).<sup>39</sup> For instance, the issuance of land certificates can skew land tenure security toward the holder of the land certificate. This can dampen tenure security to the others individuals that may have claims to the same piece of land and to different dimensions of use of that land.<sup>40</sup> This is particularly a salient concern for women, who typically obtain land use rights via a male intermediary. Similarly, the land certificate may substitute resources otherwise used to safeguard claims to land. This can be the case in places where households invest on their plots to strengthen their land rights.<sup>41</sup> In that case, households may invest less on their plots if the land certificate safeguards their land claims.

Overall, there are concerns that the most vulnerable are negatively affected by the community driven approach of formalizing land rights in rural areas. However, so far the long-term consequences and the distributional impacts of such interventions have not yet been studied in detail.

Other approaches to increase tenure security are tested. In urban Tanzania, Ali et al. (2014b), for example, show that monetary incentives (here: price discounts) can help to adopt joint titling, i.e. listing both spouses on the land title.<sup>42</sup> Drawing from the past experiences and the lengthy bureaucratic processes, the issuance of the documentary evidence of the land right might actually not be required.

<sup>39</sup> Kranton, R. E. and Swamy, A. V., 1999. “The Hazards of Piecemeal Reform: British Civil Courts and the Credit Market in Colonial India.” *Journal of Development Economics* 58(1), 1–24.

<sup>40</sup> Lavigne Delville, P., 2010. *Registering and Administering Customary Land Rights: Can We Deal with Complexity ?*, chap. 2.1. World Bank, pages 28–42.

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Udry, C., 2012. *The Oxford Companion to the Economics of Africa*, chap. Land Tenure. Oxford University Press, pages 410–415.

<sup>41</sup> Brasselle, A.-S., Gaspart, F., and Platteau, J.-P., 2002. “Land Tenure Security and Investment Incentives: Puzzling Evidence from Burkina Faso.” *Journal of Development Economics* 67(2), 373–418.

<sup>42</sup> Ali, D. A., Colin, M. E., Deininger, K., Dercon, S., Sandefur, J. and Zeitlin, A., 2014b. “The price of empowerment: experimental evidence on land titling in Tanzania.” Policy Research Working Paper Series 6908, The World Bank- Washington DC.

Resolving land disputes and laying cornerstones at the village level clarifies frontiers and gives farmers some means to defend their land claims in case of encroachment, which is one of the most common cause of land disputes. This approach has two advantages over the standard land right formalization programmes carried out in Sub-Saharan Africa. First, it does not include the issuance of a formal documentary evidence of land rights which makes it compatible with existing norms, rules and contracts and should also not modify expectations. Second, it is a faster and less expensive intervention because there is no need for a centralized registry and issuance of land titles.

Based on the existing evidence and latest initiatives, for a future research agenda it might actually be worth to take a step back and to revisit the basic functioning of customary land tenure systems. So far, there is very little documentation of the organisation of land rights under customary systems and its effects on household decisions in the economic literature. With the lack of understanding, customary tenure systems are commonly equated to insecure land tenure. Studies by Brasselle et al. (2002), Goldstein and Udry (2008) and Fenske (2011) however do show that even under customary systems different levels of tenure security can be obtained. Therefore, more documentation and in-depths studies of existing customary arrangements are needed to identify suitable areas for policy interventions.

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