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DISCUSSION
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Welfare effects of land market liberalization scenarios in Ukraine: Evidence-based economic perspective

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LIST OF ABBREVIATIONS

APD	German-Ukrainian Agro-Political Dialogue
BVVG	Bodenverwertungs- und verwaltungs GmbH
Cadaster	State Service on Geodesy, Cartography and Cadaster
CLS	Conditional land share
COMTRADE	United Nations International Trade Statistics Database
EU	European Union
EUR	Euros
FAO	Food and Agriculture Organization
FAOSTAT	FAO Statistics
GDP	Gross domestic product
ha	hectares
K	thousand
kg	kilogram
M	million
MoA	Ministry of Agrarian Policy and Food of Ukraine
UAH	Ukrainian Hryvnia
UkrStat	State Statistics Service of Ukraine
UN	United Nations
USAID	United States Agency for International Development
USD	United States Dollar
UTC	United territorial community
WB	World Bank

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PREFACE

This report was prepared by a team of IAMO experts, with contributions by the APD and Christoph Gilgen, in response to the call from the German-Ukrainian Agro-Political Dialogue (APD) for an expertise on the economics of land relations in transition environments. Our aim was to map major welfare effects that may be associated with the most probable policy developments related to land relations in Ukraine. Based on this analysis, it is possible to identify short-term and long-term distributional effects on the main stakeholders. Our aspiration is that this overview will contribute to more transparent policy-making based on available evidence and according to “state of the art” economic theory. The report has three objectives. First, we aim to identify the most likely scenarios of Ukrainian land market development that are currently at the center of public debate. For each scenario, with the help of semi-structured expert interviews, we describe the distributional effects for major stakeholders involved in land relations: small and large agricultural producers, landowners, and local communities. The predicted distributional effects are purely based on welfare economic theoretical considerations that are backed up by empirical evidence in international contexts. Third, based on the identified distributional effects within each scenario, we draw conclusions about the design of the institutions potentially involved in land relations in Ukraine.

The scope of the report is to provide guidance for informed policy-making on the implementation of land reforms and to facilitate productive and transparent land relations in Ukraine. However, it is important to point out that instead of comprehensively modeling each of the identified scenarios, we focus on describing major welfare effects. The reason for using this approach is that empirical literature on land relations in Ukraine is scarce and, as a result, it is impossible to model policy outcomes in a definitive and comprehensive way. Uncertainties associated with Ukrainian political and bureaucratic environments make predictions especially difficult. The identified distributional effects are deducted based on “state of the art” theoretical research, available international empirical evidence, and expert interviews conducted in Ukraine. In light of these limitations, welfare effects described within each of the scenarios should be treated with caution. Nevertheless, the authors believe that each of the scenarios represents a useful evidence-based foundation for professional discussions in the field of land reforms and land relations in Ukraine.

This report has substantially benefited from the peer reviews of Maria Bogonos, Martin Petrick, Katja Dells, and Christoph Gilgen. In addition, we are grateful to the team at the APD for their great liaison and logistical support during the expert interviews in Ukraine. Finally, the report has benefited from the comments by Franziska Schaft and Alfons Balmann. We also thank all the interviewees for their valuable insights into the Ukrainian institutional framework.

EXECUTIVE SUMMARY

Introduction

When Ukraine adopted the 2002 Land Code, it chose to follow a liberal path of agricultural land relations, but failed to create the necessary conditions for the land market to function fully. The moratorium on land sales, implemented directly after the adoption of the Land Code, prohibited 6.92 million owners of land shares (16% of the population) from fully exercising their property rights. Initially intended as a temporary measure, the moratorium has, to date, been extended eight times. As such, many landowners have passed away without ever being able to fully exercise their property rights.

Economic losses caused by the prohibition of land sales are considerable. First, inability to transfer land from less to more efficient producers contributes to a situation where tenancy insecurity substantially reduces incentives to invest in technologies improving land use productivity. As a result, growth of the agricultural sector is substantially lower than it could have been with a free land market. Second, current management of land lease contracts incurs high transaction costs, which could be lowered if land users were able to buy plots. Third, one quarter of Ukrainian agricultural land is still owned by the government. Privatization of 10.5 million ha could generate substantial financial resources for newly reformed local governments. In addition, land sales market has a potential to expand respective tax base and improve the collection of land tax. Resources from privatization and improved tax revenues could substantially help restore the dilapidated rural infrastructure. In sum, due to gains in agricultural production and land privatization, Ukrainian experts estimate that liberalization could lead to a 3–9% increase in the annual growth rate of the GDP.

Evidence and international experience

Evidence from “state of the art” agricultural economics underlines the importance of a land sales market facilitated by functional institutions. A key mechanism through which land markets may improve efficiency of agricultural production is the emergence of incentives that are generated by land-related property rights. Numerous theoretical and empirical studies have found that clearly defined property rights generate productive incentives to invest in property and to use it more effectively. Clear property rights, together with a land market infrastructure, generate economic value of land as an asset and, as a result, improve its collateralizability, granting access to credit. Rural “poverty traps” exacerbated by limited access to credit create a situation when skilled but poor farmers are excluded from agricultural production. However, access to credit via land collateralizability is only possible if the land market is sufficiently liquid. This requires institutional arrangements ensuring transparent flow of information about factors determining land prices.

International experience with land market liberalization provides useful lessons for Ukraine. First, Germany has undergone privatization of state-owned land with the help of a state-owned company that managed the whole process in a relatively transparent fashion. Privatization was organized in several stages guided by clear rules and under the supervision of interested

stakeholders. However, the establishment and the initial management of the bureaucracy required substantial up-front funding from the government. This experience stands in contrast to the countries that are very similar in terms of historical, political and economic environments, e.g. Russia and Kazakhstan. Similar to Ukraine, both of these countries distributed certificates providing certain land rights among former employees and specific groups of the rural population, but failed to clearly assign property rights. As a result, land distribution occurred mostly on paper and never gave certificate holders the chance to exercise their property rights that were initially envisaged by the distribution of certificates. Instead, Russian and Kazakh governments created an environment that stimulated land transfers towards large agricultural enterprises, leaving new landowners unable to manage their property. Even though land sales are now legally allowed in both countries, the dysfunctional institutional environment diminished the benefits of liberal land markets.

Current land use situation in Ukraine

While Ukrainian policymakers are unsure of the way forward, business has adjusted to the post-reform conditions. Access to cheap rental land immediately after the reforms in the early 2000s motivated entrepreneurs to establish farms operating on large areas of land. However, due to the uncertainty of tenure (among other factors), the risks associated with land access have pushed agricultural enterprises towards more short-term business models: grain and oilseeds production.

The distribution of conditional land shares (CLS, and known as *pai* in Ukraine) progressed over one decade, creating approximately seven million landowners by 2009. Ukrainian landowners are a highly disorganized and heterogeneous group of people who are often not interested in working on their plots and lack awareness of the general land relations in the country. Of the less than 10% private land owners that cultivate their *pai*, few have the potential to commercialize their agricultural activities should the moratorium be lifted and the business environment improve.

In addition to land under private ownership, 10.5 million ha of land is still owned by the state. Some 1.08 million ha (10.2% of the total state agricultural lands) were cultivated by state-owned agricultural enterprises widely criticized for inefficient land use.

Current environment for the reforms is challenging. The Ukrainian government provides a rather vague picture of how it wishes to see agriculture in the future. The large majority of private landowners in Ukraine have strong negative attitudes towards lifting the moratorium. Paradoxically, they also wish to be able to sell land. This creates a general atmosphere where lifting the moratorium on land sales is a “politically toxic” topic that none of the political parties is likely to address before the elections. Policy-making and institution-building initiatives are complicated by the pervasive misuse of public resources and can be easily discredited within the current political climate.

Scenarios of land market liberalization

The purpose of this contribution is to conduct an ex ante assessment of the most likely scenarios of land market development in Ukraine. The study utilizes a combination of methods: literature review and qualitative data analysis. We identify the following scenarios relevant to the current discussion: “status quo”, “full liberalization”, “full liberalization with restrictions”, and “partial liberalization”. Finally, we discuss different institutions that may be crucial to facilitating the potential welfare gains from the emergence of the Ukrainian land market.

a) **Status quo**

Assuming that the current system of land relations in Ukraine endures, large agricultural enterprises will continue to cultivate annual crops, benefiting from vertical integration within the current short-term planning horizon in terms of access to land. In contrast, smaller farmers will be unable to develop business models that are more suitable to smaller land holdings, as uncertainties surrounding property rights for land persist. Access to credit for small agricultural enterprises is likely to continue to be limited in the absence of active financial market interventions. Problems with collateral are of central importance to the banks, which are otherwise interested in working with agricultural producers.

Finally, in the absence of well-functioning land markets, CLS holders will be unable to benefit fully from their land assets. This represents implicit welfare losses for the most vulnerable part of the population, which was initially targeted by the land reforms.

b) **Full liberalization**

This scenario stipulates that the moratorium is lifted and the law On Land Circulation contains no restrictions on land transactions. Full liberalization is used as a benchmark for all the other scenarios, making it easier to compare relative gains and losses.

Full liberalization is likely to improve allocative efficiency of land and generate incentives for productive investments. First, land will become an economically tradable asset with an economically determined price. This will generate demand and supply, determining a unique land price and creating a surplus for land buyers and landowners. Market forces are expected to facilitate the flow of land to more efficient agricultural producers. In addition, improved incentives to invest in land will increase marginal productivity of land, further raising its price and the resulting surplus for the economy.

Although the economy as a whole will largely benefit from full liberalization of the land market, some stakeholders will gain and others will lose. The clear winners in this scenario are landowners and local governments. The former will benefit from appreciated land value that will drive rental prices up and enjoy better access to credit due to improved collateral. The latter will benefit from the revenues of land privatization and improved land taxes. However, achieving these potential gains depends on an institutional framework that is able to restrict market power, reduce information asymmetries and secure access to capital for potential buyers. Current land users benefiting from relatively low rental prices are expected to face welfare losses in this scenario.

c) Full liberalization with restrictions

Because land concentration and speculation are often perceived as negative phenomena, some stakeholders suggest implementing land-holding restrictions and/or prohibiting actors that are substantially better capitalized than others from accessing the market.

With respect to the baseline scenario of full liberalization, both policies have very similar effects: they will result in lower land prices and, thus, imply moderate losses for landowners and local governments. On the other hand, large agricultural producers will moderately gain because of lower land rental expenditures. If restrictions apply to banks too, access to credit for small producers will become more difficult compared to the full liberalization scenario. Policy-makers should ensure that these restrictions practically achieve their goals. Otherwise, it is difficult to justify the resulting economic losses.

d) Partial liberalization

Another debate is centered around the process of liberalization. Some stakeholders suggest choosing one or several pilot regions where liberal land relations could be tested. It means that only a small part of land limited by geographical boundaries would be available for purchase by an unlimited number of market participants. However, the problem with piloting is that each of the regions may have a unique equilibrium. This makes it very difficult to make inferences for the whole country and use this experience to draw conclusions for the country-wide land market.

Another proposition is to lift the moratorium for the sales of state-owned land first. Privatization of 10.5 million ha of state-owned land could provide a sense of how effective the newly introduced electronic auctions are or how the transaction database functions. In theory, this would prepare the ground for full liberalization.

Obvious losers of such a policy are the *pai* holders because they will not be able to sell land or use it as collateral, while sales of state-owned land are allowed. On the other hand, any actor with better access to finance will be the net beneficiary of such a policy because they will gain from an opportunity to purchase land. Small farms may forego some gains because land will not be a liquid asset and there will not be an opportunity for mortgage lending. Local governments may be able to increase their privatization revenues due to higher sales prices in comparison to “full liberalization”.

In case the government decides to open the land market to the *pai* holders only, the latter will be the net beneficiaries of this policy due to appreciation of their land assets and increased rental payments when compared to the “full liberalization scenario”. On the contrary, land users are likely to incur small losses because of the same reasons. Rural communities will be the obvious losers of the “CLS land only” scenario because they will not be able to benefit from the revenues of land privatization. The scale of these losses is likely to be large and may negatively affect provision of rural public goods, indirectly affecting millions of CLS holders residing in rural areas.

e) **Institutional reforms**

Considering the negative experience with regard to institution-building in the sphere of land relations and state-owned land management, a rule-based approach to facilitating land relations may be most apt to the Ukrainian context. Although it is difficult to exclude the possibility of misuse, it is possible to minimize respective dangers by regulating land transactions in detail minimizing discretionary decision-making by public officials. As a result, instead of discretionary management by a central agency, the newly reformed local governments could make relevant decisions in adherence with legal guidelines and under a close monitoring of local communities. Transparent processes and easily accessible information on the status of the land market will help prevent unwanted behavior among the market participants.

Transferring complicated tasks, such as land management, to the local governments may require substantial public investments into the capacity development of local officials. In addition, a large-scale campaign to raise awareness about land reforms may be needed in order to address the general negative sentiment among the local residents surrounding lifting the moratorium. Intensification of land transactions is likely to be associated with an increase in land disputes. However, the Ukrainian court system requires substantial capacity building to improve its decision-making abilities.

Finally, land consolidation could significantly reduce the transaction costs of land exchange, improve its collateralizability and liquidity, contributing to a well-functioning land market. Voluntary consolidation mechanisms may better consider the interests of landowners and small farms. Consolidation schemes should be clearly outlined by the law with minimum bureaucratic discretion.

1 \ Introduction

When Ukraine adopted the 2002 Land Code, it chose to follow a liberal path of agricultural land relations, but failed to create the necessary conditions for the land market to function fully. The moratorium on land sales, implemented directly after the adoption of the Land Code, prohibited 6.92 million owners of land shares (16% of the population) from fully exercising their property rights (Nivyevsky, Nizalov, & Kubakh, 2015; Nizalov, Ivanivska, Kubakh, Nivyevsky, & Prokopenko, 2016). Initially intended as a temporary measure, the moratorium has, to date, been extended eight times. Almost two decades later, after extensive public discussion and institutional experiments, consensus on the design of the sales market has yet to be reached and the legal situation remains unchanged. As such, many landowners have passed away without ever being able to fully exercise their property rights.

Dysfunctional land relations have led to inefficient land allocation and, as a result, substantial losses in potential GDP growth. Since current land transactions are only possible in the form of user rights transfers, land may be allocated to less efficient agricultural producers. Current transaction restrictions generate incentives for potential market participants to move to the realm of the shadow economy (Pugachov & Pugachov, 2017). International evidence overwhelmingly suggests that a lack of long-term tenure security lowers incentives to invest in soil fertility and land improvement, while at the same time increasing incentives to maximize short-term benefits from land use (Benjaminsen, Holden, Lund, & Sjaastad, 2009; Li, Rozelle, & Brandt, 1998; Rao, Spoor, Ma, & Shi, 2016; Schweigert, 2006; Wannasai & Shrestha, 2008). Consequently, the monetary (e.g. foregone agricultural production) and the non-monetary (e.g. social inequality, undesirable land distribution) costs of prolonging the moratorium are high. For instance, Ukrainian experts estimate that liberalization could lead to a 3–9% increase in the annual growth rate of the GDP (Easybusiness, 2016; Ukrainian Institute for the Future, 2017).

While Ukrainian policymakers are unsure of the way forward, business has adjusted to the post-reform conditions and often even managed to turn the situation to its advantage. Access to cheap rental land immediately after the reforms in the early 2000s motivated entrepreneurs to establish farms operating on large areas of land. However, due to the uncertainty of tenure, the risks associated with land access have pushed agricultural enterprises towards more short-term and capital-intensive business models, giving comparative advantage to large producers (Pugachov & Pugachov, 2017). Over the years, business operations have grown and fed into Ukrainian export success stories. Although land rental prices have risen since then, these business models remain profitable. Our expert interviews suggest that they generate strong interest groups that actively promote their interests in legislative bodies — maintaining status quo on the land market. With these factors in mind, policy-makers appear to be faced with a complicated task: balancing the interests of different groups of producers in an effort to finalize the land reform which will contribute to the government's vision of agricultural sector development in the coming several decades.

Current public debates are predominantly focused on the design of the future land market's infrastructure. First, there appears to be no consensus on the extent to which the future land market should be regulated. In particular, some advocate for limiting the amount of land that can be held by one person, or excluding some stakeholders (e.g. foreigners) from the market under the justification that it will provide an even playing field for smallholder farmers and large enterprises. Second, it is still not clear which organizations should be in charge of regulating the future land market. Previous attempts at creating centralized organizations in Ukraine resulted in the misuse of funds and rent extraction (e.g. the establishment of the Land State Bank in 2012 and its subsequent failure due to misuse), which may diminish institution-building efforts. That is why some stakeholders propagate a market with clear rules as an effective regulating mechanism. Third, legislators do not agree on how the reforms should be implemented. Political economy scholars debate whether reforms should be quick or gradual, involving the general public (Rodrik, 1996). In the Ukrainian context, the question is whether land reforms should be "quick and silent" in order to prevent potential manipulations of public opinion by interest groups, or whether there should be distinct implementation stages with consequent adjustments for further stages and comprehensive public discourse. Land market liberalization has become a "toxic" issue for many policy-makers because of the widespread negative sentiment towards this issue. As a result, this may represent additional costs required for the implementation of related policies.

Considering the importance of land reforms for the Ukrainian economy, it is surprising that evidence-based economic analyses of different scenarios of land sales market development are rather scarce.¹ Our study aims to contribute to closing this gap. We identify a number of the most probable land market reform scenarios and discuss, from a welfare economics perspective, the main distributional effects felt by the major stakeholders involved. In particular, we are interested in how the proposed designs of the land relations will affect typical business models of different types of producers. Moreover, we attempt to forecast general dynamics of the market and analyze potential effects on agricultural production.

In order to achieve these objectives, we first conduct a literature review and utilize qualitative data from Ukraine. We use existing "state of the art" scholarship on land market liberalization with theoretical and empirical studies from around the world. We study the experiences of land market liberalization in East Germany and neighboring Russia and Kazakhstan and identify "lessons" for Ukraine. The modelling of each scenario is based on theoretical welfare economics and available international empirical evidence. In addition, we draw upon a rich qualitative dataset from Ukraine in order to embed our discussion in the local context. The authors conducted 12 semi-structured face-to-face interviews with key experts and stakeholders directly related to land relations in Ukraine. The selection of the interviewees was guided by the necessity to reflect the opinions of all stakeholders: small and large agricultural producers, local communities/governments and landowners. In addition, we aimed to cover major aspects associated with land ownership, such as access to credit, land tax generation, and state land management.² The questionnaires focused on stakeholders' incentives within the status quo and the changes after

1 Some exceptions include Muliar et al. (2014), Pugachov and Pugachov (2017), and Deininger et al. (2017) who indirectly touch upon these issues.

2 See Appendix A for a list of interviews conducted.

lifting the moratorium, organizations involved in land relations management, the role of land in access to credit, and general perceptions about the reform process. Most of the interviews were recorded, transcribed and analyzed in accordance with the framework suggested by Ritchie & Spencer (1994). There are several distinct stages within this framework. First, it is essential to become familiar with the data and identify a thematic framework. Then, the transcribed data must be indexed and the concepts occurring within the indexed data charted. Finally and most importantly, we mapped and interpreted the data. In addition, we use secondary statistical sources from the Statistical Yearbooks, the State Service for Geodesy, Cartography and Cadaster (further Cadaster), and several recent surveys.

Due to the lack of evidence for Ukraine, the scenarios presented within the study should be treated with caution. Empirical literature on land markets in Ukraine is particularly scarce. In addition, despite the many similarities with other post-Soviet countries, the Ukrainian context is rather unique in terms of the current policies regulating land relations. All these factors complicate the task of modelling different scenarios of land relations. Nevertheless, the authors believe that each of the scenarios provides clear guidance of the distributional effects to be expected. Striving for maximum transparency, we explicitly reveal all the assumptions within each of the scenarios and, to the extent it is possible, attempt to embed the models in the Ukrainian context. As a result, the report generates a foundation for expert policy discussions and serves as guidance for further scientific research.

2 \ Learning from international experience

2.1 | “State of the art” theory

Land is a key asset and production factor in rural economies. Although land plays a central role in agricultural production, land relations have followed different evolutionary paths under different historical contexts. From a neoclassical economic perspective, the central task of any land relations system is to distribute land in a way that allows the most efficient user to cultivate the land (allocative efficiency). Doing so will provide the necessary conditions for maximizing agricultural production efficiency. Assuming the absence of any external effects and market power of any participant, land sales market is widely considered to be a first-best mechanism that transfers land from less to more efficient producers (de Janvry, Platteau, Gordillo, & Sadoulet, 2001; Deininger, 2003; Deininger & Feder, 2001). Price mechanisms generate necessary information for efficient land allocation when more productive agricultural producers are more willing to pay for land and, as a result, have better chances securing access to it. Consequently, land, as an important production factor, flows to the more efficient producers increasing the sector’s overall productivity and leading to economic growth.

Property rights are a major driving force that generates productive incentives for agricultural cultivation of land. Assuming standard profit-maximizing behavior, property rights holders will have the freedom to decide what to do with an asset in order to improve their well-being (Besley &

Ghatak, 2009). In an agricultural context, theory predicts that individuals will cultivate their land plot should the shadow value of the land exceed price offers from potential buyers or leaseholders. Alternatively, if someone can use this asset more productively, it would be rational to lease or sell the plot. Furthermore, clearly defined property rights generate incentives for land owners to invest in their property (Benjaminsen et al., 2009; Besley, 1995; Li et al., 1998; Schweigert, 2006) and better maintain the asset — e.g. incorporate environmental goals in agricultural practice (Feder, 1993; Hoddinott, Adato, Besley, & Haddad, 2001). It is evident that in order to reap these economic benefits, property rights must be clearly defined and encompass use rights, control and decision-making rights as well as alienation rights (Schlager & Ostrom, 1992). An obvious danger in vaguely defined property rights is that the products of economic activity may be expropriated by a third party (Besley & Ghatak, 2009; Deininger, 2003). These dangers generate additional transaction costs because producers are forced to defend their property and invest resources in directly unproductive investments (Dixit, 2004).

Clear property rights generate economic value of land as an asset and, as a result, may be used as collateral in improving access to credit (Binswanger & Rosenzweig, 1986; Eswaran & Kotwal, 1986). Access to credit is one of the central premises of poverty reduction strategies in rural economies because it determines the ability of productive farmers to use capital for entrepreneurial activities. Because of credit constraints, “gains from trade” are not exploited and this leads to inefficient capital allocation. This causes “poverty traps”, where skilled but poor farmers are excluded from agricultural production and/or intensifying their production activities. As a result, access to credit in rural areas determines the ability of households to get out of poverty (Carter & Barrett, 2006) and reduces income inequality (Aghion & Bolton, 1997; Banerjee & Newman, 1993). Access to credit via land collateralizability is only possible if both the land market is sufficiently liquid and credit markets are functioning in rural areas. To ensure that a land market enjoys sufficient supply and demand of land, clear information about the assignment of property rights is needed (Arruñada, 2011). Ideally, it should be an independent public institution free from the vested interests of lobby groups.

These standard prescriptions are often discussed as part of the “Washington Consensus”³, which promotes implementation of liberal economic principles including privatization and deregulation. Within the framework of the “Washington Consensus”, the World Bank has been promoting liberalization of land markets not only in Latin America but also in the post-Soviet countries. Although numerous success stories with reasonably functioning land markets do exist, implementation of these policies has turned out to be more challenging in many countries (Kuns, Visser, & Wästfelt, 2016; Rodrik, 2006). Emerging criticism of this approach calls to consider the context in which the reforms are implemented. Market facilitating institutions in countries suffering from corruption typically fail at the privatization stage and with the consequent market interventions. Furthermore, the policy prescription assumes absence of transaction costs, sufficient initial liquid assets among potential landowners, perfect rational decision making of the stakeholders

3 A term used to describe 10 economic policy recommendations for countries transitioning to a market economy. Initially, the recommendations were targeted towards the countries of Latin America, but with time the agenda spread to the rest of the world.

involved, and an enabling institutional environment for business in general. These conditions influence the enforcement of property rights by economic and political actors.

Liberal land market reforms require careful consideration of the local context and political economy. Place (2009), with the help of a literature review, finds that tenure security has a unique local definition within existing institutional arrangements. As a result, the traditional understanding of securing property rights (land titling) may not necessarily lead to higher investments or increased productivity in agriculture. A study by Boucher, Barham, & Carter (2005) suggests that liberal land reforms in Honduras and Nicaragua alone could not fully solve the problem of access to credit with land collateralization. They argue that financial markets need to be stimulated in parallel to land reforms.

Since post-socialist countries are known for substantial transaction costs and thin land markets⁴ (Lerman, Csaki, & Feder, 2004), emerging literature explores land rental markets as a temporary land relations system. Undercapitalization of potential buyers, underdeveloped bureaucracies facilitating land exchange, and uncertainty with respect to property rights may negatively affect land sales markets (Swinnen & Vranken, 2007). For instance, as of 2010, in Kazakhstan only 1% of agricultural land was privately owned, which means that virtually no land transactions had taken place (Petrick, Wandel, & Karsten, 2013). In this environment, land rental may generate the factor mobility necessary for efficient allocations (Sadoulet, Murgai, & Janvry, 2001). It, however, should ideally be considered as a temporary land relations arrangement because it does not generate as many productive incentives as land ownership. For instance, rental contracts are often limited in time, reducing the motivation to invest and properly maintain land. Moreover, when generally dysfunctional institutions prevail, there are no guarantees that rights associated with rental contracts will be respected (Besley & Ghatak, 2009; Sadoulet et al., 2001). Consequently, even access to land via rental should be facilitated with functional institutions and clear rules.

The way in which land markets are designed and the goals the government pursues may substantially impact land allocation among the different types of agricultural producers. A social planner may have other goals beyond efficient land allocation (e.g. equity goals, environmental conservation, rural tourism, etc.). For instance, promoting smallholder farming has been on the policy agenda of many countries (Lipton, 2009) and has been the foundation of the World Bank's land reform strategy (Deininger & Binswanger, 2001). In general, improving the infrastructure in land markets (e.g. reducing transaction costs in land exchange and ensuring clarity of property rights) will improve access to land for poor, undercapitalized farmers. On the contrary, dysfunctional institutional environments with non-transparent information about market participants and land tenure along with bureaucratically burdensome land transactions may grant access to land only to farms whose managers are better connected with bureaucracies and more powerful, which are almost exclusively large farms. These typically larger farms have the capacity to deal with higher transaction costs because of their scale.

4 Thin markets are characterized by low supply and demand with volatile prices and fewer liquid assets.

Land concentration is one of the major concerns of liberal land policies and requires careful analysis of the rural political economy. There is an emerging literature on the surge of investments in land across the world that was partially generated by food price hikes during the 2008 financial crisis (Borras, Franco, Gómez, Kay, & Spoor, 2012; Van Der Ploeg, Franco, & Borras, 2015). Both domestic and foreign investors have actively sought to acquire large areas of land all over the world, including in Ukraine (Mamonova, 2015; Visser, Mamonova, & Spoor, 2012). Ambiguous property rights (especially in the Eastern European and Central Asian countries, where land was redistributed in land shares), corruption, and legal loopholes create a facilitating environment for large land acquisitions (Visser & Spoor, 2011). In addition, large-scale domestic or foreign investors may use substantial power imbalances in Ukrainian rural areas, resulting from income inequality and access to administrative resources (Nataliia Mamonova, 2012). Unlike the rest of the world, rural inhabitants in post-Soviet countries appear not to resist land concentration due to a “culture of repression” affected by their socialist past and ageing population (Mamonova, 2015). Literature on the effects of land concentration is still scarce. However, there are indications that it may contribute to exacerbation of rural poverty traps and “peasantization” of the rural population (Spoor, 2012). On the other hand, Petrick, Wandel, & Karsten (2013) argue that large-scale agricultural investment has contributed to recovery of agriculture and improved incomes of agricultural workers even without clear property rights and in an imperfect democratic setting.

Effective land relations can directly improve rural public goods provision. Research on the fiscal decentralization that took off roughly three decades ago suggests that local communities (as opposed to the central government) are best able to judge what public goods they require and they have the largest motivation to use resources efficiently (Besley & Ghatak, 2003; Faguet, 2014; Musgrave, 1959; World Bank, 2004). This research has motivated numerous decentralization reforms across the world that have empowered local governments. One of the key insights of the literature on decentralization is related to the concept of “fiscal incentives”: Local governments have higher incentives to effectively manage their budgetary resources if they can locally generate substantial shares as opposed to receiving transfers from higher tiers of the government (Weingast, 2009). Following this line of argument, local governments are more likely to be effective managers of state-owned land. They should have high motivation to maximize revenues from land rental and taxation. Consequently, the initiative undertaken within the current broad decentralization reforms in Ukraine has a potential to positively affect local governments’ revenues and, as a result, improve provision of local public goods. In addition, the land reform process itself can benefit from involvement of communities because they have unique knowledge about local power relations and localized notions of property rights (Sikor & Müller, 2009). It is, however, necessary to note that dominance of elites at the local level may erode the gains of decentralization (Bardhan & Mookherjee, 2000). Local governments may be less vulnerable to elite capture if they obtain substantial revenue generating capacity (e.g. larger share of taxes retained locally) (Bardhan & Mookherjee, 2006).

2.2 | East German experience with land market liberalization

Unlike in Ukraine, private ownership of land never ceased to exist under central planning in the German Democratic Republic. However, public authorities organized management of all land and often did not update administrative records related to property rights. Thus, in the beginning of the 1990s, ownership of agricultural land was vastly unclear. Title books were incomplete, and land formerly used by state companies or cooperatives had to be reorganized, taking into account their former ownership status. Furthermore, the German state had to conduct restitution of a part of the state-owned land and find solutions for indemnification. While the legislative and institutional levels of the government dealt with these issues, an institution was established in 1992 to manage formerly publicly owned agricultural land and forestry in East Germany after the reunification. The newly created *Bodenverwertungs- und verwaltungs GmbH* (BVVG) was a state-owned company that was closely monitored by the state and aimed to effectively manage and privatize public assets in its portfolio, namely, publicly owned land. It currently employs 400 persons⁵ and has four branches.

Because of unsettled ownership claims and other uncertainties regarding the reorganization of ownership, the BVVG initially decided not to sell agricultural land under state-ownership. Another reason for not implementing a fast privatization via land sales was the influence that such large-scale privatization could have on the German and European land market. In the first stage, the BVVG's management activities therefore concentrated on the leasing of agricultural land, first on a short-term, and then later on a long-term basis (6–12 years). This not only provided time for necessary ownership clarifications but also allowed the agricultural companies and farmers to consolidate their businesses and to invest into machinery and facilities rather than binding capital by purchasing land.

During the second phase of privatization, the 1994 Indemnification and Compensation Act guided the Land Purchase Program that was implemented by the BVVG. Farms were given an opportunity to increase their assets by purchasing formerly state-owned land at preferential conditions. Due to conflicts with state aid regulations, the European Commission requested the Land Purchase Program to stop in 1998. With some amendments requested by the EU, it continued until 2000. The EU then made a decision that forced the German government to phase out the program by the end of 2009. The last phase on the road to privatizing the remaining state-owned agricultural land, which is to continue until 2030, is to sell (or in some cases alternatively to lease out) land via a tender procedure or direct sales. The BVVG is legally obliged to sell (or lease) the land at full market value.

Initially, approximately 25% of East German agricultural land had to be managed by the BVVG and its predecessor, *Treuhand* (Koester & Brooks, 1997). So far, a total of 0.2 million ha of agricultural and forest land has been restituted to former owners, 1.3 million ha have been allocated to statutory bodies and 1.5 million ha have been privatized (by selling). By the end of 2017, the BVVG had transferred approx. 7.6 billion EUR to the federal budget. Today, only around 2% of

⁵ It used to employ 1111 persons in 1998 due to a higher workload at the time.

agricultural land in East Germany remains in the BVVG's portfolio. A major achievement of the privatization process is that, despite reorganization of the ownership structure, state-owned agricultural land was kept in production throughout the process under the active management of a state agency. The three-phase privatization process has led to a stable agro-structure in East Germany, with a widespread ownership and farm structure, ranging from medium scale family farms to large farming enterprises organized as limited liability companies or farmers' cooperatives (Wilson & Klages, 2001).

A functioning land market requires a comprehensive legal framework that governs basic principles with regard to ownership and the proper handling of property. The fundamental guidelines are laid out in Article 14 of the German Constitution. Paragraph 1 in Article 14 of the Constitution stipulates that, "property and the right of inheritance shall be guaranteed. Their content and limits shall be defined by the laws." In this context, it is the state's task to protect and enforce the right of property and inheritance as well as to legally define the concept of property and its limits. Paragraph 2 stipulates that, "property entails obligations. Its use shall also serve the public good." Ownership of land should serve public needs as effectively as possible. Land ownership is tied to the owner's obligation to serve public needs through the best possible management of the property. Paragraph 3 stipulates that "expropriation shall only be permissible for the public good. It may only be ordered by or pursuant to a law that determines the nature and extent of compensation. Such compensation shall be determined by establishing an equitable balance between the public interest and the interests of those affected."

The German Act on Land Turnover (*Grundstücksverkehrsgesetz — GrdstVG*), which entered into force in 1962, makes the sale of agricultural and forestry assets subject to approval in order to prevent a feared unhealthy distribution of land and to safeguard the food supply for the population. According to this law, the state can refuse approval of a sales contract or can exercise a pre-emption right and enter into the contract with all its provisions. In practice, the responsible administrative body exercises this right (on behalf of the state) in the case that a non-farmer wishes to acquire agricultural land, while at the same time a productive farmer urgently needs land to expand her farm and is ready and able to buy it.

The German government has a long-term strategy against speculation on the land market with the aim of preventing speculative bubbles that would withhold land from productive use. In response to this (and a number of other factors), it was decided not to fix values/prices in Germany but to install a system of market monitoring, which provides transparency with regard to the prices on the land market. Federal States are obliged to establish "public [valuation] experts committees" whose task is to collect and prepare data on the land market and make this available to the general public. Transparency on the agricultural land and lease market is not only useful for market participants who can base their decisions on the available data, but also for authorities, offices and courts, which can rely on comprehensive data for administrative decisions such as appraisals or compensation payments in the event of expropriation. Furthermore, political decisions for steering land market policy also require comprehensive, up-to-date and qualitatively reliable data on price and volume movements on the land markets, as well as information on operating and ownership structures and leases.

Recently, land prices have been steadily rising on German land markets and this led regional and federal governments to establish a working group (*Bund-Länder-Arbeitsgruppe*) in 2014 (Gilgen & Meyer-Everloh, 2017). The aim was to analyze the reasons for the price increases and design a system that would address the identified causes. In particular, land prices in East Germany have risen to the extent that it stimulated some stakeholders to lobby for price caps. From an economic point of view, there is no indication of market power and therefore no reason to regulate prices in this case (Balmann, 2015). Experts rather claim that competition and transparency of land markets should be critically evaluated and improved.

A further issue that is actively debated among German authorities, stakeholders and experts is land concentration. In particular, large East German farms (in comparison to their Western German counterparts) have given rise to a number of supra-regional holding structures in the agricultural sector with a higher concentration of ownership in regional land markets. It is feared that smaller farms may be facing increasing problems competing for land. The above mentioned working group (*Bund-Länder-Arbeitsgruppe*) claimed a need to reform the Law on Land Turnover and some other regulations, which were supposed to prevent land concentration. For example, the sale of land when selling company shares is not covered by this law. For this reason, the working group has identified options for action, particularly in the areas of “market transparency and statistics”, “deficiencies in the implementation of existing laws” and the “broader regulation of land law”. The *Bund-Länder-Arbeitsgruppe* (2015) developed the following seven policy objectives:

- 1) Maintaining and promoting a broad distribution of land ownership;
- 2) Avoiding dominant positions on regional land markets;
- 3) Prioritizing farmers when purchasing land;
- 4) Ensuring the sustainability of agriculture;
- 5) Limiting the increase in purchase and lease prices for agricultural land;
- 6) Prioritizing the agricultural use of agricultural land;
- 7) Improving information and market transparency on the land market.

These land policy objectives have also led to changes in the management of state-owned agricultural land, adapting the BVVG’s privatization principles from 2010 to the newly identified land policy objectives. Thus, the ceiling for the selling of state-owned agricultural land has now been reduced from 25,000 ha to 10,000 ha per year. Similarly, the size of the tendered lots was limited to a maximum of 15 ha, after originally being set at a maximum of 50 ha. Approximately one-third of the tendered land is restricted to young farmers up to 40 years old and companies with labor-intensive farming practices.

The East German experience with the opening of the land market and land privatization represents a relatively successful example of land market liberalization. The centrally managed BVVG played a major role in transferring publicly owned land to private users and owners. However, German reformers approached the issue from different angles and paid attention to related facilitating institutions. For instance, reporting requirements secure a relatively high degree of transparency on the land market. There are, however, several negative aspects of the East German land reform. First, the process of privatization has taken much longer than initially expected. Second, economic criteria in land distribution have dominated the decision-making process, taking importance away from the social goals. As a result, the discussion on land concentration has now reemerged in the public discourse.

2.3 | **Other countries' experiences**

Many countries have undergone some form of land market liberalization in the last decades. In most of the countries, liberal land reforms superseded some form of transition from authoritarian to more democratic regimes. Land market liberalization is embedded in a set of complex social processes occurring in a broader framework of economic liberalization. In some cases, these processes may take a long time: 11 million ha in 30 years in Brazil, and 100 million ha in almost a century in Mexico. The amount of land that was subject to reform after the collapse of the Soviet Union was unprecedented. Thus, 145 million ha were transferred into private ownership over a ten-year period between 1990 and 2000 (Lerman, 2017). However, the countries that once made up the Soviet Union have taken considerably divergent land reform paths. Belarus, Uzbekistan and Tajikistan do not recognize private ownership and the state is the main landlord renting out land. On the other side of the spectrum are the Baltic States, which conducted restitution and fully liberalized their land markets, breaking the collective farm structures. An interesting case can be found in the South Caucasian countries along with Moldova, which first issued conditional land shares (CLS)⁶ but then managed to convert them into physical plots and launch their land sales markets. Most lessons for Ukraine, however, can be drawn from the countries that have very similar legal and institutional conditions: Kazakhstan and Russia.

Russian land reforms in the 90s were heading in the direction of the Washington Consensus but Putin's regime later steered them towards large-scale agriculture. Following the collapse of the Soviet Union, Russia amended its constitution, recognizing private ownership of agricultural land but implemented a 10 year moratorium on land sales (Lerman & Shagaida, 2007). However, land first had to be distributed. The first attempt was marked by the law On Land Reform, which attempted to distribute land among the workers of collective farms, but ultimately failed due to unwillingness of the management (Poshkus, 2009). Later, much like in Ukraine and Kazakhstan, collective farms were restructured into joint stock companies and the employees had the right to obtain a CLS. An average CLS entitled the holder to 10 ha (Lerman & Shagaida, 2007), which reduced consequent challenges with land fragmentation. CLS holders could implement their right

⁶ Virtual paper certificates that entitled the holders to a share of a collective farm's land. However, these were not titled or demarcated and it was difficult to obtain a physical plot. Section 3 presents further details about the situation in Ukraine.

to own land either by contributing their land towards the charter capital of newly restructured enterprises, or by registering ownership rights and cultivating it separately. However, the land registration process was very cumbersome and required substantial resources. These events created a fertile ground for launching a sales market with the help of the law On Agricultural Land Circulation in 2003. Very little effort was put into collecting, analyzing and making available information on market transactions. This contributed to a very non-transparent situation on the land market. Lerman & Shagaida (2007) report that only 0.5% of land was sold between private owners during the first years after the reform. Renting remained the most widespread way of accessing land. During the 2000s, low rental and purchasing prices generated an interest for land accumulation among well-capitalized domestic and foreign investors (Visser et al., 2012). However, Shagayda (2010) reports observed flows of land towards more effective producers.

The absence of respective legal restrictions and lack of administrative infrastructure on the Russian land market contributed to land accumulation by a number of agricultural enterprises. No price and transaction monitoring mitigated the demand from small farms because they had little information about prices. In addition, bureaucratic hurdles of land registration allowed land accumulation by mostly those enterprises that could deal with these high transaction costs. Land accumulation was poorly regulated. No ceilings on land ownership were introduced. Although, similar to the case in Ukraine, foreigners were not allowed to own Russian land, foreign companies were easily able to do so by establishing local subsidiaries. Agricultural state support including subsidized credit clearly favored large enterprises, further increasing entry and expansion costs for the small farms. All these factors in combination with the federal government's self-sufficiency goals contributed to the rise of some of the largest agrohholdings in the world.

Kazakhstan's land reforms moved in a similar direction, clearly favoring large agricultural business (Petrick et al., 2013). Following the Russian example, in 1995 the government distributed CLS among the members of the former collective farms, retired workers, and people working in the cultural and social spheres. CLS holders were able to contribute their shares towards the capital of an agricultural enterprise, withdraw them to form an individual farm, or sublease them. Land ownership was recognized in 2003 with the newly adopted Land Code. At the same time, it required CLS holders to either cultivate their plots under a rental agreement with the state, contribute to the charter capital of an agricultural enterprise, purchase them, or give them back to the state. In other words, the government of Kazakhstan handed out land assets to the people with a prospect of land ownership and a decade later took them back. The state remained a major landlord and a manager of Kazakh lands.

As a result of these reforms, none of the goals of land market liberalization have been fully achieved in Kazakhstan. Despite the activation of land rental markets, the state remained the main lessor, which severely limited land transferability. To this day, land ownership remains a very rare phenomenon with only around 1% of agricultural area in private hands (Petrick, 2015). Under these circumstances, land collateralizability plays no role because very few agricultural producers actually own land and banks do not consider rented land to be reliable collateral (Petrick & Oshakbaev, 2015).

3 \ Land relations in Ukraine now: Status quo

3.1 | Background and legislation

The transition from collective agricultural production has been underway in Ukraine since its independence from the Soviet Union. “Land reform”, as many experts call it, began on December 18, 1990 with the Ukrainian Soviet Council’s resolution On Land Reform. Later in 1992, the Supreme Council set the course on land liberalization reforms and the Cabinet of Ministers launched the process of distribution of “conditional land shares”— stakes in the former collective farms. Shareholders wishing to leave a farm enterprise were entitled to a physical plot. The exit of individual shareholders was, however, problematic because related procedures were only developed in detail a decade later (Lerman, Sedik, Pugachov, & Goncharuk, 2007). Although many collective farms were converted into commercial agricultural enterprises, they essentially did not change. The Presidential Decree of 1999 gave CLS holders the chance to convert their shares into physical plots, creating around seven million land owners (Deininger, Nizalov, & Singh, 2017; Lerman et al., 2007). In addition, the Decree generated land rental relations by obliging newly created agricultural enterprises to pay rent to the CLS holders at a rate not less than 1% of the normative land valuation.⁷

A new chapter in Ukrainian land relations began with the 2002 Land Code. A major breakthrough was the clear definition of property rights related to agricultural land. In addition, it had an important provision prohibiting the contribution of the CLS towards the equity capital of agricultural enterprises. This reduced the pressure managers had placed on landowners to contribute their CLS to their farms and prevented the phenomenon from becoming widespread, as had happened in Kazakhstan. However, the 2002 moratorium on land sales deprived landowners of a basic right and reduced the value of their land as an asset. Initially considered a temporary measure, the moratorium has been extended eight times since its adoption.

Despite the prohibition of land sales, the 2002 Land Code provides a number of ways to access land. The first, most widespread way to access Ukrainian agricultural land is for citizens and legal entities to rent it from the landowners or from the state. According to the current Ukrainian Tax Code, minimum rental payments for state lands are set at a maximum rate of the land tax: 1% of the normative land valuation (Pugachov & Pugachov, 2017). In practice, due to increased competition for land rental agreements, the payments are within the range of 7–12%, which roughly translates to 50–100 EUR per ha per year (Nizalov et al., 2016). It is legally possible to rent both private and state lands. In 2014, 83% of agricultural lands were privately owned and the rest were owned by the state (Nizalov et al., 2016). Land rental rights can be purchased at electronic auctions and the Land Code describes related procedures in detail. It is also worth noting that it is possible to sub-rent land, although these cases are not too widespread. A minimum land rental contract is set at seven years and the maximum rental period is 50 years. Second way to access Ukrainian agricultural land is to obtain a plot of land (conditional land share or *pai*). Ukrainian Land Code guarantees citizens the right to private ownership of a plot of land of no more than

⁷ Normative land valuation is a baseline value of land mostly used for the calculation of a tax base.

2 ha (0.12 ha for gardening), depending on the region. A *pai* is usually allocated on an application basis and involves substantial transaction costs (Muliar, Kaliberda, Kulynych, & Egiashvili, 2014). Owners of these land plots usually represent a major source of land for agricultural enterprises who are forced to make a contract with each of them. The third and least transparent way to access agricultural land is to use state-owned land. The Land Codex provides the possibility of privatizing a plot of land that has been used “de facto” for the last 15 years. It can be either transferred into private ownership or a rental relationship can be established. Finally, there is the rather unpopular option of land access called emphyteusis (long-term inheritable land use) whereby a tenant obtains a plot of land from the landowners for an unlimited period and from the state for a period of up to 50 years.

Beyond the moratorium, access to land in Ukraine is restricted in terms of market participants. According to the 2002 Land Codex, landowners can be citizens, legal entities, municipalities, and the state. Foreign individuals and companies cannot legally own land in Ukraine. However, all market participants, including foreign entities have a right to rent agricultural land. The question of whether to grant foreigners access to the future land sales market is a widely debated issue in Ukraine. However, most of the experts interviewed testify that current legislation loopholes allow foreign entities to own land. First, foreigners can purchase corporate rights for a certain firm that owns land in Ukraine. Second, foreign companies can establish a Ukrainian subsidiary with foreign capital, which in turn may establish a Ukrainian company that will be officially considered to be of a Ukrainian origin.

Using land as collateral is poorly regulated, leaving banks with very few guidelines. The Civil Code, the Land Code and the laws On Mortgages and On Land Rental provide a legal foundation (Shlapak, 2017). Rural finance experts testify that a major problem the banks face is a lack of clear procedures of land expropriation in the case of default. Potential sales of expropriated land are associated with substantial transaction costs regulated by the 2016 Order of the Ministry of Justice No. 2831/5 and negatively affect creditors’ incentives. In addition, banks have little trust in the existing administrative bodies that facilitate land relations in Ukraine. For instance, the rural finance experts interviewed suggested that banks would have to conduct repeated valuation themselves because of a lack of trust in existing expert land valuation. Furthermore, the problematic situation with the Ukrainian justice system may further erode trust and increase transaction costs of expropriation in cases of default. Finally, it is noteworthy that not only property rights for land but also the right to land rental could be used as collateral. However, this contradicts the law On Mortgages, which stipulates that property expropriation is linked with the transfer of property rights. This option is difficult to implement in practice also because of a lack of legislation that would regulate foreclosure involving agricultural land as collateral.

3.2 | Current land use

Ukrainian agricultural producers utilize relatively large land areas. Figure 1 demonstrates the distribution of the number of agricultural enterprises and individual farms along with their utilized land in 2016. We see that a small number of large agricultural producers utilizes large areas of land whereas producers with a small utilized area are much more numerous. A substantial share of land is used by farms between 500 ha and 4000 ha, which likely represent enterprises organized around former collective farms. Ukraine hosts some of the largest agricultural enterprises in the world. Thus, 17.6% of land is cultivated by enterprises with operational areas of more than 10,000 ha. These cultivators with large areas of utilized land are often referred to as “agroholdings”.

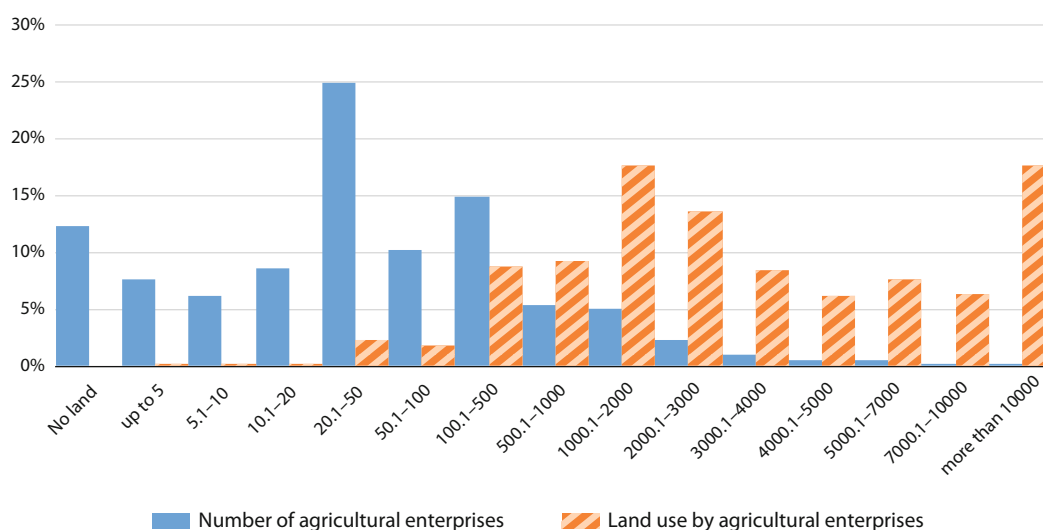


Figure 1 Distribution of non-household producers by number of enterprises and land use in 2016
Source: UkrStat (2017)

Land privatization has stabilized over the last decade, creating a class of landowners that are often unlikely to work on their land. The process of *pai* distribution ended in 2009 creating around seven million landowners. Currently, only veterans of the “Anti-Terrorist Operation”⁸ actively apply to obtain *pais*, accounting for almost 36 thousand applications in 2015 (Cadaster, 2015). All of them are likely to be approved. Ukrainian landowners represent a highly disorganized group of people that exhibit a general unwillingness to work on their plots and lack awareness of the general land relations in the country. According to USAID’s 2015 representative survey,⁹ only 10% of *pai* holders do not rent out their plots of land and 43% have never physically stepped foot on their plot (22% have visited their plot only once). Younger people are less likely to be interested in

8 Armed conflict with Russian paramilitary formations in a small area of the Donetsk and Luhansk regions that the Ukrainian Parliament acknowledged as occupied by Russia.

9 The survey was conducted among CLS holders and residents. It contained two random representative samples: 3822 CLS holders and 2041 residents. The survey was conducted in September 2015 in all Ukrainian regions except for territories occupied by Russia: the Autonomous Republic of Crimea and the separate territories of Luhansk and Donetsk regions.

working on their *pai* and perceive it as an asset. Landowners often do not know the conditions of their rental contracts and 60% receive their rental payments in the form of produce (in-kind). *Pai* holders have an extremely low negotiation capacity due to the rural population's low rate of civic activity and involvement in local activities (Kvartiuk, 2016). There are virtually no organizations that could effectively represent their interests, which limits their leverage in negotiations with tenants (Mamonova, 2015). The low level of political engagement is usually explained by the "Soviet mentality" and the "culture of repression" of the aging rural population (Kvartiuk, 2015; Mamonova & Visser, 2014). These circumstances put tenants in a favorable position to access rental land and push rental prices down.

Of the less than 10% of private land owners who cultivate their *pai*, few have the potential to commercialize their agricultural activities should the moratorium be lifted and the business environment improve. According to the USAID's 2015 survey, only 18% of active cultivators were planning to expand their land holdings. In the vast majority of cases, these farmers' access to credit is heavily constrained. They use their own savings to invest in business expansion. Opening the sales market may stimulate the usage of land as collateral and improve smallholders' chances in accessing credit. Should the other aspects of the business climate be favorable, smallholders may compete with large-scale enterprises. For instance, Kuns (2017) argues that smallholders in Southern Ukraine have been becoming stronger and have good prospects to improve competitiveness.

The moratorium on land sales has created favorable conditions for large-scale farming with short-term business models. Renting land from the pool of 31 million ha of privately owned land is the main way of accessing land for agricultural enterprises within the current legislation. The lack of awareness and poor negotiation capacity of the rural landowners facilitated large-scale land rentals during the 2000s. Rental payments were very low during that period and often were in the form of agricultural produce (Kuns, 2017). Examining Figure 2, it is evident that Ukrainian land rental prices are still very low when compared internationally. Access to the 10.5 million ha of state-owned land may be even cheaper because of the lack of transparency associated with it. All experts interviewed pointed out that, as a much smaller share of state-owned lands are officially registered,¹⁰ bureaucrats may have incentives to extract unofficial remuneration for access to state land. As a result, these land relationships are ridden with risks and are unable to provide a long-term planning horizon for enterprises. As a result, agricultural enterprises face strong incentives to cultivate crops that can generate fast and reliable profits compared to production activities involving higher investments and/ or characterized by a distribution of benefits over a longer period.

¹⁰ As of 2015, 43.6% of state-owned lands were registered in the Cadaster and only 20.6% in the Registry of Property Rights (Nivjevsky et al., 2015).

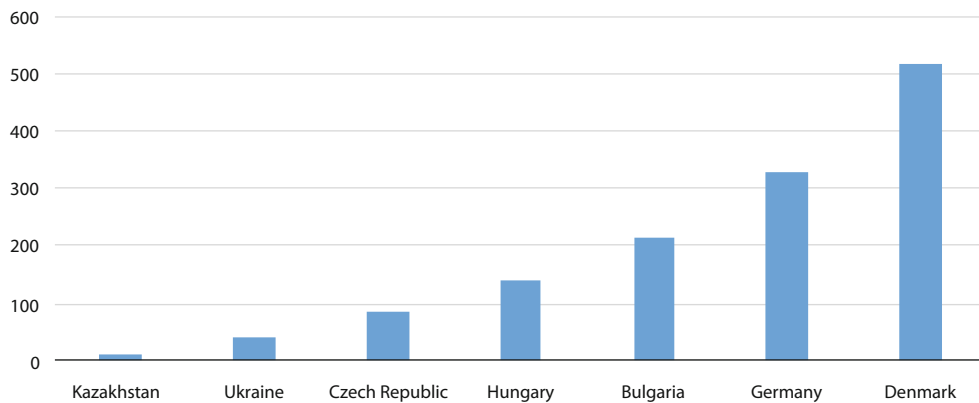


Figure 2 Land rental prices in 2015 (EUR per ha)

Source: EUROSTAT and Cadaster

The widespread short-term business model contributed to the emergence of Ukraine as one of the leading producers and exporters of grains and oilseeds in the world. According to the UN's COMTRADE, Ukraine's top three export items in 2016 were oilseeds (9.6%), wheat (7.1%), and corn (6.7%). Nearly half of the production value of crops is generated by agricultural enterprises. Figure 3 shows the evolution of crop production by different types of producers. We see that agricultural enterprises slowly increase their share of produced crops mostly at the expense of households. Based on the statistics of ProAgro¹¹, the largest 10 agricultural enterprises accounted for 39.9% of wheat, 52.3% of barley and 39.8% of corn exports.

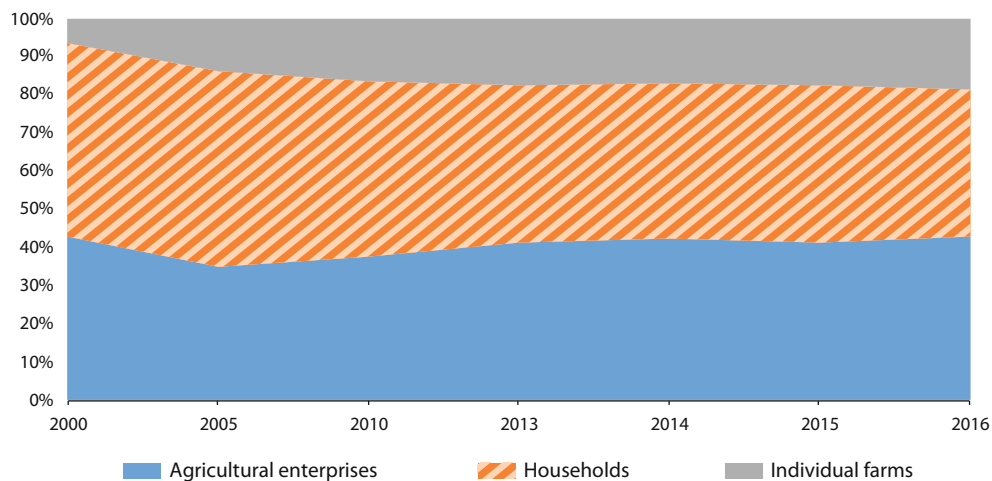


Figure 3 Evolution of the production value of crops by category of farm

Source: UkrStat (2017)

Available international evidence is inconclusive about whether large agricultural farms have any competitive advantages in agricultural production. Difficulties with labor supervision at large

¹¹ ProAgro is a private company providing statistics and analytics on Ukrainian agriculture (<http://www.proagro.com.ua>).

farms are at the core of the argument for diseconomies of scale in agriculture which led to emergence of a respective stylized fact (Eastwood, Lipton, & Newell, 2010; Lipton, 2009; World Bank, 2008). Nevertheless, with technological progress in modern agriculture, scarce labor and the tendency for vertical integration, scholarly discussion about the possibility of economies of scale has been revitalized (Deininger & Byerlee, 2012). First, it has been recognized that production focusing on one perennial crop or livestock may require some elements of vertical integration and, as a result, generate economies of scale (Binswanger & Rosenzweig, 1986).¹² Second, evidence from Ukrainian and Argentinian agricultural enterprises suggests that production units with 10–15 thousand ha may effectively be supervised using modern technologies and large farms may respond to failures in the delivery of public goods (Deininger & Byerlee, 2012). In the Ukrainian context, Deininger et al. (2017) do not find economies of scale in agricultural production in a 2001–2012 panel from Ukraine. In particular, they find that fixed effects on the level of local governments, together with managerial capacity were the main predictors of productivity. This evidence is in line with the arguments that large scale agriculture is a response to policy failures in dysfunctional institutional environments (Deininger & Byerlee, 2012). Finally, emerging literature argues that the integration of finance in large-scale agriculture is often associated with speculative investments mitigating possible economies of scale (Kuns et al., 2016; Magnan, 2015). Considering this mixed evidence, future research identifying precise mechanisms of economies of scale in the Ukrainian context appears to be particularly useful.

The lack of transparency in the management of public agricultural lands has contributed to the revival of another considerable type of land users that is rooted in the Soviet past—state-owned enterprises. The Ministry of Agriculture’s (MoA) “3+5 Strategy of Prosperous Country” (Ministry of Agriculture of Ukraine, 2016) criticizes these enterprises for their inefficiency and lack of transparency. Thus, the MoA gives privatizing these enterprises as one of its priorities. According to the Accounts Chamber of Ukraine (2018), 1.08 million ha of the state-owned land (10.2% of total state-owned agricultural land) was cultivated by state-owned agricultural enterprises. Interestingly, 51.5% of the total state-owned land is rented based on the contracts dating back before 1991. As a result, both the interviewed experts and an audit by the Accounts Chamber of Ukraine consider these circumstances as vulnerable to misuse.

Managing the rental contracts requires substantial resources from the agricultural enterprises. Ukraine hosts some of the largest agricultural enterprises in the world. The average farm size is 460 ha and land holdings can reach up to 500,000 ha (Deininger et al., 2017). According to the USAID’s 2015 survey, the average size of a *pai* owner’s land is 3.5 ha.¹³ Managing contractual relationships with hundreds and sometimes thousands of landowners may result in whole departments responsible for securing access to arable land. On top of these expenses and rental payments, agricultural enterprises may invest in the social infrastructure of local communities in order to acquire the loyalty of local *pai* holders. These costs make shadow access to potentially cheaper unregistered state-owned land highly attractive for many enterprises.

12 For instance, a positive relationship between farm size and productivity can be observed in plantation crops (Binswanger & Rosenzweig, 1986).

13 Most of the land was distributed before the adoption of the 2 ha limit by the Land Code.

Non-transparent access to cheap land reduces the incentives for productive investments. The experts interviewed suggest that the agricultural sector could dramatically improve its average productivity by using, for instance, modern irrigation technologies. Uncertainties connected with the management of short-term contracts deter potential investments in similar technologies forcing agricultural enterprises to focus on short-term business models. Although Ukraine has experienced a dramatic improvement in yields over the last decade (from around three tons to four tons per ha), land use productivity has not reached the level of the EU. Looking at the gross value added of agricultural production per hectare of agricultural land (Figure 4), it is evident that the productivity of land use in neighboring Poland (1552 USD per ha) is double that of Ukraine (741 USD per ha) and is far below the levels of the Western European countries. The lack of investment incentives coupled with vague property rights reduces land use productivity, keeping farmers away from efficient technologies that require longer planning horizons.

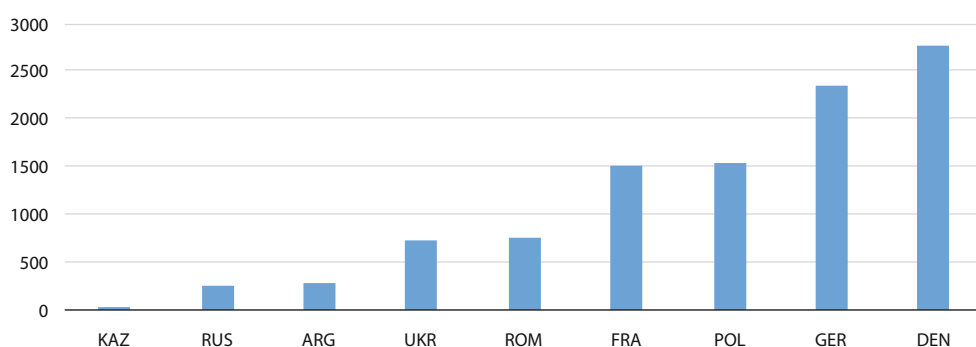


Figure 4 Gross value added of agricultural production per ha of agricultural land (in intl USD)

Source: FAOSTAT

3.3 | Land and access to credit

The demand for credit appears to be considerable in the Ukrainian agricultural sector. According to the quarterly survey of the Ukrainian Central Bank¹⁴, 46.7% of agricultural enterprises expressed a need for external funding in the first quarter of 2018. This value has remained within the range of 40–50% during the last five years and is on average slightly higher when compared to other sectors. Agricultural producers reported that the most important barriers are high interest rates (71.9%), currency instability (30.3%) and overly bureaucratic procedures (29.2%). Surprisingly, too stringent requirements for collateral were not mentioned among the top factors hindering access to credit although this rating is rather volatile from year to year.

14 Quarterly representative survey across the representatives of all economic sectors on the expectations of enterprises for business conditions in the near future. Further information can be found here: https://bank.gov.ua/control/uk/publish/category?cat_id=43096650.

Banks actively seek to cover agricultural producers' demand for credit, but face numerous obstacles. The level of overdue debt in the agricultural sector was 9.5% in 2016¹⁵ (Shlapak, 2017). This is substantially lower than in other sectors, which makes agriculture an attractive investment. Agriculture accounted for only 6.7% of all credits and nearly half of the agricultural enterprises that obtained credits were situated in the Kyiv region. Rural finance experts agree that there is a potential to expand operations but problems with collateral are the most important hindering factor. Most often banks use machinery or harvest as collateral. Both of the options require close monitoring and, as a result, are subject to substantial transaction costs. Furthermore, the potential for double registry in the Cadaster and the Registry of Property Rights of land rental rights creates the possibility for illegal land seizures. Banks are forced to reflect these risks in higher interest rates. As a result, uncertainties generated by vaguely defined property rights in agriculture negatively impact access to credit.

Large export-oriented agricultural enterprises may enjoy access to cheaper foreign credit and, as a result, avoid domestic financing constraints. The expert interviews suggest that short-term financing by collateralizing future harvests is one of the major pillars of the agroholdings' business model. By having access to cheap capital, large farms generate a serious competitive advantage. On the other hand, smaller farms find themselves with very few finance tools.

Non-transparent land relations in Ukraine combined with the moratorium make it nearly impossible within the current conditions to use land as collateral. The share of credits with non-agricultural land as a single collateral was only 0.36% in 2017 and used in combination with other assets it was 8.04% of the whole banking system's credit portfolio (Shlapak, 2017). Banks do not perceive agricultural land as collateral within the current legal environment. The experts interviewed suggest that land is often collateralized not because it has value as collateral, but because it creates a psychological incentivizing effect on the debtor. Despite all the difficulties, Ukrainian banks see a potential in using land as collateral should the framework conditions guaranteeing a liquid land market improve. The experts agree that investment opportunities are underutilized in the agricultural sector and should the situation with respect to property rights improve, the agricultural sector will provide an attractive investment opportunity.

Current land relations system lacks access to quality information about land market transactions that is vital for mortgage lending. Other than a few isolated private initiatives and basic aggregated statistics published by the Cadaster, there is no publically available database. Information on rental and sales prices would drastically improve market participants' decision-making, improve land valuation and, as a result, increase loan to value ratios associated with mortgages. In addition, such a database would make it more difficult to conduct shady transactions involving informal bargaining.

15 Overdue debt level in the trade sector was 22% and in construction it reached 21% in 2017 (Shlapak, 2017).

3.4 | Land and local governance

The Ukrainian system of land relations is undergoing a transformation within a broader framework of decentralization reforms. Launched in 2014, the decentralization reforms aim to transfer more responsibility to the local governments and to equip them with the necessary tools and resources to carry out their duties. This package of reforms involves a wide range of institutions and applies to spheres including healthcare, education, public administration and, naturally, land relations. The core goal of the land reforms is to assist the newly created lowest administrative units to obtain state-owned lands on their balance sheets and receive the freedom to manage them. The process was launched in January 2018 and pertains only to the united territorial communities (UTCs).¹⁶ Reform's aspiration is to make the newly created local governments more effective managers of state-owned land in order to generate vitally needed revenues from land privatization, land rental, and taxes on land. This is expected to help chronically underfunded local authorities within the current vertical public management system (Kvartiuk, 2016). Before the implementation of the decentralization reforms, local governments had been fiscally dependent on higher tiers of the government and had had a very limited set of fundraising tools, which contributed to the dilapidation of rural social infrastructure.

According to the Ukrainian Tax Code, tax on land is one of the few taxes fully retained by local municipalities and has the potential to substantially contribute to their budgets. Local governments can set land tax within the range of 0.3–1% of the normative land valuation within the borders of the municipalities and within 0.3–5% outside the municipalities (Stankus & Krot, 2017). Interestingly, land is only subject to taxation if it is registered in the Cadaster. This creates a clear disincentive for *pai* holders to register their land. However, it generates a strong incentive for local authorities to conduct an inventory of state-owned land and register it in the Cadaster in order to expand their tax base.

There is great need to inventory the lands owned by the UTC, but local governments lack the capacity to carry this out. The Accounts Chamber of Ukraine (2018) estimated that 70% of state-owned lands required inventory. Moreover, the most urgent problem faced by local communities was identified by USAID (2017) as the delineation of the UTC borders, which in turn determines the lands under management of each UTC. It is necessary to note that UTCs are not granted additional resources to conduct inventory and are expected to finance it themselves with the revenue generated by the newly acquired land. International donor organizations are currently very active in providing technical advice on how to improve current land tax collection procedures.

¹⁶ Based on the 2015 law On Voluntary Unions of Territorial Communities, several municipalities can amalgamate and create a new administrative unit (UTC) in order to improve efficiency and achieve economies of scale in public management. So far, some 30% of former rural municipalities have become a part of the 731 newly created UTCs.

3.5 | Reform environment

In order for the agricultural sector to successfully develop, a clear vision for the next several decades is required. The Ukrainian government provides a rather vague image of how it wishes to see agriculture in the future. Nevertheless, the following are evident from the 3+5 Strategy of Prosperous Country: they wish to launch the land market, focus on smallholder farmers, and privatize unprofitable state-owned agricultural enterprises (Ministry of Agriculture of Ukraine, 2016). Although the Strategy outlines the basic direction the reforms should take, it does not provide a comprehensive picture of how Ukrainian society sees the future of the agricultural sector. Moreover, strategic documents tend to change with the coming and going of ministers. These circumstances complicate land reforms due to the lack of clarity surrounding the goals that are to be achieved.

Current discussions predominantly center around the design of the law On Land Circulation, which is still far from being agreed upon. This law is supposed to regulate the infrastructure of the land market. The following aspects are being discussed among the stakeholders:

- Market restrictions (the amount of land that can be owned by one entity, market participants);
- Land market liquidity;
- State vs. rule-based market regulation;
- Decentralization of land management.

Before elaborating on these aspects, it is important to point out that a large majority of private landowners in Ukraine have strong negative attitudes towards lifting the moratorium. Thus, 78% of the landowners interviewed by USAID in 2015 disapproved of lifting the moratorium. The expert interviews suggest that the most widespread fear among *pai* owners is that large agricultural enterprises will buy the majority of the available land at a low price and create agricultural oligarchs similar to those created during the privatization process in the 1990s. Ukrainian political parties, in their attempt to maximize political support from the electorate, also stimulate negative public opinion about land market liberalization. This creates a general atmosphere in which lifting the moratorium on land sales is viewed as a “politically toxic” topic that none of the political parties is likely to address before the elections.¹⁷ Interestingly, most Ukrainian landowners would like to be able to sell their land. This paradoxical sentiment also reflects the low level of awareness among the rural population about the land reforms and their implications. Thus, only 19% of the respondents to the USAID survey reported their level of knowledge about the reform as “normal” or higher.

¹⁷ The next presidential elections are in March 2019 and the next parliamentary elections are scheduled for October 2019.

Land concentration is often perceived as a negative phenomenon and several ownership restrictions have been suggested in order to avoid it. First, some politicians propose ownership caps (a maximum area of land that one person can possess) ranging from 100 ha to 1000 ha. Among the justifications for these restrictions are the traditional amount of land a family can cultivate and/or a cutoff size of land holding above which it becomes more profitable to rent out land than to cultivate it. Second, some stakeholders advocate denying participants endowed with large capital and/or with access to cheap foreign credit access to the land sales market. Accordingly, they propose to restrict the market either permanently or temporarily to either only Ukrainian citizens or to Ukrainian citizens and companies. Typical arguments in favor of these restrictions relate to food security, and the fact that foreigners are widely considered to have superior access to large capital and high interest in Ukrainian land. However, no systematic research attempting to estimate the demand from them has been conducted. To a lesser extent, experts discuss state programs that could stimulate smallholder demand for land (e.g. subsidized credit, etc.).

In order for landowners to be able to properly exercise their property rights, the liquidity of the land sales market must be at a sufficient level. Sufficient liquidity is important for the banks to consider land plots a collateralizable asset. When this condition is fulfilled, smallholders' access to credit may be substantially improved. One important way to stimulate demand for land is to design a consolidation scheme that would bring together fragmented land plots into one plot that would allow for the reasonable operation of economies of scale (Hartvigsen, 2014). All the experts interviewed indicate that existing land fragmentation does not allow potential buyers to assemble an attractive plot of land. Demand for land will depend to a certain extent on whether the future law On Land Circulation will outline a clear consolidation mechanism.

The high probability of misuse in the public domain dramatically complicates reforms and bureaucracy-building. Previous attempts at establishing market-regulating bureaucracies have failed (e.g. the State Land Bank¹⁸). However, there are still discussions about whether such an administrative body could be an effective facilitator of the land market. Because of the previous negative experience, experts appear to be skeptical of bureaucracy-based market regulation and prefer a rule-based free market. Any new bureaucracy-building initiatives can be easily discredited within the current political climate. Even more socially accepted decentralization reforms¹⁹ appear to be more difficult to implement than initially thought because of fear of manipulation at the local level. Although there is consensus that transferring state-owned lands to the local communities will improve land management, there is a danger that local governments will not have the capacity to conduct a proper inventory of available lands. In particular, it is important that local governments have adequate fiscal capacity because there is much to be done to title and register state-owned lands and this may be associated with substantial expenditures.

18 Created in 2012, the State Land Bank was intended to improve access to credit in the agricultural sector and subsequently the management of state-owned lands. However, many of the experts interviewed suggest that the legal mandate allowed for widespread illegal rent extraction.

19 A massive reform currently being implemented by the government involving education, healthcare, tax administration, and other spheres including land relations. The core idea is to transfer public management tasks along with the necessary resources to communities who are believed to be in a better position to satisfy local preferences.

4 \ Scenarios of land market liberalization

4.1 | Framework

The purpose of this section is to conduct an ex ante assessment of the most likely scenarios of land market development in Ukraine. Most evidence-based studies rely on existing data on the implementation of reforms. We attempt to synthesize “state of the art” knowledge of how land markets function and apply it to the debate about land market liberalization in Ukraine. In particular, we want to use existing theoretical and empirical research to forecast rough distributional effects among the major stakeholders in Ukrainian land relations. Each of the scenarios should provide the reader with an idea of what can be expected from the proposed policies: which social goals can be achieved and the implications for economic growth.

The study makes use of a combination of methods: a literature review and qualitative data analysis. During the first stage, we surveyed theoretical and empirical literature on land market liberalization focusing specifically on the post-socialist context. This exercise helped us to prepare for a series of semi-structured interviews with key experts, which took place in the second stage. The expert interviews were conducted in order to embed international academic knowledge into the local context and identify the aspects that were being debated in Ukraine. We attempted to achieve an equal representation of the following stakeholder representatives: large/small agricultural producers, and state/private research institutions and international development agencies. In addition, we aimed to obtain a reasonable representation of the following key aspects of land reforms: economic effects of land distribution, rural finance, and related political issues.²⁰ The semi-structured questionnaires dealt with the society’s perceptions of land reform, with the current land relations system, the existing institutions and the administrative organizations that facilitate land relations, and the experts’ forecasts as to what to expect after liberalization.

With the help of the expert interviews, we identify several probable scenarios of Ukrainian land market liberalization. First, we contrast the status quo to the extreme case of full liberalization without any further restrictions. We then analyze different market restrictions currently debated in Ukraine: land ownership caps and restricting market participants. Furthermore, we provide an overview of the distributional effects if the land sales markets are opened only partially: within pilot regions, or only state-owned or private land is put on the market. Finally, we analyze the economic effects of the diverse institutional arrangements that are expected to facilitate land exchange.

To simplify the analysis, we examine the consequences of each scenario for a selected number of stakeholders: small and large agricultural producers, local governments/communities and land-owners/CLS holders. It is difficult to clearly define small farms in the Ukrainian context because the land holdings of individual farms vary substantially (see [Appendix B](#) for further information). UkrStat has set a cutoff value of 200 ha of utilized area under which farms are confronted with simplified reporting (Deininger et al., 2017). However, according to [Figure 1](#), farms under 200 ha

²⁰ An anonymized list of interviewees is provided in [Appendix C](#).

utilize only a very small area of land, despite being rather numerous. With this fact in mind, we loosely define small farms as smaller than 500 ha, accounting for 72.3% of agricultural producers and 13.3% of cultivated land. These would typically have much simpler accounting procedures and possess minimum agricultural machinery. On the other hand, large farms include individual farms and enterprises that would tend to have greater administrative capacity. Second, it is important to point out that we will focus on the united territorial communities (UTC) that were newly created within the broad decentralization reforms. The reform stipulates that these lowest governmental tiers will obtain state-owned lands on their balance sheets and will be in a position to fully manage them. Finally, CLS holders are the landowners who obtained their *pais* during land distribution as described in the [Section 3](#).

We largely follow the standard assumptions of neoclassical microeconomic theory. In particular, it is assumed that the demand and supply of land are derived functions. In the case of demand, the function is directly linked to the profit function of a producer and expresses the value of agricultural production from an additional unit of land (value of marginal product — VMP_L) keeping all other production inputs constant. In the case of supply and assuming landowners could potentially use the plot for their own purposes, the supply curve represents the owner's opportunity costs. For instance, it could be a foregone return to land for a respective unit of land. The resulting intersection of demand and supply determines the price asked and quantity exchanged in the equilibrium. Any landowner with opportunity costs below the equilibrium price and any buyer with a higher value of marginal product are assumed to extract a benefit consisting of the difference between the equilibrium price and the respective valuation of the specific unit of land. Furthermore, it is assumed that no external effects exist, transactions incur no costs, all actors have the same amount of information and negotiation power can be neglected.

4.2 | **Status quo scenario**

The "status quo" scenario aims to forecast the likely economic distributional effects in the Ukrainian agricultural sector if the policy framework remains unchanged. In particular, we assume that the moratorium stays in effect for an indefinite period, no new law on Land Circulation is adopted and no new administrative bodies are created. Considering the current political climate and the upcoming presidential (early 2019) and parliamentary (late 2019) elections, the moratorium is likely to remain in place until at least 2020. Given the current opposition to the reform among the general population (see [Section 3.5](#)), its implementation would require substantial resources in order to raise public awareness and advocate for the reform. It is unlikely that the government will allocate these resources in the upcoming electoral race.

Within this scenario, we have a demand schedule but no land supply within the land sales market. [Figure 5](#) demonstrates the demand curve that is represented by the marginal product of land (VMP_L). We see that no market equilibrium and consequently economically meaningful prices can form in a situation without land supply. In this situation, any economic value of land can only be based on the land rental market. Sales prices should reflect the discounted future benefits

from using a specific unit of land. On the other hand, rental prices are annual payments and, in the simplest case, neglect any time dimension.

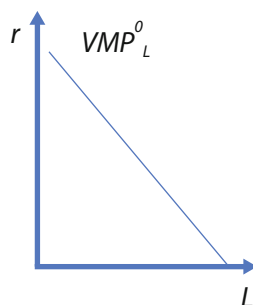


Figure 5 Land Market equilibrium within the status quo (r — price for land; L — quantity of land)

The current system of land relations in Ukraine incentivizes short-term business models with large areas of cultivated land. Despite the recent establishment of a minimal rental contract of seven years, the planning horizon for most agricultural enterprises is too short for vitally needed investments. Up until recently, crop producing agricultural enterprises had been rapidly expanding their cultivated land holdings. Only lately, scholars have begun to observe an intensification of production on available utilized land and a reduction in land expansion among the largest farms that are less credit constrained. In 2012, the average size of a utilized land holding was very large (460 ha) when compared internationally (Deininger et al., 2017). With time, agricultural business has adjusted to uncertain property rights for land. The expert interviews suggest that large enterprises allocate substantial labor for managing rented land in order to maximize tenure security. According to some experts, relatively low land rental prices combined with reasonable transaction costs creates incentives for large enterprises to preserve the status quo. In fact, the experts interviewed state that some agricultural interest groups openly lobby against land market liberalization.

However, the strongest incentives to retain the status quo belong to those agricultural enterprises that cultivate high shares of state-owned land. The expert interviews suggest that accessing state-owned lands via informal bargaining with the authorities is the cheapest option for many farms. Thus, rental contracts for state-owned land (11 years and more) are on average longer compared to those for private land (6–10 years). Although the average rental price in 2015 was higher for state-owned land (1351.6 UAH/ha) than for private land (786 UAH/ha), the expert interviews indicate that the parties often reach an agreement whereby no rent must be paid. There are indications that some officials may give informal consent to use certain state-owned land in exchange for illegal payments (Accounting Chamber of Ukraine, 2018). As a result, we may observe situations where the land is illegally cultivated. Consequently, not only agricultural producers who use unaccounted state-owned lands but also the officials involved are likely to have incentives to preserve the status quo and may actively lobby to this extent.

Based on these theoretical reflections, large Ukrainian agricultural enterprises are likely to continue cultivating annual crops with low demand for additional investments into long-term soil fertility. Short-term business models with strong vertical integration and export orientation may be largely incentivized by the current land relation situation. As presented in Section 3, large agricultural companies have managed to utilize access to relatively cheap land and mitigate risks from uncertain tenancy conditions. In the long run, on the one hand, these competitive advantages are likely to be slightly diminished by rising rental prices caused by higher competition for land that is likely to continue to grow. Depending on the institutional regulations for inheriting *pai* and the behavior of the heirs, on the other hand, the transaction costs of the current rental arrangements could increase even further. However, considering the development of the current rental prices in comparison to the neighboring European countries, land is likely to be a relatively cheap production factor even in the medium-term.

Smaller farmers may have incentives to develop business models that are more suitable to their types of farms, but will have to develop strategies to mitigate uncertain property rights associated with the land they cultivate. Individual farms have been slowly increasing their weight in crop production. Investing into agricultural activities with higher added value on smaller land plots (e.g. livestock or gardens with modern irrigation technologies) may be a rational strategy for farms with scarcer land resources. However, farmers face two major obstacles that each aggravates the other: access to finance and insecurity of land tenancy. Higher value-added agricultural activities usually require more time before the first returns are reaped and exceed upfront investments. Land rental, even with the currently regulated minimum term of seven years, cannot ensure the security of the necessary investments. These investments, in turn, are often impossible without access to credit, which is highly dependent on reliable collateral. As a result, and in accordance with the expert interviews, small farmers find themselves forced to focus on short-term business models (e.g. annual crops with low value added) with no possibility to invest in the cultivation of crops with higher returns.

Access to credit for small agricultural enterprises is likely to continue to be low in the absence of active interventions in the financial markets. Problems with collateral are of central importance for the banks who are otherwise interested in working with agricultural producers. The moratorium on land sales reduces the amount of potential collateral farmers have and, as a result, reduces the likelihood of them obtaining credit. However, lifting the moratorium is unlikely to completely solve the problem. International experience indicates that access to credit may require direct interventions in financial markets, e.g. subsidized credit programs (Boucher et al., 2005).

CLS holders are likely to continue to experience welfare losses under the status quo scenario. The prohibition of land sales deprives landowners of an important element of their property rights and, as a result, hinders the development of the land market. This key restriction takes important assets away from the most vulnerable part of the rural population, further locking them in poverty traps. For every year that the moratorium is in place, *pai* owners will incur welfare losses²¹

21 In microeconomic theory, the difference between the willingness to pay for one unit of land and the actual price to be paid represents a welfare surplus. Here, we call this buyers' surplus (BS). Similarly, the difference between the price land owners receive for one unit of land and their willingness to accept it is termed here landowners' surplus (LS).

whereas tenants will continue to benefit from access to artificially undervalued land. The reason for this is related to artificially lower rental prices compared to prices that are determined by market forces based on a net present value of the land. In other words, rental prices should reflect expected returns from land or its contribution to the value of agricultural products generated (Just & Miranowski, 1993), but current legislation has artificially set a minimum rental price of 1% of the normative land valuation. Even though in practice rent may reach 7–8%, it is still far below the marginal contribution of land, which some interviewed experts estimate as high as 50%. On the other hand, normative land valuation does not reflect the economic value of land. Experts' projections of land sales prices range from 2000 to 6000 USD/ha depending on future market restrictions and other plot characteristics. They are considerably higher in comparison to the current shadow prices of around 2000 USD/ha according to the experts' valuations, or compared to the average normative land valuation of 1182 USD/ha (Cadastre, 2016). As a result, the moratorium denies access to sizable assets that could otherwise be available if the land sales market was in place.

4.3 | Full liberalization

The aim of the “full liberalization” scenario is to describe the distributional effects should the most liberal version of the reform be adopted. This scenario stipulates that the moratorium is lifted and the law On Land Circulation contains no restrictions for land transactions. In addition, we assume that no new regulating bodies are created and that the newly adopted law facilitates the land market. We further assume that state land is transferred to the UTCs within the scope of the current decentralization reforms. In particular, the UTCs are the managers of the newly obtained land and have the power to make decisions related to the sale and rent of their newly acquired property. This scenario assumes that the Cadaster provides sufficient infrastructure for land transactions that generates adequate information on land prices. This scenario stands in stark contrast to the “status quo” situation described in the previous section and serves as another benchmark for contrast with the scenarios where land markets are more regulated.

Figure 6 schematically demonstrates the welfare economic effects within this scenario. With full liberalization, a supply curve (S) emerges representing landowners' willingness to sell their land depending on the price. The intersection of the demand and supply curves uniquely identifies an equilibrium price r_0^* (left-hand side) and the amount of land L_0 transacted (left-hand side). Here we assume that no agricultural producer has substantial market power to affect prices. In the long-term, we expect farmers to change their land use and switch to higher value crops or expect higher yields due to investments in soil fertility or technology. This will lead to an outward shift of the demand curve, representing greater marginal product of land. The new demand curve VMP'_L (on the right-hand side of Figure 6) represents this effect. Assuming all other factors remain constant, the equilibrium land price will increase from r_0 to r_1^* and more land will be transferred (L_2). Both agricultural producers and CLS holders will benefit from liberalization in the short- and

long-run as shown by the areas of BS and LS respectively.²² Because the size of the areas is determined by the slope and intersections of the supply and demand curves, a quantification of the surplus measures is only possible with clear empirical data.

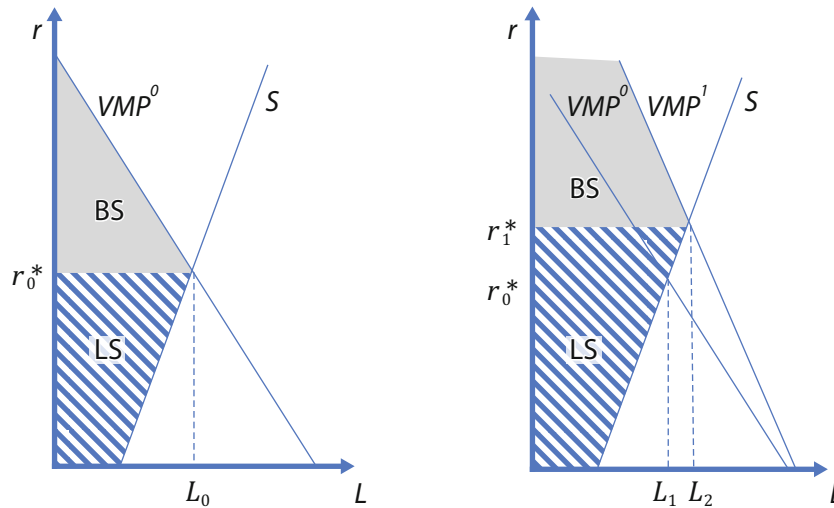


Figure 6 Immediate (left) and secondary (right) effects of the “full liberalization” scenario

With the ability to sell agricultural land, we expect an initial burst of market activity in the short-run. The experts interviewed suggest that this period may last an initial 3–5 years. Land will be predominantly supplied by the CLS holders and allocated from the state-owned land bank. According to the results of the 2015 USAID survey of CLS holders, 12% of the respondents considered selling all or part of their land should the opportunity arise. Interestingly, 5% had already made preliminary agreements with potential buyers. Demand will be generated by agricultural enterprises, individual farms and non-agricultural speculators (depending on whether it will be legally allowed). Results of the 2015 USAID survey suggest that 2% of individual farmers were planning to purchase land. It is much more difficult to quantify the demand from agricultural enterprises because no systematic surveys have been conducted. The demand from the small and medium agricultural enterprises will largely depend on the domestic situation concerning access to reasonably priced credit. Thus, in the short-run, these producers may experience larger capital constraints when purchasing land. Larger agricultural enterprises may have access to foreign financial markets and could potentially afford to buy more land. The expert interviews, however, suggest that large farms with short-term business models are not likely to be interested in buying a lot of land. However, evaluations of the demand from large farms differ substantially: from 3% to 50% of the land currently under operation. Another uncertainty relates to the supply of state-owned land. It depends on the length of rental agreements in place and political decisions as to how to implement the privatization procedure. Finally, speculative demand is likely to be high should the general economic situation allow at least moderate savings rates. Since the gross

²² Assuming further that the difference between the willingness to pay/to accept and the equilibrium price represents a benefit to both buyer and seller, the area between the demand curve and the equilibrium price captures the buyers' surplus (BS) and the area below the equilibrium price and above the supply curve captures the landowners' surplus (LS).

savings rate has been growing over the last several years,²³ it is reasonable to expect that speculative demand for land will be substantial. Speculative land purchasing may contribute to land market clearing and stabilization, but the initial transition period may be vulnerable to bubbles. However, it is likely that even in the most liberal scenario speculative demand will be regulated, at least to some extent.

After the initial adjustment, the Ukrainian land market is expected to have moderate land turnover. Considering a sizable supply and demand for agricultural land, it is reasonable to expect the market to clear and gradually transition to the moderate levels of land market volumes seen in the European countries. A similar situation was observed in the Eastern European countries when, after EU accession, demand from foreign investors drove prices up and temporarily intensified land market activity. However, after several years, market turnover approached a range of 1% to 3% depending on the country (Easybusiness, 2016). There are no reasons to expect a different scenario for Ukraine.

CLS holders, together with the local governments managing state-owned land, are likely to benefit the most from full liberalization. This scenario implies that the land market will be open for all potential market participants and contain minimum quantity ownership restrictions. This will generate demand that will not be legally restricted. As a result, higher demand will exert upward pressure on land prices generating additional surplus for landowners. In welfare terms, this means that *pai* holders will be the biggest winners of the most liberal scenario focusing on direct effects only. First, the value of the land assets they hold will substantially appreciate (most of the experts' expectations for post-reform land prices range from 2000 to 5000 USD/ha). Second, land appreciation will inevitably lead to increasing rental prices, directly affecting the *pai* holders who decide not to sell but rent their land.

Agricultural producers working on rented land are likely to incur long-term welfare losses within the most liberal scenario due to higher land rental prices. Introducing the opportunity to buy land is likely to increase its price and, as a result, rental prices are likely to rise. Farms with low returns per ha are likely to reduce their demand for rented land and will be less likely to buy it. An additional short-term loss expected for small credit-constrained farms is the lack of capital due to purchased land. However, the ability to buy land will also bring positive effects for agricultural producers. First, buying land increases long-term tenure security and should enable farms to reduce expenditures for the administration of land holdings. Second, when the land belongs to them, producers will have more incentives to switch to land uses that generate a higher value of marginal product per ha and/or improve long-term soil fertility. However, this process is likely to take some time since producers may need to overcome initial capital constraints related to land purchases. Because of the rigidity of the rental contracts, agricultural producers are likely to continue maintaining large shares of rented land within their land holding portfolios. The experts interviewed suggest that the losses incurred due to the increased land rental expenditures are expected to be substantially higher than the gains from land purchases. Additionally, the benefits of land purchase might stretch over a much longer period than the costs of land rent.

23 According to the World Bank's World Development Indicators, it went from 0.76% in 2012 to 17.45% in 2016.

Individual farmers and small agricultural enterprises are expected to benefit from the improved access to credit. Over time, land appreciation should improve its collateralizability as an asset and, as a result, increase the likelihood of undercapitalized farmers accessing finance. In turn, better access to credit will increase the likelihood of land transfers to more productive farmers who otherwise could not afford expanding their land banks. As a result, the sector's aggregate productivity should increase. In addition, improved access to finance will increase the demand for land in the long-run, further increasing purchase and rental prices. Consequently, landowners' gains are likely to further grow, whereas landless producers will incur larger losses due to increased rental prices.

The clear net gainers within the full liberalization scenario are the rural communities that suffer from chronic underfunding in the Ukrainian context. The effect is twofold: First, appreciated land is expected to provide strong incentives to the UTCs to improve state-owned land management. In particular, they should be more motivated to invest in the inventory and registration of the state-owned land that they have newly acquired on their balance sheets. Having a better overview and clarification of property rights should substantially increase local governments' land rental and sales revenues. These operations have the potential to generate substantial funds vital for funding the development of local social infrastructure. Second, strong incentives to clarify property rights, combined with a liberal land market, will improve land tax collection. As a consequence, rural communities' revenues should further increase.

In sum, full land market liberalization is likely to bring large gains for the overall economy. In the absence of quantitative data, we estimate the size of the effects based on welfare economic considerations and the qualitative data from the expert interviews. [Table 1](#) provides an overview of the major gains and losses felt by the key stakeholders. It becomes evident that the most liberal scenario is associated with large benefits for the most vulnerable groups: CLS holders and rural communities. In addition to the increased value of land assets and rental revenues, *pai* holders who do not sell their land are likely to enjoy improvements in access to credit in the long-run. However, considering the substantial imperfections of the Ukrainian financial markets as well as the lack of financial and legal education of the rural population, additional policies may be required in order to directly stimulate financial markets and enable *pai* holders to reap the benefits of the increased value of their assets. In the absence of these and considering the disadvantages they face in accessing credit, compared to larger farms, small farms may incur moderate losses because of the foregone opportunities to buy desired land in the short-run. In addition, they may experience short-run capitalization challenges because of purchased land. Large agricultural lessees are likely to incur substantial losses because the expenditures on increased land rental prices are likely to be substantially larger than the gains from the ability to purchase land and re-orient towards the production of higher-value crops requiring longer planning horizons. The losses of smaller farms that rent substantial shares of their land banks are expected to be smaller due to their flexibility in the short-run. Finally, rural communities are expected to gain substantially. Although they will incur short-term losses due to expenditures on land inventory and registration, the gains from increased tax and privatization revenues will dominate.

Table 1 Overview of welfare effects of the key stakeholders

Stakeholder	Gains	Losses	Net effect
CLS holders	<p><i>Short- and long-run:</i></p> <ul style="list-style-type: none"> Increased land value due to land market launch <p><i>Long-run effects:</i></p> <ul style="list-style-type: none"> Increased revenues from land rental Improved access to credit 	None	<p><i>Short-run:</i></p> <p>++ (Moderate gains)</p> <p><i>Long-run:</i></p> <p>+++ (Large gains)</p>
Small agricultural producers/lessees	<p><i>Short- and long-run:</i></p> <ul style="list-style-type: none"> Gains from purchased land Longer planning horizon <p><i>Long-run:</i></p> <ul style="list-style-type: none"> Improved access to mortgage lending 	<p><i>Short-run:</i></p> <ul style="list-style-type: none"> Foregone land purchases due to undercapitalization Lack of capital due to purchased land <p><i>Long-run:</i></p> <ul style="list-style-type: none"> Higher expenditures on land rental 	<p><i>Short-run:</i></p> <p>- (Marginal losses)</p> <p><i>Long-run:</i></p> <p>- (Marginal losses)</p>
Large agricultural producers/lessees	<p><i>Short- and long-run:</i></p> <ul style="list-style-type: none"> Gains from purchased land Longer planning horizon Reduced transaction costs of land management 	<p><i>Short-run:</i></p> <ul style="list-style-type: none"> None <p><i>Long-run:</i></p> <ul style="list-style-type: none"> Higher expenditures on land rental 	<p><i>Short-run:</i></p> <p>None</p> <p><i>Long-run:</i></p> <p>-- (Moderate losses)</p>
Rural communities/ local governments	<p><i>Short- and long-run:</i></p> <ul style="list-style-type: none"> Revenues from privatization/ land rental <p><i>Long-run:</i></p> <ul style="list-style-type: none"> Increased land tax revenues More transparent local land relations 	<p><i>Short-run:</i></p> <ul style="list-style-type: none"> Expenditures on land inventory and registration <p><i>Long-run:</i></p> <ul style="list-style-type: none"> Expenditures on state land management 	<p><i>Short-run:</i></p> <p>-- (Moderate losses)</p> <p><i>Long-run:</i></p> <p>+++ (Large gains)</p>

Note: Appendix D presents the literature and hypothesized magnitude of each of the effects within the scenario.
Source: Authors' elaboration

4.4 | Full liberalization with restrictions

Despite the apparent economic gains the full liberalization scenario presents, a number of political and state security considerations may require certain restrictions on a free land market. First, the most discussed issue in this context is the danger of excessive land concentration, which consequently may require ownership restrictions. Second, the access of foreigners to the Ukrainian land market is at the center of the current public debate. Third, addressing excessive land fragmentation may require interventions in land transactions to facilitate land consolidation. Finally, the process of liberalization, together with the capacity building of the implementing organizations, requires special attention in order to achieve convergence between theoretical assumptions and conditions in reality. This and the following subsections will deal with these aspects and discuss the effects of restrictions compared to the full liberalization scenario. More specifically, the scenarios look at ownership caps (a), restricted access for some market participants (b), and partial liberalization steps (Section 4.5).

A land market and its governing institutions should be designed based on the society's vision of the agricultural sector and the development of the rural areas over the next decades. In Ukraine, such a vision is rather vague because none of the governmental institutions provides a comprehensive development strategy. The MoA's 3+5 Strategy of Prosperous Country covers only some aspects. In the absence of such a benchmark, we focus on the most discussed policies.

a. Ownership caps

Because land concentration and speculation are frequently considered a negative phenomenon, regulators often introduce additional restrictions governing land sales. First, many countries try to avoid the domination of large farms because, just like in other sectors, competition may be hindered and, as a result, the sector's growth may slow down. Another concern is that unhealthy land concentration may create a class of landowners who are not interested in working in agriculture but rather prefer to obtain economic rents from land rental. In particular, there may be a cutoff size of landholding above which landowners lose the incentive to work the land and can live off the rent they receive. Moreover, land could be seen as a way of wealth accumulation and speculation. Many countries address these issues by introducing limits on the amount of land that can be owned by one entity. The aspiration is that these limits will restrict land accumulation, preventing the creation of mega-farms and hindering large speculative manipulations. In addition, most countries introduce certain requirements for newly acquired land in order to prevent speculative land transactions. Some examples of these measures include requirements for cultivation and maintenance (e.g. Denmark, Germany, Belgium), requirements for the qualification of buyers (e.g. Poland, Lithuania, Romania, Sweden) or preemptive purchase rights (e.g. Latvia, Austria, Portugal, Poland).

Land purchasing restrictions are at the center of the debate on the design of the Ukrainian land market. Suggested restriction range from 50 ha to 1000 ha. According to some of the experts interviewed, estimations of the cutoff values of land holdings beyond which individual landowners lose the incentive to work the land themselves lie between 70 ha and 100 ha. In addition, some drafts of the law On Land Circulation proposed steep taxes in the case of land resales within a certain period after the initial purchase (e.g. Draft Law 5535-1 from 28.12.2016). Other initiatives call for the creation of local councils that would approve each land transaction. For the state-owned land, some experts interviewed suggest capping yearly volumes of privatized land. However, no concrete proposals related to the limits have been voiced so far.

Land ownership caps can have different effects depending on their size (Figure 7). It is assumed that binding restrictions for individual buyers in a given region can be horizontally added and restrictions do not affect production technologies. If the (sum of) restrictions is greater than the amount of land demanded in the equilibrium ($C' > C_0$), it will affect the equilibrium price and quantity exchanged. Such a situation might occur if the supply of land in a given region is limited (S rather close to the origin), caps rather high and/or the population of potential buyers is quite heterogeneous with few farmers demanding land up to the cap and many others requesting smaller amounts. It is important to note that administrative costs and other possible negative consequences of such a restriction are not captured by the graph. However, if the ownership cap

is located to the left of the current equilibrium (C''), the price will drop compared to the full liberalization scenario to $r_{C''}^*$. Short- and long-run distributional consequences could be substantial. Landowners' surplus (shaded area LS) drops compared to the full liberalization scenario. Part of it will be redistributed to the land buyers — agricultural producers (area BS). Furthermore, any increase in the value of the marginal product of land will exclusively benefit the producers as only the upper part of the constrained demand function could shift (not shown in the graph). Thus, a regionally binding quantitative restriction of the amount of land will have direct negative implications for the landowners.

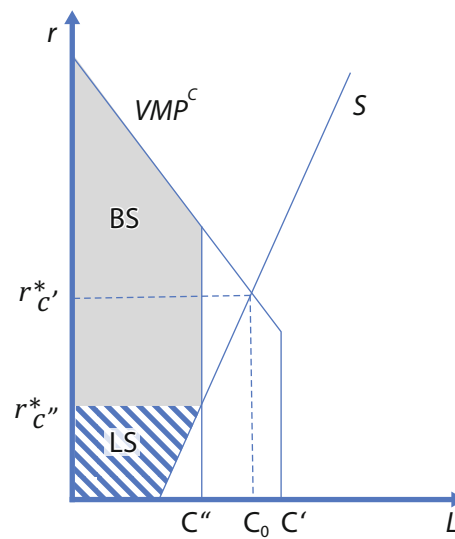


Figure 7 Effects of land ownership caps

If the restrictions are sufficiently small, it may take substantially longer to clear the market and reach the moderate land turnovers that we observe in European countries. The over-supply of land will negatively affect the sales prices, reducing rental prices and, consequently, the welfare of the landowners and local communities. Obviously, smaller landholding caps will cut the demand to a larger extent and push prices down. Compared to a scenario without restrictions, this will increase the welfare losses of the landowners and local communities as well as reduce the overall gains the economy would receive from lifting the moratorium. As a result, we may have a policy-tradeoff between reducing land concentration and counteracting speculation on the one hand and limiting welfare transfers from current landowners to buyers on the other.

This tradeoff may be further complicated by the indirect long-run effects on access to credit. First, the reduced value of land limit this asset's collateralizability. Second, limited demand will negatively affect the land market's liquidity, creating more potential transaction costs for the banks to sell foreclosed land. As a result, banks are likely to be forced to reduce loan-to-value ratios in order to cover transaction costs.

Due to the high opportunity costs, property rights restrictions must be able to be justified. Since welfare losses caused by the capped demand may be substantial, it is imperative to make sure that the restrictions achieve their purpose. In the long-run, it remains likely that market participants will develop strategies to circumvent these restrictions: e.g. by establishing subsidiaries or acting via sham actors. Furthermore, the corporate structure of the large Ukrainian agricultural farms is in the form of a collection of small enterprises. Small subsidiaries may well be under potential ownership caps, circumventing legal restrictions. Consequently, these initiatives should be clearly defined by the legislation and directly relate to the real situation on the ground. If they do not achieve their purpose, then the agricultural sector will be left with substantial economic losses without having obtained any desired achievements in land distribution.

Alternative policies that could achieve more equal land distribution with fewer welfare losses may focus on empowering disadvantaged market participants. The stimulation of demand on the part of smaller farms (e.g. access to credit, subsidy programs, financial education campaigns, etc.) may increase competition for land and reduce the dangers of excessive land concentration. A high degree of transparency will allow market participants to make informed choices and prevent the abuse of market power due to information asymmetry.²⁴

b. Restricting market participants

Some countries see excessive ownership of land by foreigners or by legal entities as an unwanted phenomenon. The reason competition for land may be biased towards certain market participants is that market participants may have different access to capital. Legal entities and foreigners are often believed to have superior access to finance compared to undercapitalized rural inhabitants and small farmers. The fear is that they will purchase disproportionately large shares of land, skewing overall land distribution. In addition, land ownership by foreigners is broadly associated with national security concerns. Consequently, we can observe numerous initiatives to eliminate certain market participants either long-term or only for the initial period of market adjustment. In particular, suggestions offer eliminating either both legal entities and foreigners from the Ukrainian land sales market, or only foreigners.

Excluding certain market participants will reduce the demand for land (Figure 8). The demand curve will shift leftwards, resulting in a new lower equilibrium price r_1^* . Considering the differences in access to financial markets between the Ukrainian citizens, and legal entities or foreigners, along with the resulting difference in purchasing power, the expected reductions in demand are large. Because of lower prices for land ($L_1 < L_0$), landowners and local communities will incur welfare losses, similar to the case described in the previous subsection. Both, landowners' (LS) and buyers' (BS) surpluses will diminish. As a result, total gains will be smaller when compared to the "full liberalization" scenario (left-panel). Whether the reduction of buyers' surplus will be larger relative to the reduction in landowners' surplus depends on the slopes of the two functions. As a result, we can observe a similar tradeoff between the policy goals of "healthy" land allocations and economic welfare gains.

²⁴ For instance, in the Netherlands it is possible to receive from the cadastral office price quotations of housing transactions over the last five years in the proximity of a certain house.

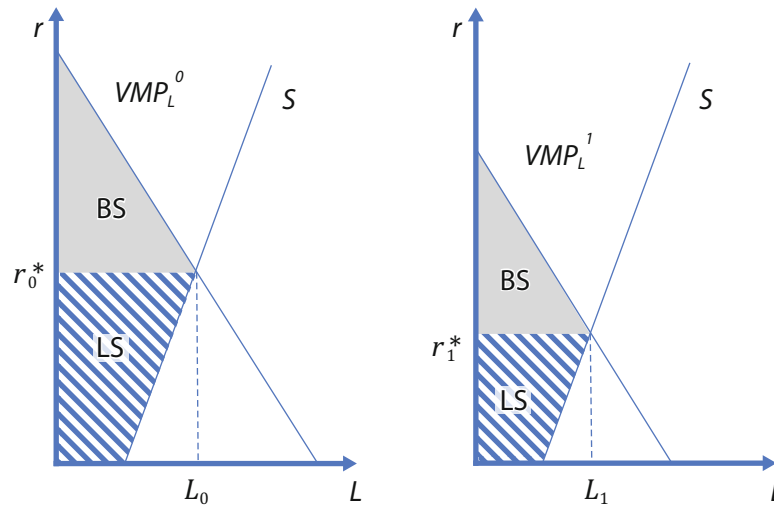


Figure 8 Effects of restricting land sales market participants (left-panel: full liberalization, right-panel: restricted access for buyers)

Short-run land market adjustment is likely to be considerably slower due to the smaller volume of traded land. Large land acquisitions by well-endowed market participants are likely to occur during the market adjustment period. Considering the substantial supply accumulated over the time of having the moratorium in place, major land transfers are expected to happen throughout the market adjustment period. Consequently, skewed land allocations could be avoided if the exclusion of certain market participants only takes place during the initial period.

The existing experience with the access of foreign entities to the Ukrainian land market should be analyzed in order to develop effective exclusion tools if there is a political will to implement them. As was explained in Section 3, foreign companies may have de facto property claims to Ukrainian agricultural land even with the moratorium in place. Should the government decide to use these tools and forego economic welfare for the sake of desirable land distribution, the legislation should not leave loopholes. Otherwise, these restrictions could be perceived as a redistribution tool.

When attempting to achieve long-run reasonably equal land distribution, as is the case with ownership caps, it makes more sense economically to empower disadvantaged market participants and enable them to compete for land more effectively. For instance, affordable credit would increase the demand from Ukrainian citizens, making them more competitive in acquiring land. This would avoid the negative pressure on land prices associated with restricting participants, and the consequent welfare losses.

To sum up, Table 2 provides an overview of the net effects of both types of restrictions: ownership caps and limiting the number of market participants. With respect to the baseline scenario of full liberalization, both policies have very similar effects: they will generate moderate losses for the

landowners and local governments due to lower land prices. Large agricultural producers will moderately gain because of lower land rental expenditures and small producers will be slightly disadvantaged due to the worsened access to credit in light of lower land prices. The welfare of both large and small producers will be reduced due to foregone opportunities to buy land. As in the case of full liberalization, it is difficult to predict the net effects without adequate data. Nevertheless, we attempt to predict the resulting effects, considering the theoretical sizes of the gains and losses for each stakeholder.

Table 2 Overview of distributional effects with full liberalization as a baseline

Stakeholder	Gains	Losses	Net effect
CLS holders	<i>Short- and long-run:</i> • None	<i>Short- and long-run:</i> • Lower revenues from land rental/sales	<i>Short- and long-run:</i> -- (Moderate losses)
Small agricultural producers/lessees	<i>Short- and long-run:</i> • Lower expenditures on land rental/purchase	<i>Short-run:</i> • Foregone opportunities to purchase land <i>Long-run:</i> • Reduced access to credit due to lower land prices • Foregone opportunities to purchase land	<i>Short-run:</i> ++ (Moderate gains) <i>Long-run:</i> + (Marginal gains)
Large agricultural producers/lessees	<i>Short- and long-run:</i> • Lower expenditures on land rental/purchase	<i>Short-run:</i> • Foregone opportunities to purchase land <i>Long-run:</i> • Foregone opportunities to purchase land	<i>Short- and long-run:</i> ++ (Moderate gains)
Rural communities/ local governments	<i>Short- and long-run:</i> • None	<i>Short- and long-run:</i> • Lower revenues from land sales and rental	<i>Short- and long-run:</i> -- (Moderate losses)

Note: Appendix D presents the literature and hypothesized magnitude of each of the effects within the scenario. Source: Authors' elaboration

4.5 | Partial liberalization

Due to the specificity of the Ukrainian institutional context, some experts suggest conducting pilot projects in order to closely monitor how the land market responds to the facilitating conditions. In particular, there are reform proposals that suggest that only part of the land be put on the market for a certain period. Step-wise reform implementation is often justified by the opportunity to learn from the mistakes of each step.

a. Pilot regions only

Conducting pilot projects has become a rather common procedure for numerous reforms in Ukraine. Piloting the land sales market is not an exception: There are suggestions to choose one or several pilot regions where liberal land relations could be tested. As such, only a small part of land, limited by geographical boundaries, would be made available for purchase by an unlimited number of market participants (without consideration of other possible market restrictions). During this pilot period, potential buyers from all over Ukraine would be able to compete for a scarce supply of land, driving prices up. However, it is rational to assume that after opening up the rest of the regions and putting the rest of the land on the market, prices would definitely drop due to increased land supply. Many potential investors would have precisely these expectations and would rationally wait until the market is fully opened. Consequently, the supply and demand schedules within the pilot regions will not be representative of the land market at country-level. Another problem is related to the selection of the pilot regions. Because Ukraine is rather diverse in terms of soil qualities and *pai* sizes, it would be very difficult to choose representative regions. As a result, piloting would not allow us to learn much about how the country-level market would function because we cannot meaningfully extrapolate experience from a particular region.

If the demand for land is limited by the geographical boundaries of a pilot region as opposed to the whole of Ukraine, we can learn more from such an experiment. In particular, assuming that legal entities and foreigners are banned from the market, and the market is open only to citizens registered within the region, such a design (although perhaps difficult to implement in practice) could provide us with some useful information about how facilitating institutions manage with their new tasks. However, even this experiment will generate non-representative market information because of uneven inter-regional demand schedules. It would be a very difficult task to predict country-level market development based on the experience of one or two pilot regions.

Figure 9 demonstrates land market equilibrium in two hypothetical regions: one with more fertile soil (left) and another with less fertile soil (right). In both cases, the demand and supply curves are shifted leftward with respect to the “full liberalization” scenario (not shown in the Figure). This reflects the fact that both supply and demand are limited by geographical boundaries. In the regions with bad soil quality, the marginal productivity of the land is lower and, as a result, the demand curve is shifted downward (because there is less aggregate demand for land) and the supply curve, rightward (because land is likely to be used for non-agricultural purposes). This results in lower land turnover and lower equilibrium prices ($r_1^* < r_0^*$). As we can see, each of the regions may have a unique equilibrium. This makes it very difficult to make inferences for the whole country.

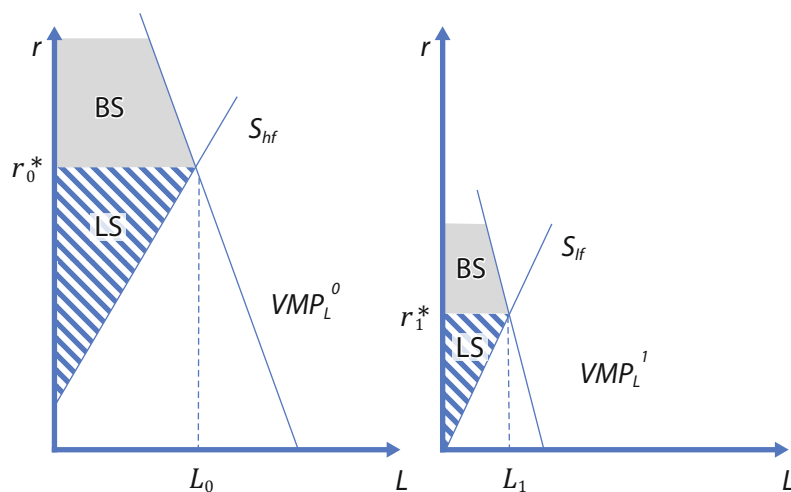


Figure 9 Equilibriums in pilot regions with good (left) and bad (right) soil qualities

b. State-owned land only

A related discussion is centered around first lifting the moratorium for the sale of state-owned land. The rationale behind this is to closely monitor and establish facilitating administrative bodies and use the experience for further steps of liberalization, i.e. opening the market for the rest of the landowners. During the period of privatization, further sales of land are likely to be prohibited because of the exclusion of the CLS holders. The privatization of 105 million ha of state-owned land could give a sense of how effective newly introduced electronic auctions are or how the transaction database functions. In theory, this would prepare the ground for full liberalization.

Limiting land sales to only state-owned land reduces land supply by 75.4% — the share of privately-owned land. In other words, this initiative puts roughly one quarter of all (potentially) available lands on the market. Keeping in mind full liberalization as a base scenario, we would expect higher prices for available land due to limited supply. The right-hand side of Figure 10 shows an inelastic supply curve because the amount of land to be privatized is fixed and the government does not have the opportunity costs of otherwise using the land. Auctioning land will allow the state to maximize its revenues from land sales (area LS). Due to a much lower supply ($S_1 > S_0$), prices for land ($r_1^* > r_0^*$) will be higher compared to the reference scenario (full liberalization). Obviously, the static presentation neglects quality differences in land across the country. However, for any given quality, prices are still expected to be higher if the available quantity is reduced. The decentralized institutional design of the privatization of state land may better address the regional land heterogeneity of land values and, as a result, may generate prices that are more in line with the market value of the land (see Section 4.6.b for further discussion).

Table 3 provides an overview of the distributional effects of this policy scenario with “full liberalization” as a reference scenario. Those clearly disadvantaged by such a policy are the *pai* holders because they will not be able to sell land or, in the long-run, use it as collateral while sales of

state-owned land are allowed. Moreover, rental prices are unlikely to be different from the “status quo scenario” because two thirds of land still cannot be transferred and fails to obtain full economic value. On the other hand, large agricultural producers with better access to finance will be the net beneficiaries of such a policy because they will gain from the opportunity to purchase land and will not incur losses due to rental price hikes as in the baseline “full liberalization scenario”. In other words, they could optimize their land bank portfolios without incurring substantial losses due to land appreciation. Depending on their access to capital, small family farms may be excluded from the land market as potential buyers. Similarly, they will not be able to use their owned land as collateral. If privatization is carried out in a decentralized way via the UTCs, local governments may be able to increase their privatization revenues due to higher sales prices in comparison to “full liberalization”. Moreover, since it is likely that the UTCs will adapt the privatization process to local peculiarities guided by existing legislation (e.g. decide how much land to put on the market), the supply may be more elastic in comparison to a static perspective where all land is sold at the same time. However, local governments are likely to incur losses due to comparatively lower rental prices and lower incentives for the CLS holders to pay land taxes. Nevertheless, the Ukrainian government would have to develop a legal framework defining the property rights of privatized land plots for buyers. In the extreme case, should it be subject to a sales moratorium, the value of the land and willingness to buy are likely to be substantially reduced. On the other hand, allowing new landowners to trade acquired former state-owned land would introduce a substantial discriminatory factor among the actors on the land market.

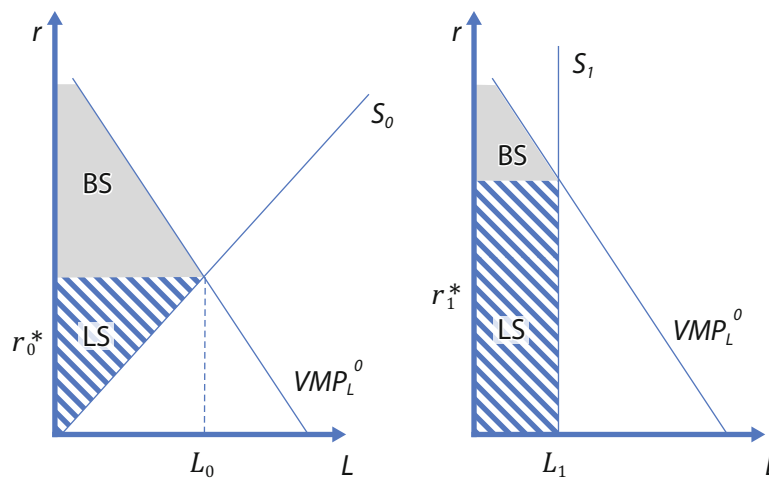


Figure 10 Effects of putting on the market state-owned land only (right) with respect to “full liberalization” scenario (left)

Table 3 Overview of gainers and losers with full liberalization as a reference scenario

Stakeholder	Gains	Losses	Net effect
CLS holders	<i>Short-run:</i> <ul style="list-style-type: none"> • None <i>Long-run:</i> <ul style="list-style-type: none"> • None 	<i>Short- and long-run:</i> <ul style="list-style-type: none"> • Lower revenues from land rental/sales • Foregone benefits from collateralizability 	<i>Short- and long-run:</i> - - - (Large losses)
Small agricultural producers/lessees	<i>Short- and long-run:</i> <ul style="list-style-type: none"> • Lower expenditures on land rental 	<i>Short-run:</i> <ul style="list-style-type: none"> • Foregone opportunities to purchase land (if credit constrained) <i>Long-run:</i> <ul style="list-style-type: none"> • Foregone opportunities to purchase land • Reduced access to credit due to lack of collateralizability 	<i>Short- and long-run:</i> + (Marginal gains) but depends on credit constraints
Large agricultural producers/lessees	<i>Short- and long-run:</i> <ul style="list-style-type: none"> • Lower expenditures on land rental • Exclusive access to land 	<i>Short- and long-run:</i> <ul style="list-style-type: none"> • Foregone opportunities to buy land 	<i>Short- and long-run:</i> ++ (Moderate gains)
Rural communities/ local governments	<i>Short-run:</i> <ul style="list-style-type: none"> • Higher prices for land to be privatized <i>Long-run:</i> <ul style="list-style-type: none"> • Higher prices for land to be privatized 	<i>Short- and long-run:</i> <ul style="list-style-type: none"> • Lower rental prices for state land • Foregone land tax revenues 	<i>Short- and long-run:</i> - - (Moderate losses)

Note: Appendix D presents the literature and hypothesized magnitude of each of the effects within the scenario.
 Source: Authors' elaboration

c. CLS land only

A further set of existing initiatives relates to opening the land market to only the *pai* holders. The rationale behind this is that state-owned land privatization is often considered to be ridden with the dangers of misuse and corruption. The aspiration is that market-facilitating institutions will obtain the necessary experience for the consequent privatization process. We assume that state-owned land remains off the market while this policy is in place.

This policy will put up to three quarters of agricultural land on the market. Figure 11 demonstrates the resulting effects. In comparison to the “full liberalization scenario” (left), land supply will be smaller, shifting the supply curve leftwards. This may put upward pressure on land prices in comparison to the “full liberalization” scenario. Both landowners’ and producers’ surpluses are likely to be smaller, resulting in smaller gains for the economy. Consequently, land rental prices should go up as well. This may incentivize land users to revert to potentially cheaper state-owned lands that may be prone to informal rent. As a result, the likelihood of informal access to the lands under sales prohibition may increase.

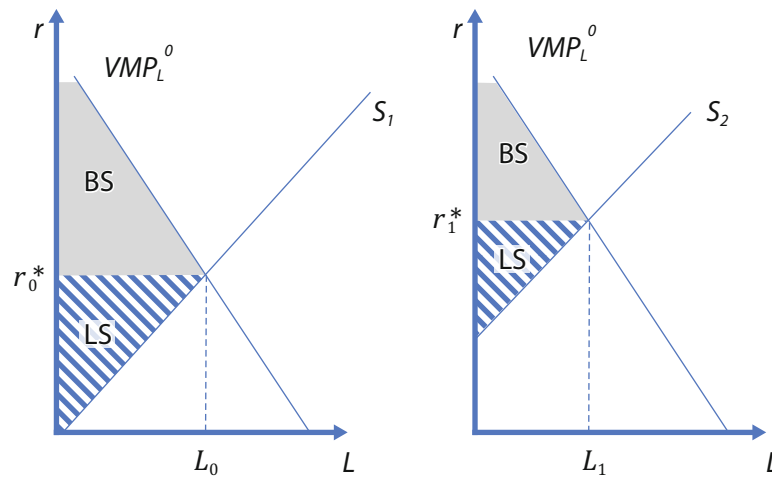


Figure 11 Effects of putting only CLS land on the market (right) with respect to the “full liberalization” scenario (left)

Table 4 provides an overview of the distributional effects with respect to the baseline “full liberalization” scenario. Because of higher land prices, CLS holders will be the net beneficiaries of this policy due to the appreciation of their land assets and increased rental payments. On the contrary, land users are likely to incur small losses because of the same reasons. Larger agricultural producers are likely to incur larger losses because they are likely to continue renting large shares of operational land. Furthermore, rural communities will be the most disadvantaged by the “CLS land only” scenario because they will not be able to benefit from the revenues generated through land privatization. The scale of these losses is likely to be large because privatization will not be possible. This may negatively affect the provision of rural public goods, indirectly affecting millions of CLS holders residing in rural areas.

Table 4 Distributional effects of “CLS land only” scenario relative to full liberalization

Stakeholder	Gains	Losses	Net effect
CLS holders	<i>Short- and long-run:</i> <ul style="list-style-type: none"> Higher revenues from land sales and rental <i>Long-run:</i> <ul style="list-style-type: none"> Better land collateralizability 	None	<i>Short-run:</i> + (Marginal gains) <i>Long-run:</i> + (Marginal gains)
Small agricultural producers/lessees	None	<i>Short- and long-run:</i> <ul style="list-style-type: none"> Higher expenditures on land rental and purchasing 	<i>Short- and long-run:</i> - (Marginal losses)
Large agricultural producers/lessees	None	<i>Short- and long-run:</i> <ul style="list-style-type: none"> Higher expenditures on land rental and purchasing 	<i>Short- and long-run:</i> - - (Moderate losses)
Rural communities/local governments	None	<i>Short- and long-run:</i> <ul style="list-style-type: none"> Foregone land sales revenues 	<i>Short- and long-run:</i> - - - (Large losses)

Note: Appendix D presents the literature and hypothesized magnitude of each of the effects within the scenario.
Source: Authors' elaboration

4.6 | Public administration reforms and accompanying measures

In addition to the different models of land market liberalization, the Ukrainian expert community actively discusses potential reforms of the organizations involved in land market facilitation. The debate ranges from abstract conceptual approaches to concrete suggestions. How should land market regulation be organized? Which institutions are the most effective in protecting property rights? Policies associated with the attempts to deal with these issues may also generate distributional effects. The specific Ukrainian context calls for the careful consideration of potential land market policies and associated externalities.

a. Approaches to state-owned land management

State-owned land management is of strategic importance and is often subject to additional regulations and controls. The goals of land distribution are most often multidimensional. Apart from economically efficient allocation, social and strategic goals are high on politicians' agendas. These goals can be rather complex and even case-specific, requiring extemporized decision-making. This may imply the need to create a new administrative body responsible for managing complex land management issues. Many European countries have established independent institutions for these purposes.²⁵ These could have either a country-level (e.g. BVVG in Germany) or local council-type dispersed structure (e.g. Departmental Directorate for Territories in France). Central bureaucracies are often justified by the need for land privatization and regulation in agricultural finance. However, the experience of post-socialist countries is rather mixed: In some countries these tasks were integrated into public administrations and in others independent institutions were created (Lerman, 2017).

²⁵ See Section 2 for more information on the German experience.

The choice between rule- and bureaucracy-based regulation may be embedded in a trade-off between the institution's decision-making flexibility and the likelihood for misuse. On the one hand, independent institutions may be effective in addressing complex land management issues. However, since the existing legislation often leaves substantial discretion to the decision-makers within these institutions, land distribution may be at the discretion of public officials and, as a result, be more likely to be misused.

The Ukrainian experience with institution-building in the sphere of land management and facilitation of land relations highlights the dangers of misuse. The state institution that is responsible for land management has been reorganized twice in the last decade.²⁶ The expert interviews reveal that the questionable allocation of agricultural lands for private use has been persistent throughout the history of state managing institutions. Although the situation has improved to a substantial extent in the last years, there are still numerous loopholes where experts report high dangers of misuse. Another example is the State Land Bank, which was created in 2012 in order to improve the rural financial situation. However, unclear legal mandates and regulatory freedom generated substantial misuse incentives.

Considering the negative institution-building experience in facilitating land management and land relations, the rule-based approach may be more apt to the Ukrainian context. Although it is difficult to exclude the possibility of misuse of bureaucratic power, it is possible to minimize respective dangers by regulating land transactions in detail, eliminating the potential legal leeway for public officials. Following this logic, the UTCs could play a central role in managing state-owned land according to strict legal guidelines and under the close monitoring of local communities. Local communities may tailor state-owned land management to their own needs (USAID, 2017). However, UTCs require capacity-building investments and facilitation.

b. Land management decentralization and local capacity

Transferring complicated tasks such as land management to the UTCs may require substantial public investment in the capacity development of local officials. Public officials within the newly created UTCs will have many new responsibilities that previous local governments (village councils) did not have. Land management is one of the new responsibilities being delegated within the framework of the decentralization reforms. Experts generally point out that the administrative capacity levels of the lower tiers of the Ukrainian government are relatively low. This was reported to be one of the major challenges in empowering local communities. Consequently, in order to ensure the effective management of land resources, UTC officials require intensive training and capacity building. This should be accompanied by a large-scale campaign to raise awareness about land reforms in order to address the general negative sentiment among the local residents surrounding lifting the moratorium.

These policies are likely to have long-term distributional consequences for Ukrainian rural communities. First, the local government's ability to better manage state-owned land and more

²⁶ The State Committee of Land Resources of Ukraine was transformed into the State Agency of Land Resources in 2011 during the Yanukovich government and, finally, in 2014 the State Service on Geodesy, Cartography and Cadaster was created.

effectively collect land taxes is expected to generate substantial resources for underfunded rural communities. Rural areas will benefit from capital investments in local public infrastructure that has suffered from a severe lack of funding since Ukraine's independence. Second, improved capacity and better general awareness about the land reforms may have indirect spillover effects. Empowered rural landowners are likely to improve their bargaining power over land sales and rental prices with regard to agricultural producers.

Another technical capacity that local public officials may be lacking is knowledge of extensive Ukrainian land legislation necessary for the resolution of land disputes. Land disputes are a normal phenomenon in any country and are especially intense during transition periods. The expert interviews suggest that few judges are aware of the land-related legislation, which has changed multiple times during the last two decades. Initiatives to deal with this problem range from capacity building for local judges to the creation of new land courts that would deal exclusively with land disputes.

Assessment of the welfare effects of any of these initiatives is difficult. The Ukrainian court system suffers from severe corruption challenges. Nearly all of the experts interviewed indicate that small landowners have very slim chances winning a dispute with a larger agricultural producer. This may be due to access to administrative resources that the latter enjoy due to their scale. However, judges' rent-seeking incentives are not to be excluded. In an effort to address these issues, the creation of new land courts will not guarantee their independence. In any case, experts forecast a substantial increase in the number of court cases related to titling, mistakes in the Cadaster's registry and the Registry of Property Rights, and land consolidation. Further systematic research is needed to determine the best model for Ukraine. However, it is clear that improving the abilities of local governments and increasing the general awareness level of the landowners and individual farmers are crucial in order to improve their chances to defend their property rights.

c. Land consolidation

Land redistribution during land reforms often leads to the excessive fragmentation of land plots causing negative externalities, and Ukraine is no exception. Land distribution via non-restitution mechanisms, as was the case in Ukraine, usually leads to a situation where land plots are too small to meaningfully make use of economies of scale (Hartvigsen, 2014). In addition, excessive land fragmentation may negatively impact potential infrastructural projects and the ecological sustainability of certain regions (Hartvigsen, 2015). In Ukraine, land ownership is more fragmented than land use because agricultural producers often manage to informally negotiate with other land users over the exchange of some land plots. The vast majority of the experts interviewed suggest that land fragmentation may lead to a number of problems in the Ukrainian context. First, due to legal uncertainty arising within informal land use consolidation, land tenure security is very low and does not allow long-term planning. Second, informality in land relations may invite misuse and illegal land expropriation. Third, fragmented land plots are much less attractive for the banks to be used as collateral.

Land consolidation generates value and, consequently, has distributive implications. Consolidated land plots are likely to cost more on a competitive sales market. As a result, participants of the consolidation projects are likely to obtain welfare gains. In addition, it increases the collateralizability of land as an asset, potentially improving access to credit for the landowners. The experts interviewed indicate that consolidated land plots of 50–100 ha are likely to be perceived as an attractive asset with sufficient liquidity. Finally, the UTCs may gain as well because they are likely to more efficiently collect land taxes due to the scale effects of consolidated lands.

The consolidation process should be designed in a way that allows all parties involved to benefit. The law On Optimization of Usage of Agricultural Land Masses is currently being debated in the parliament and the current draft allows for the voluntary exchange of plots of equal value (if the normative land valuation is not more than 10%). The mechanism should be voluntary so that the rights of the *pai* holders are not neglected in the potential land exchange. Medium and large agricultural producers expect to reap the greatest benefits from consolidation and will have the incentives to put pressure on landowners to participate in consolidation projects. On the other hand, one way to mediate interactions between landowners could be schemes with land banking where a designated administrative body buys the land to be exchanged and then sells it to the owner interested in consolidation. However, distrust towards state institutions in Ukraine may undermine these initiatives.

5 \ Conclusion

In a press release from May 22, 2018, the European Court of Human Rights announced its ruling on the Ukrainian moratorium on land sales, declaring it a violation of the human rights of *pai* holders. In particular, the Court's main argument was that the property rights of the *pai* holders had been violated for a period of time long enough to implement reasonable land reform. Also, from an economic perspective, *pai* holders had not had the chance to fully exercise their bundle of rights associated with land. The Ukrainian legal environment forced landowners into a situation where they could not earn a full income from their asset nor could they transfer it to others. At the time of the 2015 USAID survey, 27% of *pai* holders were over 66. After two decades of not being able to take advantage of their property, these citizens have lost the chance to fully exercise their rights.

This study attempts to inform the current public debate by providing an overview of the direction of the major distributional effects that can be expected from different policy instruments currently discussed in Ukraine. In particular, the study provides an overview of the scientific literature on the "state of the art" practices facilitating land relations and yielding the largest economic gains. We discuss the international experience with regard to land reforms and compare it with the Ukrainian case. Finally, based on 12 face-to-face semi-structured expert interviews and a literature review, we identify the most likely scenarios of the Ukrainian land market reforms and attempt to map welfare effects for the key stakeholders under a number of simplifying assumptions.

A major conclusion that we draw is that retaining the status quo and the moratorium on land sales would lead to large distributional consequences that contradict the definition of land ownership. Apart from evident aggregate economic gains achieved by improving the efficiency of land allocation, full market liberalization could potentially generate large economic gains for the *pai* holders and local governments. The former are likely to benefit from higher land sale and rental prices, and the latter would profit from privatization and increased revenues from land tax collection. Current land lessees are likely to suffer under a free land market because of higher land expenditures on land rental. However, these losses are likely to be disproportionately smaller in comparison to the gains felt by other stakeholders. As a result, the most liberal version of the land reforms would generate large economic gains for the economy as a whole. From a political economy point of view, the weakened position of large agricultural producers that utilize large shares of rented land is important. Land market liberalization and the resulting higher land prices may incentivize these enterprises to reconsider their land access strategies and possibly even re-focus from short-term business models of export-oriented grains and oilseeds production.

The liberal land sales market is likely to incentivize all interested producers to shift towards longer-term business models and to invest in land and technology. Maintaining large areas of operational land based on rental contracts with *pai* holders requires substantial administrative efforts and expenditures on the part of large agricultural enterprises. Many of them are likely to optimize their land holdings with certain shares of purchased land, drastically reducing tenancy uncertainties. As a result, this will allow for agricultural production that requires business models with longer planning horizons (e.g. gardening, mixed livestock farming). More secure tenancy will allow for investments in technologies, like drip irrigation and long-term soil fertility, improving productivity in the sector.

Major debates focus on the reform scenarios that lie between the status quo and full liberalization and represent a trade-off between policy goals and the economic efficiency of agricultural production. The most discussed initiatives are to cap land ownership and restrict the land market to Ukrainian citizens only (possibly even excluding legal entities). Both of these measures are likely to substantially reduce the demand for land and create downward pressure on land prices. Contrasting these policies to the “full liberalization” scenario, lessees are likely to gain due to reduced land rental expenditures and *pai* holders, together with the local governments, are expected to incur net losses due to reduced land prices. The former may forgo some rental revenues and the latter will have to deal with lower privatization, rental and tax revenues. As a result, aggregate economic gains are expected to be smaller in comparison to the “full liberalization” scenario and these restrictive policies may redistribute welfare to large agricultural producers. Furthermore, any policy that introduces permanent restrictions or excludes some actors will produce unintended side effects related to rent-seeking.

One further aspect that often arises during debates on how best to achieve a desired land market is whether liberalization should proceed in stages. Potential experiments to test the land sales market in pilot regions run the risk of not being representative for the whole country. Geographical limits are expected to distort supply and demand schedules. Moreover, diversity in *pai* sizes and soil qualities makes it extremely difficult to conduct an experiment from which we can

extract meaningful information. Land reform could furthermore focus on the liberalization of either private or state-owned land as a first stage. If the government puts state-owned land on the market first, *pai* holders and credit-constrained farmers will not be able to enjoy the gains generated by this first stage of liberalization. All gains from privatization will go to local governments or the central government depending on how the process is implemented. On the other hand, lessees will benefit from lower rental prices compared to the reference scenario. If, instead of the state-owned reserve, private land is put on the market, local communities are likely to incur substantial losses (in comparison to the “full liberalization” scenario) due to foregone revenues from land privatization. Higher land prices due to limited supply are likely to initiate redistribution from tenants to landowners. In sum, both of these policies have substantial redistributive consequences, but the value for the land market adjustment appears to be marginal. As a result, justifications for these policies are dubious.

The Ukrainian land market and, in particular, the management and privatization of state-owned land should be facilitated by well-functioning institutions tailored to the country’s specific context and needs. In general, the rule-based regulation approach appears to be more apt to the Ukrainian setting with dysfunctional administrative bodies that enjoy little public trust. This implies that the centralized institutions that have previously been able to manage public lands at their own discretion should transfer this function to local governments, which have the incentive to manage these resources in a more effective way. However, any gains from the decentralization of the management of state-owned land appear to be conditional on the capacity building of local public officials, which is likely to require considerable public investment. Highly transparent procedures, including publicly available information on price levels, are necessary to generate synergies with the improved capacity of the stakeholders involved. Finally, the process of land consolidation, which will naturally be facilitated by the liberal land market, should carefully consider the interests of all parties involved. Voluntary land consolidation projects, as opposed to compulsory schemes, are likely to minimize the potential welfare losses of *pai* holders.

Land market liberalization requires a comprehensive approach that may involve related reforms in adjacent areas. Agricultural finance is a crucial sphere that needs to be stimulated in order to fully enjoy the fruits of the land reforms. First, to secure free access to land markets for all potential buyers, access to credit at low transaction costs is crucial. Second, land collateralizability can be facilitated through legislation regulating foreclosure procedures that would involve minimum transaction costs.

In sum, land market liberalization requires an open public discussion with all stakeholders involved. In order to generate a political momentum to move the reform further, Ukrainian political circles need to have the political will to address this important issue. Negative public sentiment towards the reforms should be directly addressed via targeted information campaigns clearly outlining the benefits and dangers of the land reforms.

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APPENDICES

APPENDIX A. BASIC DESCRIPTIVE STATISTICS

Table 5 Basic production and land use descriptive statistics

Variable	2012	2016
Percentage of population employed in agriculture	17.2%	17.6%
Share of crops output	69.6%	72.7%
Share of livestock output	30.4%	27.3%
Crops output		
Agricultural enterprises	41.4%	43.0%
Individual farms	17.2%	18.3%
Households	41.4%	38.7%
Livestock output		
Agricultural enterprises	39.4%	41.2%
Individual farms	4.1%	4.4%
Households	56.5%	54.4%
Land resources		
Total agricultural land	41536.3	42726.4
Land use by agricultural enterprises and individual farms (k ha)	20499.3	20746.9
Including state-owned agricultural enterprises (k ha)	1010.3	937.0
State-owned land		
Total state-owned agricultural land (k ha) ¹	10587.4	9508.1
State-owned land officially registered as idle (k ha) ¹	5988.7	5215.5
Utilized state-owned land (k ha) ¹	3430.1	3037.6
Other (k ha) ¹	1168.6	1255.0
Number of agricultural producers		
Total	49415	47697
Business partnerships	8235 (16.7%)	8700 (18.2%)
Private enterprises	4220 (8.5%)	3752 (7.9%)
Cooperatives	848 (1.7%)	738 (1.5%)
Individual farms	34035 (68.9%)	33682 (70.6%)
State enterprises	296 (0.6%)	222 (0.5%)
Other	1781 (3.6%)	603 (1.3%)
Percentage of profitable non-household agricultural producers	78.6%	88.3%

Notes:

Source: UkrStat (2017).

¹Source for these particular statistics: Accounts Chamber of Ukraine (2018).

APPENDIX B. DISTRIBUTION OF AGRICULTURAL PRODUCERS BY LAND USE CATEGORIES

Table 6 Distribution of non-household producers by land use categories

Source: UkrStat (2017)

Category (ha)	Number	Share in total	Area of land used (ha)	Area of land used (%)
Total	41826	87.7%	19821.2	100%
up to 5	3619	7.6%	11.5	0.1%
5.1–10	2937	6.2%	23.1	0.1%
10.1–20	4088	8.6%	63.5	0.3%
20.1–50	11838	24.8%	447.8	2.3%
50.1–100	4888	10.2%	354.2	1.8%
100.1–500	7053	14.9%	1723.1	8.7%
500.1–1000	2548	5.3%	1816.1	9.2%
1000.1–2000	2433	5.1%	3491.6	17.6%
2000.1–3000	1103	2.3%	2686.2	13.6%
3000.1–4000	480	1%	1658	8.4%
4000.1–5000	277	0.6%	1236.6	6.2%
5000.1–7000	260	0.5%	1526.2	7.7%
7000.1–10000	152	0.3%	1268.2	6.4%
more than 10000	150	0.3%	3515.1	17.6%
No land	5871	12.3%	-	-

Table 7 Distribution of individual farms by land use categories

Source: UkrStat (2017)

Category (ha)	Number	Share in total	Area of land used (ha)	Area of land used (%)
	32032	95.1	4437.9	100.0
up to 1	178	0.5	0.2	0.0
1.1–3	1473	4.4	3.4	0.1
3.1–5	1697	5.0	7.2	0.2
5.1–10	2748	8.1	21.6	0.5
10.1–20	3788	11.2	59.0	1.3
20.1–50	11207	33.3	425.5	9.6
50.1–100	4196	12.5	301.5	6.8
100.1–500	4727	14.0	1090.1	24.5
500.1–1000	1131	3.4	790.4	17.8
1000.1–2000	628	1.9	864.5	19.5
2000.1–3000	160	0.5	390.0	8.8
3000.1–4000	42	0.1	144.1	3.2
4000	57	0.2	340.4	7.7
No land	1650	4.9	-	-

APPENDIX C. LIST OF CONDUCTED INTERVIEWS

Table 8 List of conducted semi-structured interviews

No.	Date	Type of organization
1.	15.03.2018	Private research institute (agricultural economics)
2.	22.03.2018	Governmental research institute (general economics)
3.	26.03.2018	Governmental research institute (agricultural economics)
4.	26.03.2018	University representative
5.	27.03.2018	NGO (agricultural interest)
6.	27.03.2018	NGO (representation of local governments)
7.	28.03.2018	NGO (agricultural interest)
8.	28.03.2018	Independent legal expert
9.	29.03.2018	Private research institute (agricultural economics)
10.	29.03.2018	NGO (rural finance)
11.	30.03.2018	NGO (agricultural interest)
12.	30.03.2018	Ministry of Agriculture and Cadaster

Source: Authors' elaboration.

APPENDIX D. LIST OF IDENTIFIED WELFARE EFFECTS, RELATED LITERATURE AND HYPOTHESIZED MAGNITUDE

Effect	Full liberalization with status quo as a baseline Literature informing effect size	Effect magnitude
<i>CLS holders</i>		
Increased land value due to land market launch	(Besley & Ghatak, 2009; Deininger & Feder, 2001; Spoor, 2012; World Bank, 2008)	+++ Large gains
Increased revenues from land rental	(Just & Miranowski, 1993)	++ Moderate gains
<i>Small agricultural producers/lessees</i>		
Gains from purchased land	(de Janvry et al., 2001; Deininger & Feder, 2001)	++ Moderate gains
Longer planning horizon (incentives to invest in land, higher marginal returns of land, potential re-orientation to higher added value agriculture)	(Besley & Ghatak, 2009; Deininger & Feder, 2001)	++ Moderate gains
Improved access to mortgage lending	(Besley & Ghatak, 2009; Boucher, Carter, & Guirking, 2008; Carter & Barrett, 2006; Deininger & Feder, 2001; Eswaran & Kotwal, 1986; Guirking & Boucher, 2008)	++ Large gains
Potentially foregone opportunities to buy land due to undercapitalization	(Deininger & Feder, 2001)	-- Moderate losses
Lack of capital due to purchased land	(Dudwick, Fock, & Sedik, 2007)	- Marginal losses
Higher expenditures on land rental	(Just & Miranowski, 1993; Kuns, 2017; Kuns et al., 2016)	-- Moderate losses
<i>Large agricultural producers/lessees</i>		
Gains from purchased land	(de Janvry et al., 2001; Deininger & Feder, 2001)	++ Moderate gains
Longer planning horizon (incentives to invest in land higher marginal returns of land, potential re-orientation to higher added value agriculture)	(Besley & Ghatak, 2009; Deininger & Feder, 2001)	++ Moderate gains
Higher expenditures on land rental	(Just & Miranowski, 1993; Kuns, 2017; Kuns et al., 2016)	- Moderate losses

<i>Rural communities/local governments</i>		
Effect	Literature informing effect size	Effect magnitude
Revenues from privatization/land rental	(Deininger, 2003; Dells, 2008; World Bank, 2008)	+++ Large gains
Increased land tax revenues	(Besley & Ghatak, 2009; Besley & Persson, 2009; Deininger & Feder, 2001)	++ Moderate gains
More transparent local land relations	(Deininger & Feder, 2001)	+ Marginal gains
Expenditures on land inventory and registration	(USAID, 2017)	-- Moderate losses
Expenditures on state land management	(USAID, 2017)	- Marginal losses
Restricting ownership size and market participants with “full liberalization” as a reference		
Effect	Literature informing effect size	Effect magnitude
<i>CLS holders</i>		
Lower revenues from land rental	(Besley & Ghatak, 2009; Deininger & Feder, 2001; Just & Miranowski, 1993; Spoor, 2012; World Bank, 2008)	-- Moderate losses
<i>Small agricultural producers/lessees</i>		
Lower expenditures on land rental	(Besley & Ghatak, 2009; Deininger & Feder, 2001; Just & Miranowski, 1993; Spoor, 2012; World Bank, 2008)	++ Moderate gains
Foregone opportunities to purchase land	(Deininger & Feder, 2001)	- Marginal losses
Reduced access to credit due to lower land prices	(Besley & Ghatak, 2009; Boucher et al., 2008; Carter & Barrett, 2006; Deininger & Feder, 2001; Eswaran & Kotwal, 1986; Guirkinger & Boucher, 2008)	- Marginal losses
<i>Large agricultural producers/lessees</i>		
Lower expenditures on land rental	(Besley & Ghatak, 2009; Deininger & Feder, 2001; Just & Miranowski, 1993; Spoor, 2012; World Bank, 2008)	+++ Large gains
Foregone opportunities to purchase land	(Deininger & Feder, 2001)	- Marginal losses
<i>Rural communities/local governments</i>		
Lower revenues from land sales and rental	(Besley & Ghatak, 2009; Just & Miranowski, 1993)	-- (Moderate losses)

State land only with "full liberalization" as a reference scenario		
Effect	Literature informing effect size	Effect magnitude
<i>CLS holders</i>		
Losses due to zero land price	(Besley & Ghatak, 2009; Deininger & Feder, 2001; Just & Miranowski, 1993; Spoor, 2012; World Bank, 2008)	- - - Large losses
Lower revenues from land rental	(Just & Miranowski, 1993; Kuns, 2017; Kuns et al., 2016)	- - Moderate losses
No land collateralizability	(Besley & Ghatak, 2009; Boucher et al., 2008; Carter & Barrett, 2006; Deininger & Feder, 2001; Eswaran & Kotwal, 1986; Guirkinger & Boucher, 2008)	- Marginal losses
<i>Small agricultural producers/lessees</i>		
Lower expenditures for land rental	(Just & Miranowski, 1993; Kuns, 2017; Kuns et al., 2016)	+ + Moderate gains
Foregone opportunities to purchase land	(Deininger & Feder, 2001)	- Marginal losses
Reduced access to credit due to lower land prices	(Besley & Ghatak, 2009; Boucher et al., 2008; Carter & Barrett, 2006; Deininger & Feder, 2001; Eswaran & Kotwal, 1986; Guirkinger & Boucher, 2008)	- Marginal losses
<i>Large agricultural producers/lessees</i>		
Lower expenditures on land rental	(Just & Miranowski, 1993; Kuns, 2017; Kuns et al., 2016)	+++ Large gains
Foregone opportunities to buy land	(Deininger & Feder, 2001)	- Marginal losses
<i>Rural communities/local governments</i>		
Foregone land tax revenues	(Besley & Ghatak, 2009; Besley & Persson, 2009; Deininger & Feder, 2001)	- Marginal losses
Higher prices for land to be privatized	(Besley & Ghatak, 2009)	+ Marginal gains
Lower rental prices for state land	(Besley & Ghatak, 2009; Just & Miranowski, 1993)	- - Moderate losses

CLS land only with “full liberalization” as a reference scenario			
Effect	Literature informing effect size		Effect magnitude
<i>CLS holders</i>			
Higher revenues from land sales and rental	(Besley & Ghatak, 2009; Just & Miranowski, 1993; Kuns, 2017; Kuns et al., 2016)		+ Marginal gains
Better collateralizability	land	(Besley & Ghatak, 2009; Boucher et al., 2008; Carter & Barrett, 2006; Deininger & Feder, 2001; Eswaran & Kotwal, 1986; Guirkinger & Boucher, 2008)	+ Marginal gains
<i>Small agricultural producers/lessees</i>			
Higher expenditures on land rental and purchasing	(Besley & Ghatak, 2009; Deininger & Feder, 2001; Just & Miranowski, 1993; Kuns, 2017; Kuns et al., 2016)		- Marginal losses
<i>Large agricultural producers/lessees</i>			
Higher expenditures on land rental and purchasing	(Besley & Ghatak, 2009; Deininger & Feder, 2001; Just & Miranowski, 1993; Kuns, 2017; Kuns et al., 2016)		-- Moderate losses
<i>Rural communities/local governments</i>			
Foregone revenues	land sales	(Besley & Ghatak, 2009; Besley & Persson, 2009; Deininger & Feder, 2001)	--- Large losses

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