

## Political Economy of Agricultural Market Reform in Ukraine: “Good Bye Lenin”

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### Abstract

Good results depend on good institutions (Boettke and Anderson, 2004). A good system of private property rights is an essential ingredient of good economic development. Whereas a laissez-faire capitalism assumes that a system of private property rights emerges naturally in a market economy that allocates property rights efficiently, the transitional experience of post-socialist countries demonstrates that a government will substitute a centrally planned alternative for such a spontaneously emergent system (McChesney, 1990; Rothbard, 1962). Once charged with control rights, government actors create bad institutions that produce bad economic development in post-socialist countries. Government’s control of transition from socialism toward capitalism produced bad institutions and bad economic development in Ukraine. This paper examines the effect of agricultural market reform policy on the economic development of the agricultural sector in Ukraine, the former breadbasket of Europe.

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### I. Introduction

Ukraine’s agriculture was able to provide the old continent with food in the 19th and early 20th centuries (Conquest, 1986). The famous production capacity of Ukraine’s agriculture earned Ukraine the acclaimed status of Europe’s breadbasket. The former breadbasket is important for the world food supply again because Ukraine is one of four countries, the others being Russia, Kazakhstan, and Argentina, that has a significant production

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potential to meet the growing global food demand (FAO, 2011). Ukraine can regain the renowned status if post-socialist economic development produces good results. These results depend on good institutions (Krasnozhan, 2013; Boettke and Fink, 2011). Ukraine's agricultural sector, however, has unsustainable growth, sector-wide inefficiencies, and large black market activity. Agricultural market reform that combined agricultural privatization and land reform failed to produce a strong agricultural sector because the government intervened in the emergent market economy and created a set of bad institutions. The government controlled and planned each step of the transition from socialism to "capitalism."

The agricultural sector is subject to constant triangular intervention (Rothbard, 1962, p. 767). The government uses both product and price controls to intervene in the agricultural sector. The government wields control over the sale and rent of agricultural land. The prohibition of farmland sale is absolute (Krasnozhan, 2005). The use of agricultural land is subject to rationing. The rental payment for agricultural land is under a price control. The government also controls food prices periodically. Finally, the government applies a partial prohibition to the grain export market. These bad institutions produce bad outcomes such as unsustainable growth, sector-wide inefficiencies, a black market, and attenuated property rights.

This paper examines a role of government in agricultural market reform in Ukraine, the former breadbasket of Europe. The market reform of the agricultural sector encompassed structural changes in several thousand collective farms, 25 percent of the labor force, 24 percent of GDP, and 70 percent of land area (Krasnozhan, 2011a; Allina-Pisano, 2008). One of the largest agricultural reforms in world history crumbled to dust because it lacked the spirit of a free market economy.

This paper proceeds as follows. Section II discusses the effect of a prohibition economy on the agricultural sector in Ukraine. Section III examines agricultural market reform. Section IV contains concluding remarks.

## **II. Prohibition Economy of Ukraine**

Freedom is a vital and necessary institution for laissez-faire capitalism (Powell and Stringham, 2012; Boettke and Coyne, 2004). A hegemonic relationship between the commanding government and the obedient citizenry undermines freedom in any country (Rothbard,

1970, 1962). The hegemonic relation that is based on command and obedience is the institutional bottleneck of the transition from socialism to capitalism (Boettke et al., 2008). The main problem of a transitional political economy is government's role in transforming the hegemonic relation into the contractual one. Despite the market reforms, the government maintained the hegemonic relation in Ukraine (Rothbard, 1970). Agricultural market reform is a self-evident example of the command-obedience policy approach. Agricultural market reform did not free the agricultural sector. Instead, the government imposed an absolute prohibition of the sale of farmland and a partial prohibition of farmland use. Unlike in Poland or Slovakia, the government failed to solve the political economy problems of credibility of and commitment to market reforms (Beaulier et al., 2012). The market reforms failed because the government established institutions that inhibited the market reforms.

Unsatisfying living standards, lack of economic freedom, and regime uncertainty caused public *ex post* resentment at market reform. As a result, calls for nationalization or reprivatization increased in former socialist countries such as Russia and Ukraine (Denisova et al., 2009). "More than one half of the population in each of the 28 [post-communist] countries and over 80 percent of all respondents," Denisova et al. (2009, p. 3) write, "support some form of revision of privatization. Almost one-third of respondents favored a re-nationalization." In Ukraine 43 percent of respondents supported re-nationalization (Denisova et al., 2009). As shown in Figure 1, public support for land privatization and sale of land has declined since the beginning of the market reforms from 65 and 39 percent to 25 and 21 percent, respectively.

The extent of intervention in present-day Ukraine is underestimated. Ukraine has one of the ten lowest scores of economic freedom in the world (Gwartney and Lawson, 2012). Ukraine's economy is as free as the undeveloped economies of Gabon and Senegal. "The Roman Empire crumbled to dust because it lacked the spirit of liberalism and free enterprise. The policy of interventionism and its political outcomes," Mises (1922, p. 763) writes, "decomposed the mighty empire as they will by necessity always disintegrate and destroy any social entity." In Ukraine the agricultural market reform crumbled to dust because it lacked free

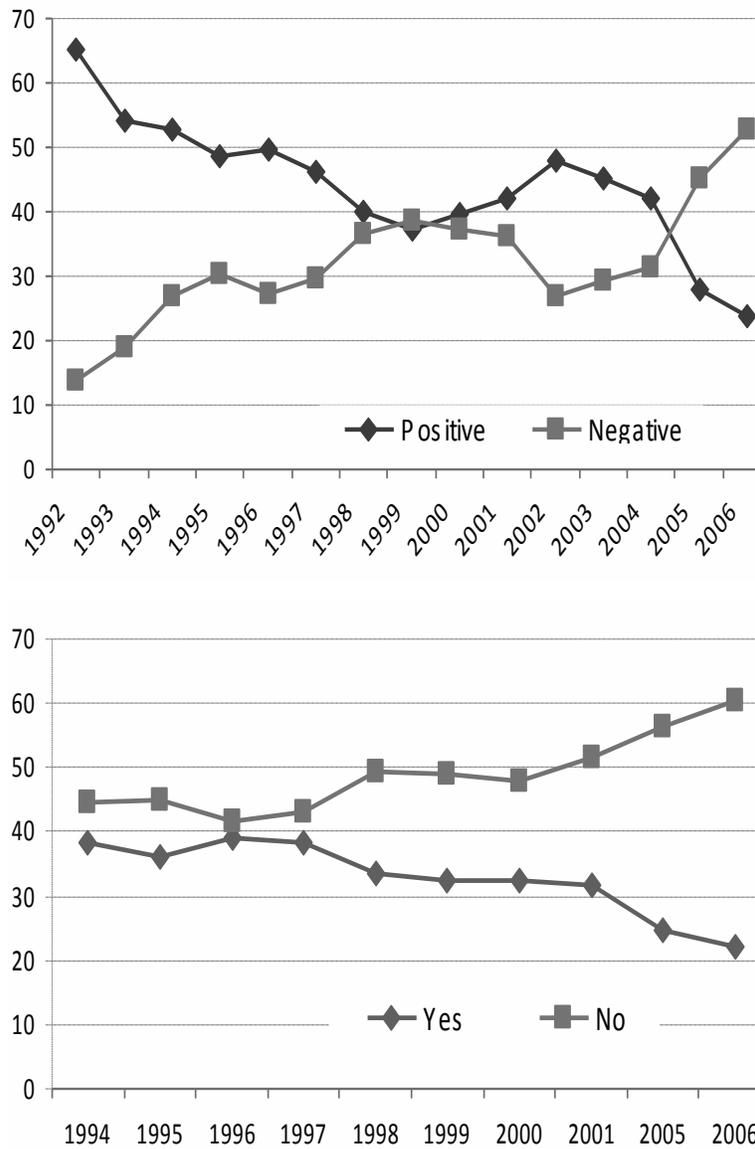


Figure 1: (top) Public support of land privatization and (bottom) sale of land, 1992–2006 (%). Sources: Panina (2006) and Golovakha (1997).

enterprise and other key ingredients of economic development. As a result, the value added of agricultural production decreased from 26 to 8 percent of GDP in the last 20 years (WDI, 2012). The livestock

sector of agricultural production lost two-thirds of its animal population. In the 2000s, on average, the grain sector produced only 75 percent of the output of the early 1990s (WDI, 2012). Almost 40 percent of agricultural land is abandoned. Farm employment also dropped from 24 to 15 percent of the national labor force (WDI, 2012). The rural population has lost 15 percent of its size since the 1990s even though the urbanization rate remained at 70 percent (WDI, 2012). The arbitrary reform created an agricultural sector that has no meaningful economic calculation behind it and thus unsustainable growth.

The government is mainly one that benefits from the various forms of prohibition (Rothbard, 1970). First, the government benefits from the tax-created jobs that the enforcement of the regulation requires. Second, the government benefits from wielding control over civil society, which is a significant determinant of democracy (Krasnozhan, 2013; Acemoglu and Robinson, 2006). The prohibition economy creates a self-feeding mechanism that produces more legislation, requires more enforcement, and needs bigger government (Leoni, 1991). More than 200 laws and legislative acts regulate the agricultural sector in Ukraine. As shown in Figure 2, the administrative burden of the tax agency is larger in Ukraine than in such post-communist countries as Poland and Slovakia. There were 249 taxpayers per each tax employee in Ukraine in 2010. Moreover, Figure 2 shows that more economic freedom is associated with larger tax revenue per tax employee but a lower burden of tax administration. A larger number of tax employees per taxpayer indicates more coercive interference in the economy and thus less economic freedom.

### **III. Agricultural Market Reform in Ukraine**

In a free market economy, the system of private property rights emerges naturally as a result of capitalist economic calculation, social cooperation, and market competition for greater efficiency (Barzel, 1997; Coase, 1937). “Property rights develop to internalize externalities,” Demsetz (1967, p. 350) writes, “when the gains of internalization become larger than the cost of internalization.” The primary function of property rights is to guide incentives to achieve a greater internalization of externalities. In a free market economy, property rights internalize benefits and costs. In a transitional economy, the government often substitutes a system of

spontaneously emergent institutions for a centrally planned alternative (Boettke, 2001; Rothbard, 1962). Once charged with defining rights, government actors, however, create bad institutions that produce bad post-socialist economic development (McChesney, 1990).

In Ukraine, the system of property rights is not a result of market pressure for greater efficiency. The property regime is the outcome of intervention. “The important feature of ownership is not legal formality but actual rule, and under government ownership,” Rothbard (1962, p. 955) writes, “it is the government officialdom that control and directs, and therefore ‘owns,’ the property.” The government has not yet released control of rights over agricultural land. The agricultural sector is subject to triangular intervention (Rothbard, 1962, p. 767). The government uses both product and price controls to intervene in the agricultural sector.

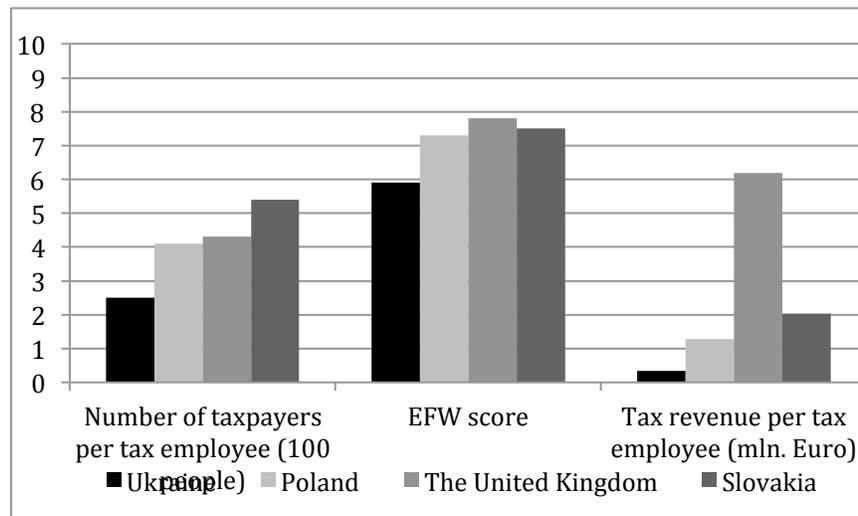


Figure 2: Economic freedom and taxation. Sources: IOTA (2012) and Gwartney and Lawson (2012).

#### *A. The First Intervention: 1991–1999*

Agricultural market reform started in December 1991 when the government began a divestiture of public farm assets, including buildings, equipment, and farmland. The divestiture used the uniform approach to land titling and two methods of privatization, voucher privatization and management-employee buyout (Megginson and

Netter, 2001). The state limited the right of participation in divestiture to farm workers and retirees who were employed by farms from 1981 to 1991.<sup>1</sup> Farm employees made up 25 percent of the labor force. The beneficiaries of the divestiture proceedings constituted almost seven million people or 14 percent of the total population (Krasnozhon, 2005). The deadline for the first divestiture proceedings was December 31, 1996.

The state planned to divest the assets of public farms over five years by using the following process. The state partitioned the assets into capital shares and land shares depending on the farm size and the number of farm workers. The state treated farm managers, employees, and retirees equally. Then the government issued vouchers and distributed them to the farm staff. The farm workers had to claim their vouchers and exchange the vouchers for certificates. The certificates had expiration dates that the state set as the deadline for the divestiture proceedings (i.e., December 31, 1996). The certificates gave farm workers legal rights (temporary titles to property) to  $1/N$ th share of the assets of a state-owned farm where they were employed at the time of the divestiture proceedings.<sup>2</sup>

Suppose a state-owned farm owned 1,000 acres of land and employed 100 workers. Let its market value be \$1,000,000. According to the divestiture proceedings, a farm worker received a temporary title to property of a  $1/100$ <sup>th</sup> share of the farm's assets. A land share certificate passed him title to property of a  $1/100$ <sup>th</sup> share of the farmland without receiving his land share or ten acres in kind.<sup>3</sup> The capital share certificate gave him title to property of a  $1/100$ <sup>th</sup> share of the farm equipment and buildings without receiving his share in

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<sup>1</sup> The state-owned farms included not only the production sector but also the service sector. Thus, farm employees included farmers, drivers, teachers, nurses, cooks, and so on. Non-farm employees and non-residents were excluded from the divestiture proceedings. Non-residents are still banned from buying land in Ukraine.

<sup>2</sup> An efficient divestiture of public assets should meet four criteria: (1) assets should be allocated to the highest-valued user; (2) transaction costs should be kept to a minimum; (3) there must be broad participation in the divestiture process; and (4) de facto property rights should be protected (Anderson et al., 1999).

<sup>3</sup> On average, a land parcel in Ukraine was 10.13 acres. The largest land parcel was 21.5 acres in Luhansk province in eastern Ukraine. The smallest land parcel was 2.72 acres in Ivano-Frankivsk province in western Ukraine (Krasnozhon, 2005, p. 127). One million landowners had passed away before they could receive their land title.

kind or in cash. As a result, the farm worker received the formal rights of private ownership of 1/100<sup>th</sup> of the total farm assets.

The share certificates were only temporary titles to the property because the certificate owners had to replace them with deeds. The state issued deeds and defined them as permanent titles to the property. The temporary legal rights permitted the free transfer of asset shares as an alienable private property by lease, bequest, sale, and so forth. The Moratorium Act of 1992, however, introduced a covenant that prohibited the sale of farmland. The state still allowed renting, but a rental contract required information about the land parcel, including the geophysical location, soil quality, and other attributes, which the certificate, as a temporary title to the property, did not have. Unlike a certificate, a deed presented the formal rights of ownership of the land share as a tangible asset with all known attributes. The capital share certificates were also titles to property of *de facto* inalienable and intangible assets. The certificate entitled the farm workers to a 1/N<sup>th</sup> share of either farm equipment or farm buildings. Without a deed, the farm worker could not rent or sell out his shares. As a result, the share certificate passed titles to private property that, in reality, was inalienable unless by bequest.<sup>4</sup>

The state, however, only issued deeds of common ownership to pass the titles to the property of the public farms. The farm workers and retirees had to invest their shares into a new form of farm organization, “collective agricultural enterprise,” because the government left no other options (Allina-Pisano, 2008).<sup>5</sup> If major stakeholders are deprived of free choice, they are acting under the government’s will rather than their own (Rothbard, 1970). The person being coerced always loses in utility, whereas the government gains in utility from intervention. Thus, the state coerced the transfer of the public farm assets into a common ownership of the farm workers instead of a private ownership. The destatization resulted in the collectivization (Boettke, 2001). Once charged with defining rights, the state failed to conduct the divestiture in ways that could produce good economic development (McChesney, 1990). Moreover,

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<sup>4</sup> The share certificates gave their owners the formal usufruct rights that Mexican farmers and Indian reservations had (Anderson and Lueck, 1992). Both the Indian reservations and the Mexican farmers could own and use land but not freely sell.

<sup>5</sup> Law passed in 1992 “On Collective Agricultural Enterprises” (Parliament of Ukraine, 2012) has defined a collective farm as a legal entity created for the purpose of agricultural production and based on common ownership of assets.

the government failed to commit to the market reform because it subjected the agricultural sector to triangular intervention through the absolute prohibition of the sale of farmland and the rationing of land use (Rothbard, 1970).

The new collectivization of agriculture had no effect on the production scale and the socioeconomic role of the farms. The collective farms continued to operate on the scale of the former state-owned farms by, on average, employing 800 workers and using 8,000 acres of farmland (Krasnozhan, 2011a). The farms used a fixed-wage contract for labor compensation because the state-defined bylaws excluded the option of profit sharing. The retirees who, on average, constituted one-fourth of the shareholders received annual in-kind dividend payments. The collective farms continued to play a role as social linchpins by providing a set of social goods and services in rural areas and helping to maintain social order and stability (Allina-Pisano, 2008, p. 60).

Despite the reorganization of the agricultural sector, capital investments and production restructuring lagged because the “regime uncertainty” led to a lack of investor confidence (Higgs, 1997). Many experts and farm workers expected the state to reform the agricultural sector again because the state considered the first divestiture as an intermediate step towards the agricultural privatization (Lerman et al., 2007). The financial sector refused to make loans to farmers because farm assets were bad equity. To provide cheap credit to farms, the state created the agricultural bank *Ukraina*.

In theory, a formal piece of documented property must incentivize investment, stewardship, and capital formation. In the prohibition economy, the system of property rights decreases the utility of the owner because it cannot internalize efficiently the benefits and cost. The contractual incompleteness of asset ownership underestimates its relative scarcity and undermines rational economic calculation. In the late 1990s agricultural productivity collapsed while the rest of the economy, led by the steel industry, recovered from the early-1990s depression. Since 1991, the total agricultural output has dropped by half. The portion of unprofitable farms increased each year: 85 percent in 1997, 93 percent in 1998, and 98 percent in 1999

(Ministry of Agriculture, 1999).<sup>6</sup> In 1998 the farms reported \$1.23 billion in losses, and 95 percent of the farms defaulted on their credit payments (Krasnozhan, 2011a). In the same year, the state-owned agricultural bank Ukraina, which had become the largest bank in Ukraine, filed for bankruptcy. The state had to stop bailing farms out and allowed farms to default on their outstanding debts (Meyers, 2005).

#### *B. The Second Intervention: The 1999 Reform*

A good system of private property rights is an essential ingredient for good economic development (Lawson and Clark, 2010). Such a system requires formalization of property rights, enforcement, security, and a free market. The level of protection of property rights in Ukraine is among the ten worst in the world (Gwartney and Lawson, 2012). In Ukraine, property rights enjoy a level of protection as low as that in Bolivia and Burundi. The level of security of individual property rights, however, varies significantly in many post-communist countries with an oligarchic system of governance. Whereas the properties of oligarchs have a significant level of protection, the individual properties of the citizens are subject to intervention. Weak rule of law produces bad economic development.

Private property rights are weak in Ukraine because of regime uncertainty (Higgs, 1997). The state forced the transformation of the property regime twice in less than two decades. Despite the failure of the first intervention, the government prepared another radical change to the system of property rights. On December 3, 1999, Ukraine's President Kuchma issued an executive order to all municipal authorities to begin the reorganization of collective farms.<sup>7</sup> The executive order and related legislative acts are generally called the 1999 Reform. President Kuchma set a deadline for farm reorganization for April 30, 2000, and overruled the legal rights of the state deed. The government required the use of share certificates to pass titles to property and equated the legal rights of a share certificate to a deed. Now the certificate owner gained the formal

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<sup>6</sup> Similarly, a farm survey conducted by the United Nations Food and Agriculture Organization found that the share of unprofitable farms was 92 percent in 1998 (Lerman et al., 2007, p. 19).

<sup>7</sup> President Kuchma served two terms between 1994 and 2004. The 1999 Reform refers to Executive Orders 1529, 125, and 130 and Legislative Act 119 (Parliament of Ukraine, 2012).

rights to full private ownership. The divestiture required the termination of the collective farms and the creation of a legal form of farm organization based on individual or joint ownership of farm asset shares. The change of legal form demanded that farm workers file for an individual or joint-venture business license. An individual license required an application from a single employee, and a joint-venture license required an application from at least nine employees.

The order also required authorities to complete an exchange of share certificates for deeds of private ownership by 2002, when the government planned to enact a new version of the Land Code and issue deeds. The legislative act was enacted by the deadline; however, the replacement of share certificates lagged behind the legislation: 76 percent issued through 2005 and 94 percent issued through 2009 (SCLR, 2012).<sup>8</sup> The 1999 Reform, however, met some opposition from farms. Some collective farms contested the 1999 reform because it violated their constitutional rights and coerced their dissolution. Almost 600 collective farms remained solvent. More than 8,000 collective farms were dissolved by April 2000. The 1999 Reform created more than 10,000 new farms with various forms of organization (Lerman et al., 2007, p. 21).

Again, the state created several covenants that restricted the formal rights of ownership of farmland. First, the state renewed the absolute prohibition of the sale of farmland. Second, the state prohibited farmers from entering into a tenancy contract that exceeded 50 years. Third, the state imposed a partial price control on the cash rent of farmland. Due to the absolute prohibition of the sale of farmland, the state used a uniform approach to pricing by fixing a price of one acre of farmland at 980 USD.<sup>9</sup> The government determined the price of farmland based on its soil quality while ignoring that only 5 percent of farmland remained irrigated. During the first divestiture proceedings, cash-strapped farm employees

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<sup>8</sup> The state reports that 6.5 million or 94 percent of deeds have already been issued, whereas USAID and UNDP farm surveys show that only 70–80 percent of certificates have been exchanged for deeds (Lerman et al., 2007). Most deeds remain unclaimed because of the high application cost. In 2012 the application fee for a deed of private ownership and the related land titling costs were almost \$380.

<sup>9</sup> The official price of one hectare of farmland is 10,000 UAH. The average exchange rate of the hryvnia against the US dollar was 1 USD = 4.13 UAH in 1999 (WDI, 2012).

dismantled irrigation systems to sell for scrap metal (Lerman et al., 2007).

As a result, Table 1 shows that the value of non-irrigated cropland was higher in Ukraine than it was in the Mountain and Southern Plains regions of the United States in 1999. Furthermore, the state also imposed a price floor for the cash rent of farmland. In 1999, President Kuchma issued executive order 92 that required the cash rent to be at least 1 percent of the farmland value. In 2002, executive order 725 required the cash rent to be at least 1.5 percent of the cropland value. In 2008, President Yushchenko issued executive order 830 that established the price floor for the cash rent at 3 percent of the farmland value.<sup>10</sup> As shown in Table 1, in the same year the average cash rent per acre of non-irrigated cropland was 3.1, 3.2, and 2 percent in the Mountain, Southern Plains, and Corn Belt regions, respectively. In absolute terms, the cash rent per acre was higher in Ukraine than in those regions of the United States. In Texas, which has a land area comparable to that of Ukraine, the average cash rent per acre of non-irrigated cropland was \$5 lower than it is in Ukraine.

**Table 1: Non-Irrigated Cropland: Value and Cash Rent in the United States and Ukraine, 1999–2008**

Region	State\Year	Average Value per Acre (\$)			Average Cash Rent per Acre (\$)		
		1999	2003	2008	1999	2003	2008
Eastern Europe	Ukraine	980	980	980	9.8	14.7	29.4
Mountain	Colorado	420	540	890	18	23	24
Southern Plains	Montana	345	370	580	18	18.5	20.5
	Texas	700	920	1,480	18	21	24
Corn Belt	Oklahoma	575	660	1,100	27	27.5	28
	Missouri	1,180	1,540	2,470	59	70	80

Source: USDA (2004, 2008).

<sup>10</sup> President Yushchenko served a single term between 2004 and 2009. All executive orders are available in the online database of the Parliament of Ukraine (<http://zakon2.rada.gov.ua/laws/main/index>).

*C. Unintended Consequences of the Prohibition Economy*

Government intervention in the agricultural sector has a myriad of negative consequences for economic development. In the case of product prohibition, inevitable pressure develops for the establishment of the black market (Rothbard, 1962, p. 786). The presence of a black market for agricultural land is evident at the national level. The black market activity incentivizes corruption and weakens the rule of law. Foreign companies and governments, including Libya’s government, acquired almost one million acres of agricultural land in Ukraine (Visser and Spoor, 2011). In 2009, the Ukrainian and Libyan governments agreed to barter 247,000 acres of Ukrainian farmland for an undisclosed amount of Libyan oil (Visser and Spoor, 2011). Despite the land moratorium, almost 20 percent of land parcels changed ownership after the second round of divestiture proceedings (SCLR, 2012). As shown in Table 2, Ukraine has one of the highest levels of corruption and one of the weakest rules of law among post-communist countries. In Poland and Slovakia, the level of corruption is almost half of that in Ukraine. The efficiency and independence of the judicial system is very low in Ukraine as compared to the average post-communist country. Thus, in the economic freedom ranking, Ukraine is 122<sup>nd</sup> out of 144 countries (Gwartney and Lawson, 2012).

**Table 2: Corruption and Rule of Law, Nations in Transit, 2012<sup>11</sup>**

Country	Corruption	Judicial System
Poland	3.25	2.50
Slovakia	3.50	2.75
Ukraine	6.00	6.00
Average	4.78	4.43

Source: Freedom House (2012).

<sup>11</sup> The ratings are based on a scale of 1 to 7, with 1 representing the highest level of democratic progress and 7 the lowest. Freedom House’s (2012, p. 574) country report states that “in 2011, the Yanukovich administration presided over the use of the law enforcement system to persecute political opponents, the elimination of what remained of the judicial system’s independence, and the ever growing intrusion of the Security Service of Ukraine (SBU) into civic life. The prosecution of Tymoshenko illustrated the first of these processes, and the ouster of Supreme Court chairman Vasyl Onopenko was indicative of the second. Meanwhile, the SBU benefited from broadened powers that were approved by the parliament.”

The prohibition causes farmers and landowners to engage in black market transactions while risking criminal penalty. To minimize the chances of prosecution, the illicit entrepreneurs prevent a formalization of farmland. No land title, no problem. Thus, the relatively slow rate of exchange between land certificates and state deeds is another consequence of the absolute prohibition of the sale of farmland. Moreover, the black market also reduces the relative price of violent land grab. Local newspapers have reported a rise in crime related to land disputes since the enactment of the Land Code. In 2008 in Kharkiv province, for example, a land dispute resulted in the murder of an entire family of farmers (UNIAN, 2012). In Crimea, the deputy mayor illegally transferred 500 acres of unutilized farmland into his private ownership (UNIAN, 2012).

A bad system of property rights causes bad economic development (de Soto, 2000). Property rights have become less secure since the so-called privatization and land reform. The government intervention decreased the equity of farm assets and imposed the price control on the use of farmland. As a result, landowners and farmers are coerced to maximize the present value of farmland and highly discount its future value. Thus, individual subjective time preferences have increased (Mulligan, 2007). As shown in Figure 1, public opinion data reinforce the negative change in the subjective values of land ownership. People consider private ownership less secure than it was at the beginning of the market reforms. The increase in the time preferences of major stakeholders affects the coordination of the capital structure (Boettke, 2010). Both landowners and farmers choose short-term profit-maximizing strategies because long-term strategies are subject to regime uncertainty (Higgs, 1997). These strategies lead to unsustainable growth.

The shift in the capital structure affected the contractual arrangement between farmers and landowners. The short-term contracts dominate the cropland rental market. Although the state prohibits a tenancy contract that exceeds 50 years, the longest period of a land lease contract is ten years. Only 7 percent of utilized farmland is under a ten-year contract (SCLR, 2012). Almost 80 percent of utilized agricultural land is under a short-term lease contract: 18 percent under three years and 60 percent under 3 to 5 years. Fifteen percent of land is under 6- to 9-year contracts. Overall, 65 percent of farmland is under a tenancy contract in Ukraine. The

remaining 35 percent of agricultural land is not utilized and mainly abandoned.<sup>12</sup> In Ukraine, agricultural land constitutes 70% of the total land area (WDI, 2012).

The prohibition economy also incentivizes immoral production decisions (Shleifer, 2004). The prohibition economy cultivates bad institutional norms that govern economic interactions inefficiently because bad norms inhibit good economic development (Stringham, 2003, 2002; North, 1990). Under the prohibition economy, entrepreneurial alertness incentivizes superfluous entrepreneurial discovery (Sautet, 2000; Kirzner, 1985). Moreover, an increase in time preference causes farms to maximize short-run rather than long-run profits. The drastic decline of the livestock population is a case in point. As shown in Figure 3, during the first divestiture proceedings farms slaughtered more than half of the cow, poultry, hog, goat, and sheep populations. Except in the poultry industry, animal populations continued to decline after the 1999 Reform. The capital structure of the livestock farms drastically shifted from long-term to short-term production.

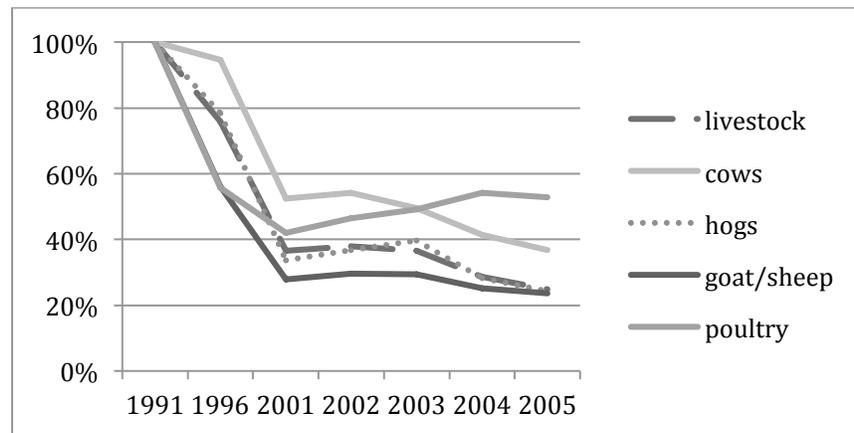


Figure 3: Farm animal population in Ukraine, 1991–2005. Source: State Committee of Statistics of Ukraine (2012).

<sup>12</sup> The USAID estimates that 40% of arable land is abandoned in Ukraine. USDA defines 12 distinct types of soil. Ukraine is mainly covered by three types of soil: *alfisols*, *mollisols*, and *entisols*. Two of them are good for farming. Moderately weathered soil, *alfisols*, has a nutrient-rich upper layer. Grasslands, *mollisols*, are also nutrient-rich soils that have a deep dark layer of topsoil that is rich in organic matter. Because of its dark color, this type of soil is also called *black soil*.

To maximize short-run profits, farmers forego traditional farming practices. Farmers must use cover crops, forested windbreaks, and contour terracing to protect farmland from water and wind erosion. To maintain sustainable growth of agricultural production, farmers must rotate cereals with legumes or manure crops. Because cereals exhaust soil nitrogen, farmers need to plant legumes in the same field to replenish the soil's fertility.<sup>13</sup> Moreover, crop rotation requires farmers to prepare arable land for a new crop. Farmers must clean other crop residuals from the harvested area. Farmers must use irrigation and fertilizers to maintain soil fertility. As mentioned earlier, only 5 percent of farmland is irrigated in Ukraine (WDI, 2012). If a farmer avoids crop rotation, she can harvest crops that do not need abundant moisture and high mineral content. These crops are mainly cereals or weeds. To increase harvested area, farmers can also destroy forested windbreaks and contour terracing. In the prohibition economy farmers are deprived of free choice for making rational economic calculations (Powell and Stringham, 2012). Thus, farmers are coerced to maximize their profits in the short run by forgoing traditional farming.

Ukraine's agricultural production is oriented toward exports of vegetable oil and oilseed crops. Policy talks about a global food crisis and climate change have increased demand for alternative sources of energy, including biofuel (FAO, 2011). Sunflower, corn, and rapeseed oilseeds are among the main goods exported by Ukraine. As a result, their harvested areas have increased significantly since the early 1990s. The harvested areas of corn and sunflower doubled and quadrupled, respectively. The harvested area of rapeseed had a tenfold increase in the 2000s. The harvested areas of sunflower and rapeseed had larger increases than that of corn because corn had a higher production cost.

A shift in farming practice is evident at the national level. The harvested area of green manure and legume crops has declined since

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<sup>13</sup> Farmers also have to rotate crops with different root systems to maintain soil respiration and hydration. Deep-rooted (aerial) crops have roots that pierce through several layers of soil, horizons, and create a vital system of water canals so that water can reach the lowest soil horizons. Shallow-rooted crops have roots that filter and supply water to soil layers better than crops with aerial roots. Rotating deep-rooted crops with shallow-rooted ones pays off during the dry season. Crops can use the water supplies from the lower layers of the soil and survive the dry heat.

the early 1990s. In relative terms, the share of legume and manure croplands declined from 40 to 10 percent between 1991 and 2011. The share of cereal and sunflower croplands increased from 50 to 80 percent in the same period of time. Conventional farming, however, allows for a maximum of 50 percent of arable land area to be utilized for cereals. In the 2009–2012 period, farmers harvested wheat, barley, and corn from a total of 33.8 million acres (USDA, 2012). In addition, farmers harvested sunflower and rapeseed from a total of 17.3 million acres. The arable land area constitutes almost 80 million acres, including 25 million acres of unutilized cropland area. Farmers, therefore, harvested cereals and rapeseed from almost 93 percent of utilized arable land. Thus, agricultural production has unsustainable growth in Ukraine. Unsustainable growth of agricultural production reduces land productivity. Crop yields have declined across the agricultural sector since the early 1990s. Overall, grain yield has remained at 80 percent of what it was before the start of the divestiture proceedings (USDA, 2012).

The traditional crop rotation allows planting sunflower in the same field once every seven years. The increased harvested area of sunflower indicates that farms harvest sunflower from the same field more often than is sustainable. Harvesting sunflower from the same field for three years in a row depletes soil fertility tremendously. Moreover, in the early 2000s farms started growing a rapeseed. Its low production cost and high profit margin resulted in an almost tenfold increase of its harvested area across Ukraine. This oilseed weed, however, is very detrimental to soil fertility. If a farm harvests rapeseed from the same plot of land for two consecutive years, the farmland loses its soil fertility for at least three years. Without proper irrigation, large use of fertilizers, and conventional farming, the layer of fertile soil degrades further. It takes 100 years of natural accumulation of hummus to restore one inch of fertile soil. Because farms forgo crop rotation, they must use larger amounts of fertilizer. As shown in Table 3, the consumption of fertilizer, however, has declined in Ukraine since the early 1990s. On average, the use of crop, wheat, and corn fertilizers dropped by 80, 73, and 90 percent, respectively (CNFA, 2004).

#### **IV. Conclusion**

Agricultural market reform was arbitrary in Ukraine. The government maintained its hegemonic relation toward the citizenry

**Table 3: Mean Use of Fertilizer in Ukraine, 1990–2004**

<b>Fertilizer</b>	<b>1990–1992</b>	<b>2002–2004</b>
Crops, million tons	2.7	0.5
Wheat, kg per hectare	150	40
Corn, kg per hectare	250	30

Source: USAID (2005).

(Rothbard, 1962). The state planned and controlled each step of private sector development in the agricultural sector. The prohibition of the sale of farmland is absolute. The use of agricultural land is subject to rationing. The rental market of cropland is under price control. Moreover, the government periodically regulates food prices and grain exports (see Krasnozhan 2011b, 2011c). As a result, Ukraine’s agricultural sector has unsustainable growth, sector-wide inefficiencies, and large black market activity. Once charged with defining rights, the government created a set of bad institutions that produced bad economic development.

The prohibition economy produced the unsustainable agricultural sector, which also causes environmental pollution and resource depletion. Degraded farmland is almost 32 percent of the total area of agricultural land. Twenty percent of arable land can produce only a low crop yield. Landowners have abandoned almost 40 percent of farmland. Unsustainable farming that damages present natural resources creates an intergenerational burden of resource degradation. The cost of farmland restoration falls on the next generation of landowners and farmers. The attenuated system of property rights and the prohibition economy cannot internalize these future costs. Ukraine’s agriculture is quite far from its historical status as the European breadbasket because the government has coerced the agricultural sector into the state of the prohibition economy.

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