

**World Bank program "Supporting Transparent Land Governance in Ukraine"**  
**with financial support from the EU**

invite all interested researchers to apply for a national grant competition  
**"Land, Transparency and Decision Making"**

Winners will receive a grant of up to 50 000 UAH each and methodological support during 4 months.

Application deadlines: November 15, 2018, 23:59 Kyiv time

**ADDITIONAL INFORMATION**

**Background**

Asymmetric information about the land rights and land resources is a source of many problems with land management in Ukraine. The lack of transparency in land governance forms ground for a power abuse, conflicts and seizure of land, low productivity and inadequate investment.

**Purpose of the competition:** to stimulate applied economic research in the field of land economics of Ukraine and to inform public and policy makers, to promote a political dialogue based on actual data and economic analysis.

**Special requirements:** The study should use open data (in particular, but not exclusively, Land Governance Monitoring) to create an important and relevant (from a policy and decision making perspective) economic analytics. Information about the Monitoring is available here (<http://www.kse.org.ua/uk/research-policy/land/governance-monitoring/>).

**Research proposals are invited in one nomination:**

- Best evidence based policy research **paper** on the governance of land resources in Ukraine.

**Examples of topics (the list is not exhaustive)**

When choosing a topic applicants are advised to consider the background bibliography (see Annex 2. the list is not exhaustive).

- *The effect of land market imperfections and rural wellbeing.*
- *The effect of land market imperfections and farms' performance in Ukraine.*
- *The effect of agricultural support on farmland use patterns in Ukraine.*
- *Mass land valuation: the case of state land rental rights.*
- *What are the experiences elsewhere for land management under centralized and decentralized systems?*
- *Consequences of registration quality and completeness for productivity, land use, investments?*
- *How does land ownership impacts investment in agriculture?*
- *Are intrinsic land values reflected in auction prices?*
- *What factors are influencing completeness of Land Cadastre and Registry of Rights data?*
- *What factors are explaining the share of citizens that used their right to privatize a land plot?*

**How to apply:** all documents have to be submitted online to: [land\\_project@kse.org.ua](mailto:land_project@kse.org.ua) before the application deadline.

### **Application selection**

The competition will be organized in two rounds: i) selection of research proposals (November 16, 2018 – December 24, 2018); ii) development of winning projects (December 25, 2018 – April 3, 2019).

The selection of proposals and final award is carried out by a scientific jury consisting of the World Bank researchers, KSE faculty and external experts. Authors of the selected proposals will make a presentation at a research workshop in December 2018 (preliminary workshop dates are December 20-21). Participation of the lead author is mandatory.

The working language of the workshop is English. The presentation of each proposal takes 20 minutes; the next 10 minutes are open for discussion. Two reviewers are appointed for each selected proposal: one among international experts and other among the participants of competition. After the presentations, each applicant participates in an individual debriefing session, during which the recommendations for the implementation or finalization of the projects are discussed. The final decision is taken on the basis of the debriefing.

The results of selection of the proposal for participation in the workshop will be posted on the site [land.kse.org.ua](http://land.kse.org.ua) by December 2, 2018. Authors will be notified via email. Up to ten proposals will be selected for participation in the workshop. The final results of the research proposals selection will be announced by December 24, 2018. Up to five proposals will be selected for implementation and granted with the award. The Program reserve the right to extend the deadline for applications and/or have a new round of submissions or to cancel the competition if suitable applications are not identified in the first round. In such case all the deadlines will be updated.

The authors of selected proposals have to submit an *interim report* by February 15, 2019.

The ***final research paper*** with clear description of the results and policy recommendations should be submitted by April 3<sup>rd</sup>, by 23:59 Kyiv time.

The final research papers will be reviewed by the jury and ***results*** will be announced by April 20, 2019

Upon completion of the study, by the recommendation of the jury the best research projects will be invited to publication in the KSE journal "Modern economic studies", World Bank or other international journals.

### **Evaluation criteria for proposals**

The members of the jury are guided by the following criteria:

- Relevance to the topic of competition;
- The significance of the project and the importance of the problem for the national economy
- The clarity of the problem statement and the originality of the hypotheses put forward
- The use of modern scientific methodology, its level of compliance with the research objectives
- Quality of literature review
- Availability of necessary data
- Realistic of the project implementation plan
- Quality of Project's presentation

Everything else equal, the jury may take into account the extent to which the grant will contribute to the professional growth of the applicant and the development of scientific potential in the regions of Ukraine.

The criteria for evaluation of final papers include:

- Quality of justification and application of analytical methods and estimation strategy;
- Quality of data and results description;
- Robustness of the results;
- Quality of results interpretation and policy implications;
- Suitability for publication in international academic journals.

The winning proposals will receive additional instructions and requirements for interim and final reports.

### **Financing: the size and payment structure of the grant**

Grants are awarded to individual researchers or research teams (see section "Participants" below). The size of the grant (25 - 50 thousand hryvnia) depends on quality of research as evaluated by jury.

The application must include a detailed budget estimate of the project and available funding sources. The availability of alternative sources of funding does not deprive applicants of the right to apply for this grant (see below, section "Description of the research project").

The grant is paid in two installments. The first payment (10,000 UAH) will be made once the proposal has been approved by the jury. The second payment will be made after the presentation and

approval of the final report in April 2019. The size of the final payment will depend on the quality of research work and its presentation at the final workshop. The first prize will be 40,000 UAH. Up to two second prizes – 25,000 UAH, and up to three third – 15,000 UAH.

Additional travel grant will compensate for economy class travel and accommodations for researchers residing outside of Kyiv (principle investigators) who are invited to the workshops.

Missing deadlines for submission of the interim and final reports makes the candidates ineligible for the final reward.

The jury will review the interim reports, provide recommendations or can make recommendations for withdrawal of the proposal from further consideration.

## **Participation conditions and application requirements**

### *Participants*

Single participants and lead researcher have to be citizens of Ukraine who are permanently residing on its territory and hold at least a master degree. All applications are considered on a competitive basis regardless of racial or ethnic origin, religion, age or gender.

Each person can submit only one application (individually or as part of a research team).

Citizens of Ukraine permanently residing abroad for the purpose of studying or teaching or foreigners are not allowed to be principle investigators but can participate in the competition as team members. An exception may be made for applicants whose terms of study or teaching expire no later than December 31, after which they return to Ukraine for at least 6 months.

### *Application procedure*

Based on the experience of previous competitions, many applicants apply in the last days before the submission deadline. To avoid overloading the server and possible delays, we ask applicants to apply in advance. Applications received after this deadline or applications that do not meet the requirements set out below will not be accepted.

### *The contents of the application*

The application package includes the following materials:

- A complete online registration form
- Attachment: description of research proposal, CV of each project participant.

#### 1. Registration form

The registration form contains the following information: the name of the project, its short description, the names and contact information of the principal investigator and the project participants, additional information as needed.

## 2. Research proposal.

**Please consider a short one-page example of what a good proposal might look like (Annex 3).**

The submitted proposal is expected to be 4-6 pages (excluding annexes), printed in 1.5 intervals, font size 12 points (approximately 10,000 characters). The proposal should include the following sections:

- Formulation of the problem/ research question. Define as precisely as you can the task of the study; formulate specific hypotheses that are subject to theoretical justification and empirical verification within the project. Explain the relevance of these hypotheses from a scientific point of view. Attention: the purpose of the study should be to explain the economic phenomena – works of a purely descriptive nature, are unlikely to pass the selection stage.
- Literature review. Describe and evaluate the results of research literature on the topic of your proposal and existing approaches. Do not just list the authors. Instead, discuss the results of other researchers and implications for the proposed topic, explain how your approach is different, what results you expect to receive (or have already received).
- Research methodology. This section is the main part of the project proposal. It should include the following sub-sections:
  - (A) Data: sources, structure, method of variables construction. In case of a survey, describe the data collection mechanism (make sure to attach a detailed questionnaire), sample construction. Provide an evidence that you have legitimate access to the data you propose to use in your research (we are not supporting a new data collection).
  - (B) Theoretical model. Describe the theoretical justification or describe (mathematically) the basic parameters of the theoretical model. Focus on the relationship between the model and the data, explain to what extent it responds to the questions posed in the introduction.
  - (C) Estimation of the model. Specify the preliminary formulation of the econometric model, including methods for calculating dependent and independent variables from the data, and justify their inclusion in the model in terms of economic theory.
  - (D) Interpretation. Describe the possible options for interpreting the predicted (or already obtained) research results in terms of economic theory and their practical significance.
- Practical application. Describe which economic or social policy problem is addressed by the proposed research. Give a brief overview of alternative perspectives and / or suggestions for solving this problem. Explain how your research will contribute to assessing existing policy proposals, estimating the parameters of economic policy, amending the legislation, etc.
- Bibliography. Specify the main sources (in the original language).

- Collaboration within the research team. If the project is carried out by a team of researchers, specify the role of each participant, whether the authors have a joint work experience. Specify the names of foreign colleagues who cooperate with you within the project, their degree, place of work. Describe the role of each researcher (including foreign) and specific forms of cooperation.
- Alternative / additional funding sources. Provide detailed information on the additional sources of project funding for each project participant, including salary at the place of work (if the research is entirely or partly related to their paid work), as well as grants from other organizations (if similar or close to the project is financed from another source). If there are alternative sources of funding, please specify the additional amount of work to be performed at within this proposal. **The project financing may be terminated in case of deliberately incorrect or incomplete information.**
- Schedule / work plan. Describe the work plan for the project and the estimated timing for each stage.

3. Short CV (for each project participant) – 2 pages max.

The CV should include:

- education and work experience (in reverse chronological order)
- a list of publications relevant to the subject of the proposed study (no more than 5)
- a list of research grants received from other sources, as well as competitions you are currently participating in (please briefly describe the research, scope and timing of the funding).

Persons temporarily residing abroad for the purpose of studying and / or teaching: indicate the place, goals and terms of stay abroad, the expected completion date of studies and return to Ukraine during the work on the grant.

## **Annex 1. The most common mistakes in proposal development**

### 1. Research objectives

- The project is too ambitious: "To explain the development of the Ukrainian economy during the twentieth century", "To develop an action plan of reforms for the country / region / industry".
- It is proposed to develop a methodology for addressing too narrow practical or analytical tasks related to business planning, evaluation of a specific investment project.
- The purpose of the project is only generalization of economic information, description of the situation in the region, industry, etc.
- It is proposed to solve a mathematical problem with only an indirect relation to economic science and / or real problems of the economy.

### 2. Bad (fuzzy) formulation of research hypotheses

- Instead of clearly defining the objectives of the project, only the general direction of research is suggested (for example, "land rent market analysis", "land utilization", "regional development agricultural problems", etc.).
- Basic hypotheses are either non-quantifiable or not defined at all.
- The hypotheses of the project are not of a research interest, trivial in content ("The growth of investment in the economy has a positive effect on the growth of production", "It is better to be rich and healthy than the poor and the sick").

### 3. Lack of critical analysis of existing research literature

- Instead of a detailed, critical analysis of the existing literature on the topic of the project, the section "Review of literature" only lists authors and the names of their works.
- The review includes only basic economics books (for example, McConnell and Brue) or classics (Adam Smith, Marx).
- The review does not include the work of foreign economists.

### 4. Incomplete data section

- The application does not contain a description of the data used, only the references to their source ("the data of the State Statistics Committee and the regional committees of statistics") are given; a questionnaire is not added (in the case of survey data); it is not given the definition of variables that are calculated according to the questionnaire data; issues related to inaccurate or incomplete data not discussed

### 5. Vague description of the methodology

- The use of "economic theory", "system approach" is declared, but the section "Research methodology" is limited by simple list of research methods ("The project will use methods of factor and cluster analysis").
- The methodology is not adequate to the stated objectives of the project, for example, limited to the construction of charts, diagrams, use of elementary statistical calculations, simple data comparison.
- The theoretical model is not represented in the formal (mathematical) form.

- The theoretical model is extremely complex and can not be interpreted economically.
- No quantitative analysis methods are described. The econometric model is either not presented at all, or presented in its most general form, without discussing the problems associated with the evaluation of its parameters.
- The econometric model is not related to economic theory.

No preliminary project results are discussed.

## Annex 2. Selected bibliography on Governance of Land Resources

### Credit access

- Carter, Michael R., and Pedro Olinto. Getting institutions "right" for whom? Credit constraints and the impact of property rights on the quantity and composition of investment. *American Journal of Agricultural Economics* 85, no. 1 (2003): 173-186.
- Do, Quy-Toan, and Lakshmi Iyer. Land titling and rural transition in Vietnam. *Economic Development and Cultural Change* 56, no. 3 (2008): 531-579.
- Feder, Gershon, and David Feeny. Land tenure and property rights: Theory and implications for development policy. *The World Bank Economic Review* 5, no. 1 (1991): 135-153.
- Feder, Gershon, Tongroj Onchan, and Tejaswi Raparla. Collateral, guaranties and rural credit in developing countries: evidence from Asia. *Agricultural Economics* 2, no. 3 (1988): 231-245.
- Guirkinger, Catherine, and Stephen R. Boucher. Credit constraints and productivity in Peruvian agriculture. *Agricultural Economics* 39, no. 3 (2008): 295-308.

### Investment and farm productivity

- Ali, Daniel Ayalew, Stefan Dercon, and Madhur Gautam. Property rights in a very poor country: tenure insecurity and investment in Ethiopia. *Agricultural Economics* 42, no. 1 (2011): 75-86.
- Besley, Timothy. Property rights and investment incentives: Theory and evidence from Ghana. *Journal of Political Economy* 103, no. 5 (1995): 903-937.
- Feder, Gershon. Land ownership security and farm productivity: evidence from Thailand. *The Journal of Development Studies* 24, no. 1 (1987): 16-30.
- Field, Erica. Property rights and investment in urban slums. *Journal of the European Economic Association* 3, no. 2-3 (2005): 279-290.
- Goldstein, Markus, and Christopher Udry. The profits of power: Land rights and agricultural investment in Ghana. *Journal of political Economy* 116, no. 6 (2008): 981-1022.
- Holden, Stein T., Klaus Deininger, and Hosaena Ghebru. "Impacts of low-cost land certification on investment and productivity." *American Journal of Agricultural Economics* 91, no. 2 (2009): 359-373.
- Jacoby, Hanan G., Guo Li, and Scott Rozelle. Hazards of expropriation: tenure insecurity and investment in rural China." *American Economic Review* 92, no. 5 (2002): 1420-1447.
- Leight, Jessica. Reallocating wealth? Insecure property rights and agricultural investment in rural China. *China Economic Review* 40 (2016): 207-227.

### Land rental markets and effects

- Bell, Clive, and Chalongphob Sussangkarn. "Rationing and adjustment in the market for tenancies: The behavior of landowning households in Thanjavur district." *American Journal of Agricultural Economics* 70, no. 4 (1988): 779-789.
- Chamberlin, Jordan, and Jacob Ricker-Gilbert. "Participation in rural land rental markets in Sub-Saharan Africa: Who benefits and by how much? Evidence from Malawi and Zambia." *American Journal of Agricultural Economics* (2016): 1507-1528.
- Deininger, Klaus, and Songqing Jin. "The potential of land rental markets in the process of economic development: Evidence from China." *Journal of Development Economics* 78, no. 1 (2005): 241-270.
- Holden, Stein T., Keijiro Otsuka, and Frank M. Place, eds. *The emergence of land markets in Africa: Impacts on poverty, equity, and efficiency*. Routledge, 2010.
- Holden, Stein T., Klaus Deininger, and Hosaena Ghebru. Tenure insecurity, gender, low-cost land certification and land rental market participation in Ethiopia. *The Journal of Development Studies* 47, no. 1 (2011): 31-47.
- Jacoby, Hanan G., and Bart Minten. "Is land titling in Sub-Saharan Africa cost-effective? Evidence from Madagascar." *The World Bank Economic Review* 21, no. 3 (2007): 461-485.
- Place, Frank, and Shem E. Migot-Adholla. The economic effects of land registration on smallholder farms in Kenya: evidence from Nyeri and Kakamega districts. *Land Economics* (1998): 360-373.
- Skoufias, Emmanuel. Household resources, transaction costs, and adjustment through land tenancy. *Land Economics* (1995): 42-56.

Vranken, Liesbet, and Johan Swinnen. Land rental markets in transition: Theory and evidence from Hungary. *World Development* 34, no. 3 (2006): 481-500.

#### Labor allocation

de Janvry, Alain, Kyle Emerick, Marco Gonzalez-Navarro, and Elisabeth Sadoulet. Delinking land rights from land use: Certification and migration in Mexico. *American Economic Review* 105, no. 10 (2015): 3125-49.

Galiani, Sebastian, and Ernesto Scharfrodsky. Property rights for the poor: Effects of land titling. *Journal of Public Economics* 94, no. 9-10 (2010): 700-729.

Gavian, Sarah, and Marcel Fafchamps. Land tenure and allocative efficiency in Niger. *American Journal of Agricultural Economics* 78, no. 2 (1996): 460-471.

Kung, James Kai-sing. Off-farm labor markets and the emergence of land rental markets in rural China. *Journal of Comparative Economics* 30, no. 2 (2002): 395-414.

Larson, Donald, and Yair Mundlak. "On the intersectoral migration of agricultural labor." *Economic Development and Cultural Change* 45, no. 2 (1997): 295.

Mundlak, Yair. *Agriculture and economic growth: theory and measurement*. Harvard University Press, 2000.

Timmer, C.P., 2002. *Agriculture and economic development*. *Handbook of agricultural economics*, 2, pp.1487-1546.

Valsecchi, Michele. Land property rights and international migration: Evidence from Mexico. *Journal of Development Economics* 110 (2014): 276-290.

Zhao, Yaohui. Leaving the countryside: rural-to-urban migration decisions in China. *American Economic Review* 89, no. 2 (1999): 281-286.

#### Land use and incentives to conserve natural resources

Ali, Daniel Ayalew, Klaus Deininger, and Daniel Monchuk. Using satellite imagery to assess impacts of soil and water conservation measures: evidence from Ethiopia's Tana-Beles Watershed. PRWP 8321. Washington: World Bank, 2018.

Bradley, Amanda and Jamel Kailene. Addressing Encroachment on State Forest Land in Tunisia. Paper prepared for presentation at the 2018 World Bank Conference on Land and Poverty. Washington DC, March 19-23, 2018.

Cook, Jonathan, Owen Cylke, Donald F. Larson, John D. Nash, and Pamela Stedman-Edwards. *Vulnerable places, vulnerable people: trade liberalization, rural poverty and the environment*. The World Bank, 2010.

Engel, Stefanie, Stefano Pagiola, and Sven Wunder. Designing payments for environmental services in theory and practice: An overview of the issues. *Ecological Economics* 65, no. 4 (2008): 663-674.

Gebremedhin, Berhanu, and Scott M. Swinton. Investment in soil conservation in northern Ethiopia: the role of land tenure security and public programs. *Agricultural Economics* 29, no. 1 (2003): 69-84.

Soule, Meredith J., Ababayehu Tegene, and Keith D. Wiebe. Land tenure and the adoption of conservation practices. *American Journal of Agricultural Economics* 82, no. 4 (2000): 993-1005.

#### Land administration design and implementation

Ali, Daniel Ayalew, Klaus Deininger, and Marguerite Duponchel. New ways to assess and enhance land registry sustainability: Evidence from Rwanda. *World Development* 99 (2017): 377-394.

Baker, Mark, Christopher Wood, Jeremy Carter, Michael Short, and Stephen Jay. *Strategic environmental assessment and land use planning: an international evaluation*. Routledge, 2005.

Bennett, Rohan, Jude Wallace, and Ian Williamson. Organising land information for sustainable land administration. *Land Use Policy* 25, no. 1 (2008): 126-138.

Deane, Graham Tim Pattison, Robert Owen. Satellite Image Analysis for Operational Maintenance of a Property Database for Dakar City. Paper prepared for presentation at the 2018 World Bank Conference on Land and Poverty. Washington DC, March 19-23, 2018.

Enemark, Stig, Ian Williamson, and Jude Wallace. Building modern land administration systems in developed economies. *Journal of Spatial Science* 50, no. 2 (2005): 51-68.

Larson, Anne M, Esther Mwangi, Iliana Monterroso, Nining Liswanti, Tuti Herawati. Conflict in collective formalization processes: opportunities for transformation? Paper prepared for presentation at the 2018 World Bank Conference on Land and Poverty. Washington DC, March 19-23, 2018.

Lemieux, Victoria Louise. Trusting records: is Blockchain technology the answer? *Records Management Journal* 26, no. 2 (2016): 110-139.

Meadows, John, Kate Fairlie, Daniel Paez, Tony Burns. An Assessment of PPPs in Land Administration: Development of a Set of Pre-requisites for Effective PPP Implementation. Paper prepared for presentation at the 2018 World Bank Conference on Land and Poverty. Washington DC, March 19-23, 2018.

Pantoja, Enrique, Victor Endo, Luis Triveño. Contracting Out Services for Systematic Registration: Gaining Productivity and Managing Risks. Paper prepared for presentation at the 2018 World Bank Conference on Land and Poverty. Washington DC, March 19-23, 2018.

#### Land valuation, taxes, and conversion

Azadi, Hossein, Peter Ho, and L. Hasfiati. Agricultural land conversion drivers: A comparison between less developed, developing and developed countries. *Land Degradation & Development* 22, no. 6 (2011): 596-604.

Bentick, Brian L. The impact of taxation and valuation practices on the timing and efficiency of land use. *Journal of Political Economy* 87, no. 4 (1979): 859-868.

Besley, Timothy, and Torsten Persson. Why do developing countries tax so little? *Journal of Economic Perspectives* 28, no. 4 (2014): 99-120.

Carrion-Flores, Carmen, and Elena G. Irwin. Determinants of residential land-use conversion and sprawl at the rural-urban fringe. *American Journal of Agricultural Economics* 86, no. 4 (2004): 889-904.

Chae, Mie Oak and Inhyuk Kwon. Korea's Mass Assessment System of Land Pricing for Taxation, Utilizing ICT. Paper prepared for presentation at the 2018 World Bank Conference on Land and Poverty. Washington DC, March 19-23, 2018.

Kalkuhl, Matthias, Blanca Fernandez Milan, Gregor Schwerhoff, Michael Jakob, Maren Hahnen, and Felix Creutzig. Can land taxes foster sustainable development? An assessment of fiscal, distributional and implementation issues. *Land Use Policy* 78 (2018): 338-352.

Lichtenberg, Erik, and Chengri Ding. Local officials as land developers: Urban spatial expansion in China. *Journal of Urban Economics* 66, no. 1 (2009): 57-64.

### **Annex 3. Example of what a good proposal might look like**

**Title:** Determinants of Productivity and Structural Change in a Large Commercial Farm Environment: Evidence from Ukraine

**Authors:** Klaus Deininger, Denys Nizalov, and Sudhir Singh

**Research questions:** 1) Does productivity decrease with farm size? 2) Do initial land-concentration conditions affect entry and exit by agricultural firms?

**Data description (periodicity, unit of observation):**

Source: SS50): 12-year annual panel of 10,000 farm enterprises, 2001-2012; data is from Form 50 from Ukraine's State Statistics Committee (SSC 50); Variables: Based on 11 crops: area cultivated, output value, and input costs (hired labor, fertilizer, seed, fuel, energy, agricultural services, capital depreciation and rent).

Source: UME: 12 years of annual national values from Ukraine Ministry of Finance; Variables: annual deflator and \$US exchange rates.

**Research strategy for Question 1:** Estimate Cobb-Douglas production function at firm level by regressing value of production against land, labor, seed, fertilizer, machinery, fuel and energy and other (agricultural services, capital depreciation and rent) together with enterprise fixed effects. Use IV method proposed by Olley and Pakes (1996) to address endogeneity; initial firm-level efficiency (2001-03) is used as identifying instrument.

Robustness checks: a) Use sub-samples of data; b) use rayon-level fixed effects; c) use trans-log functional form rather than Cobb-Douglas.

**Research strategy for Question 2:** At rayon-level, calculate share of cultivated area affected by firms a) entering, and b) exiting. Calculate 1): annual series based on annual changes and 2); cross-rayon observations based on changes from beginning season (2001-02) to ending season (2011-12). This results in 4 datasets.

Calculate two measures of initial land concentration: share of rayon area concentrated in farms greater than 3,000 ha. and 5,000 ha. Using fixed-effect estimates from production function already estimated, calculate initial mean productivity (for rayon) and productivity of large farms (in rayon) using two thresholds (above 3,000 ha and above 5,000 ha.).

Run eight regressions: dependent variables are entry and exit shares using both concentration definitions, using both datasets. Four common dependent variables are: initial mean farm productivity; initial share of large farms; initial productivity of large farms and rayon fixed effects. Include year dummies when annual panel datasets are used. Examine signs and significance of parameters to show that concentration hinders entry and exit.

**Implications for land policies:** The study finds no evidence of return-to-scale, once rayon-level endowment and management effects are considered. This suggests that productivity gains are not linked to the trend toward larger farms. Rather, enterprise entry and exit seem to matter. This indicates that the Government should put in place policies that reduce barriers to entry and exit and provide an enabling environment for the public goods that support productivity gains and facilitate markets for agronomic and managerial talent.

**Relevant literature**

### Related studies on Ukraine

Lerman, Z., D. Sedik, N. Pugachov, and A. Goncharuk. 2007. "Rethinking Agricultural Reform in Ukraine." *Studies on the Agricultural and Food Sector in Central and Eastern Europe* Vol. 38. Halle, Germany.

Lissitsa, A. and Odening, M., 2005. Efficiency and total factor productivity in Ukrainian agriculture in transition. *Agricultural Economics*, 32(3), pp.311-325.

Zinych, N. and Odening, M., 2009. Capital market imperfections in economic transition: empirical evidence from Ukrainian agriculture. *Agricultural Economics*, 40(6), pp.677-689.

### Related to scale productivity

Bardhan, P. 1973. "Size, Productivity and Returns to Scale: An Analysis of Farm-Level Data in Indian Agriculture." *Journal of Political Economy* 81 (6), 1370–86.

Barrett, C.B., M.F. Bellemare, and J.Y. Hou. 2010. "Reconsidering Conventional Explanations of the Inverse Productivity-Size Relationship." *World Development* 38 (1), 88–97.

Chayanov, A.V. 1926. *The Theory of Peasant Cooperatives*. Columbus: Ohio State University Press.

Deininger, K., and G. Feder. 2001. "Land Institutions and Land Markets." In B. Gardner and G. Raussser, eds. *Handbook of Agricultural Economics* 288–331.

Eastwood, R., M. Lipton, and A. Newell. 2010. "Farm Size." In P.L. Pingali and R.E. Evenson, eds. *Handbook of Agricultural Economics*. Elsevier, North Holland.

Lamb, R.L. 2003. "Inverse Productivity: Land Quality, Labor Markets, and Measurement Error." *Journal of Development Economics*, 71 (1): 71–95.

### Related to persistency of large farms

Baland, J.M., and J.A. Robinson. 2008. "Land and Power: Theory and Evidence from Chile." *American Economic Review* 98 (5), 1737–65.

Binswanger, D., and K. Deininger. 1997. "Explaining Agricultural and Agrarian Policies in Developing Countries." *Journal of Economic Literature* 35 (4), 1958–2005.

Conning, J.H. and J.A. Robinson. 2007. "Property Rights and the Political Organization of Agriculture." *Journal of Development Economics* 82 (2), 416–47.

Nugent, J.B., and J.A., Robinson. 2010. "Are factor endowments fate?". *Journal of Iberian and Latin American Economic History (Second Series)*, 28(01):45–82.

Vollrath, D. 2009. "The Dual Economy in Long-Run Development." *Journal of Economic Growth* 14 (4): 287–312.

### Methodology

Christensen, L.R., D.W. Jorgenson, and L.J. Lau. 1973. "Transcendental Logarithmic Production Frontiers." *Review of Economics and Statistics* 55 (1), 28–45.

Olley, G.S., and A. Pakes. 1996. "The Dynamics of Productivity in the Telecommunications Equipment Industry." *Econometrica* 64 (6): 1263–97.