

# JEVGENIJS STEINBUKS

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## CURRENT POSITION

Research Associate, Center for Global Trade Analysis, Purdue University

## OTHER AFFILIATIONS

Center for Robust Decision Making on Climate and Energy Policy, University of Chicago  
Electricity Policy Research Group, University of Cambridge  
Baltic International Center for Economic Policy Studies, Stockholm School of Economics (Riga)

## EDUCATION

Ph.D in Economics, George Washington University (2008)  
M.Sc in Economics, University of Warwick (2002)  
B.S.S. in Economics, University of Latvia (2000)

## RESEARCH INTERESTS:

### Energy and Environmental Economics:

Biofuels and bioenergy; Energy demand; Energy efficiency; Financial and energy markets; Inter-fuel substitution; Investment under uncertainty; Land use; Restructured electricity markets; Solar energy

### Financial Markets and Institutions:

Bankruptcy and foreclosure laws; Financial constraints; Financial deepening; Mortgage prepayments and defaults; Predatory lending and mortgage fraud; Regulation of mortgage loans; Subprime mortgages

## TEACHING INTERESTS

Energy and Environmental Economics, Financial Economics, Industrial Organization, Real Estate Finance

## ACADEMIC EXPERIENCE:

Director of Economic Studies, Sidney Sussex College, University of Cambridge (2008-2010)  
Research Associate, Electricity Policy Research Group, University of Cambridge (2008-2010)  
Visiting Assistant Professor in Economics, Miami University (2006-2008)  
Research Consultant, Sustainable Development Department, World Bank (2005-2007)  
Research Economist, Credit Research Center, Georgetown University (2004-2005)  
Research Consultant, Investment Climate Department, World Bank (2003-2005)  
Research Assistant, Department of Economics, University of Latvia (1998-1999)

## FELLOWSHIPS, AWARDS, GRANTS

Global Policy Institute Research Grant (2012-2013, Purdue University, \$39,958)  
Post-doctoral Research Fellowship (2010-2012, National Science Foundation)  
FlexNet Research Fellowship (2008-2010, U.K. Engineering and Physical Sciences Research Council)  
Global Leaders Fellowship, (2002 – 2006, George Washington University)  
Fulbright Fellowship (2002 – 2003, Department of State)  
Departmental acknowledgement of best *MSc* thesis, (2001, University of Warwick)

## **PUBLICATIONS:**

### Refereed Journals

- C. Desai, G. Elliehausen, and J. Steinbuks. "Effects of Foreclosure Laws and Bankruptcy Asset Exemptions on Mortgage Default and Foreclosure Rates," *Journal of Real Estate Finance and Economics*, forthcoming
- J. Steinbuks. 2012. "Interfuel Substitution and Energy Use in the UK Manufacturing Sector," *Energy Journal* 33(1), pp. 1-29.
- J. Steinbuks and V. Foster. 2010. "When Do Firms Generate? Evidence on In-House Electricity Supply in Africa," *Energy Economics* 32(3), pp. 505-514.
- G. Elliehausen, M. Staten, and J. Steinbuks. 2008. "The Effect of Prepayment Penalties on Pricing of Subprime Mortgages," *Journal of Economics and Business* 60(1-2), pp. 33-46.
- H. Fleisig, M. Safavian and J. Steinbuks. 2006. "Unlocking Dead Capital", *Public Policy for Private Development* 307, pp. 1-4.

### Works under Revision for Refereed Journals

- J. Steinbuks. "Financial Constraints and Firms' Investment: Results of a Natural Experiment Measuring Firm Response to Power Interruption." *B.E. Journal of Economic Analysis and Policy*, revised and resubmitted.

### Chapters in Edited Volumes

- J. Steinbuks. 2011. A Survey of Recent Developments in Energy Demand Modeling, in Jamasb, T. and Pollitt, M., Eds. (2011), *Electricity and Demand in a Low-Carbon World: Customers, Citizens and Loads*, Cambridge University Press: Cambridge UK.

### Working Papers under Review

- L. Orea and J. Steinbuks. "Estimating Market Power Using a Composed Error Model: Application to the California Electricity Market."
- J. Steinbuks and T. Hertel. "The Optimal Allocation of Global Land Use in the Food-Energy-Environment Trilemma." *RDCEP Working Paper 12-01*, University of Chicago.
- J. Steinbuks and K. Neuhoff. "Operational and Investment Response to Energy Prices in OECD Manufacturing Sector." *Cambridge Working Paper in Economics 1015*
- J. Steinbuks. "Effects of Regulation on Prepayment and Default of Subprime Mortgages." *Paolo Baffi Centre Research Paper No. 2008-25*, Bocconi University
- J. Steinbuks and G. Elliehausen. "Credit Regulation the Availability of Subprime Mortgage Credit"

### Permanent Working Papers

- J. Steinbuks, A. Meshreky, and K. Neuhoff. 2009. "The Effect of Energy Prices on Operation and Investment in OECD Countries: Evidence from Vintage Capital Model." *Cambridge Working Paper in Economics 0933*
- V. Foster and J. Steinbuks. 2009. "Paying the Price for Unreliable Power Supplies: Own Generation of Electricity by Private Firms in Africa," *World Bank Policy Research Paper 4913*
- G. Elliehausen, M. Staten, and J. Steinbuks. 2006. "The Effects of State Predatory Lending Laws on the Availability of Subprime Mortgage Credit", *FSRP Research Monograph 38*, George Washington University.
- J. Basarova, V. Proskurovska, and J. Steinbuks. 1999. "The Far-East Asian crisis. Could the same crisis happen in Latvia?" *Selected Student Papers, vol. II*, University of Tartu.

### Professional Reports

J. Steinbuks and X. Sun. 2006. "Investment Climate in Jamaica", *FIAS report*, World Bank  
J. Coolidge, G. Kisunko, and J. Steinbuks. 2004. "Russia's Runaway Investors" *FIAS report*, World Bank

## **RESEARCH IN PROGRESS**

International Inter-fuel Substitution: Do Factor Endowments Matter? (with B. Narayanan)  
The Optimal Allocation of the World's Land Resource Base in the Presence of Uncertainty and Irreversibility (with T. Hertel, in collaboration with K. Judd and Y. Cai).

## **CONFERENCE AND WORKSHOP PRESENTATIONS**

- 2012:** American Economic Association Annual Meetings
- 2011:** American Economic Association Annual Meetings, Industrial Organization Society Annual Meetings, Fourth International Workshop on Empirical Methods in Energy Economics, Institute for Computational Economics, American Geophysical Union Annual Meetings, Spanish Economic Association Annual Meetings\*
- 2010:** American Economic Association Annual Meetings, European Economic Association Annual Symposium, International Association for Energy Economics Annual European Conference, Royal Economic Society Annual Meetings, Financial Management Association Annual Conference\*, Third International Workshop on Empirical Methods in Energy Economics\*, Young Energy Engineers & Economists Annual Seminar\*\*, Cambridge-Oxford-Warwick Annual Doctoral Conference\*\*
- 2009:** American Real Estate and Urban Economics Association Mid-year conference\*, International Association for Energy Economics Annual European Conference, Southern Economic Association Annual Meetings\*, SuperGen FlexNet General Assembly
- 2008:** CSAE Conference 2008: Economic Development in Africa, EPRG Winter Research Conference, Financial Management Association Annual Conference, Third European Conference on Financial Regulation and Supervision
- 2007:** American Real Estate and Urban Economics Association Mid-year conference, The Federal Reserve System's Fifth Community Affairs Research Conference\*, "Financial Off-Shoring and Under-Grounding: White, Grey and Black Markets" workshop at Bocconi University\*, Second European Conference on Financial Regulation and Supervision\*\*
- 2001:** UNDP conference "Partnership for Development Cooperation"

\* - Research presented by co-author; \*\* - Discussed a paper at the conference

## **INVITED SEMINAR PRESENTATIONS**

Bank of England, Central European University, George Washington University, Higher School of Economics (Russia), Miami University, Moody's Economy.com, Purdue University, Stockholm School of Economics, Riga (Latvia), University of Birmingham, University of Cambridge, University of East Anglia, University of Guelph, University of Lancaster, University of Surrey

## **REFEREEING EXPERIENCE:**

*Cambridge Working Papers in Economics, Ecological Economics, Energy Economics, Energy Journal, Energy Policy, International Journal of Energy Sector Management, International Journal of Industrial Organization, Scandinavian Journal of Economics*

## **DISSERTATION SUPERVISIONS AND EXAMINATIONS**

Dissertation Director: 2 Undergraduate Students, 2 MPhil Students (University of Cambridge)  
Dissertation Committee Member: 1 PhD Student, University of Cambridge

**INTERNATIONAL RESEARCH PROJECTS:**

Report on Climate Policies in Europe (2009, principal sponsor: WWF)  
The Baltic Sea Area Studies: Northern Dimension of Europe (2002, principal sponsor: EU Commission)

**PROFESSIONAL AFFILIATIONS:**

American Economic Association, American Real Estate and Urban Economics Association, European Economic Association, International Association for Energy Economics, Industrial Organization Society, Royal Economic Society, Southern Economic Association, Western Economic Association

**OTHER PROFESSIONAL EXPERIENCE:**

Career Diplomat (economic affairs), Ministry of Foreign Affairs of Latvia (1997-2000)  
Assistant to Ambassador (economic affairs), Latvian Embassy in the USA (2002-2003)

**PROGRAMMING:** C/C++, EVIEWS, GAMS, GEMPACK, MATLAB, R, STATA, SAS

**LANGUAGES:** Fluent in Russian, English, and Latvian, limited knowledge of French.

**REFERENCES:**

**Thomas W. Hertel**

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Agricultural Economics,  
Purdue University

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## **RECENT RESEARCH PAPERS:**

### **“The Optimal Allocation of Global Land Use in the Food-Energy-Environment Trilemma” (with T. Hertel, under review)**

This study analyzes the optimal allocation of the world's land resources over the course of the next century within a dynamic forward-looking framework, which brings together distinct strands of economic, agronomic, and biophysical literature and incorporates key drivers affecting global land-use. We show that, while some deforestation is optimal in the near term, the desirability of further deforestation is eliminated by mid-century under the baseline scenario. While adverse productivity shocks from climate change have a modest effect on global land use, when combined with high growth in energy prices this leads to significant deforestation and higher GHG emissions than in the baseline. Imposition of a GHG emissions constraint further heightens the competition for land, as fertilizer use declines and land-based mitigation strategies expand. However, the effectiveness of such a pre-announced constraint is largely diluted by inter-temporal substitution of deforestation which accelerates prior to imposition of the target.

### **“Estimating Market Power in Homogenous Product Markets Using A Composed Error Model: Application To The California Electricity Market” (with L. Orea, under review)**

This study contributes to the literature on estimating market power in homogenous product markets. We estimate a composed error model, where the stochastic part of the firm's pricing equation is formed by two random variables: the traditional error term, capturing random shocks, and a random conduct term, which measures the degree of market power. Treating firms' conduct as a random parameter helps solving the over-parameterization problem in the continuous time. We apply our model to the California wholesale electricity market, and obtain time-varying and firm-specific conduct parameters. We find that firms' pricing strategies are Cournot except for the period of price run-up in summer 2000, and firms' conduct is procyclical. Firms' potential for realization of the market power unilaterally is generally associated with lower values of the conduct parameter, indicating that the unilateral exercise of market power and collusive behaviour are substitutes.

### **“Effects of Foreclosure Laws and Bankruptcy Asset Exemptions on Mortgage Default and Foreclosure Rates” (with G. Elliehausen and C. Desai, *Journal of Real Estate Finance and Economics*, forthcoming)”**

This study analyses the effects of state bankruptcy asset exemptions and foreclosure laws on mortgage default and foreclosure rates across different segments of the mortgage market. We find that the effects of these legal provisions are larger for subprime than prime mortgages and for adjustable rate mortgages than fixed rate mortgages. These results demonstrate that the effect of variation in bankruptcy exemptions and foreclosure laws is most pronounced in the riskiest segments of the mortgage market, which have been most affected by the continuing housing slump in the US.

### **“Interfuel Substitution and Energy Use in the UK Manufacturing Sector” (*Energy Journal*, vol. 33)**

This paper investigates interfuel substitution, separately accounting for different types of energy use in the UK manufacturing sector. Econometric models of interfuel substitution are applied to aggregate energy use, as well as to a specific energy use process - thermal heating - where interfuel substitution is technologically feasible. Compared to the aggregate data, the estimated own-price elasticities for all fuels and the cross-price elasticities for fossil fuels are considerably higher for thermal heating processes. Nonetheless, electricity is found to be a poor substitute for other fuels based on both aggregate data and, separately, for the heating process. An increase in real fuel prices from the Climate Change Levy in 2001 resulted in higher substitution elasticities based on aggregate data, and lower substitution elasticities for the thermal heating process. The results of a counterfactual decomposition of change in the estimated elasticities indicate that technological change was the major determinant of the differences in observed elasticities before and after the energy price increase.

**“The Effect of Energy Prices on Operation and Investment in OECD Manufacturing: Evidence from Vintage Capital Model” (with K. Neuhoff, under review)**

This paper analyzes the effect of energy prices on energy efficiency, separately accounting for operational and investment choices in different sectors. Our model incorporates both possibility of substitution between inputs for production (labour, energy and materials), and the potential for more efficient use of these inputs by choosing more efficient technologies at the time of investment. The model is estimated for 19 OECD countries across five manufacturing industries over the period 1990-2005. Vintage representation of capital stock significantly improves the explanatory value of the model at the industry level. Estimated own-price operational elasticities of energy demand vary between 0.26 and 1.00 and are economically sound. Estimated own-price investment elasticities of energy efficiency of capital stock vary between 0.03 and 0.9. The results of policy simulations for the U.K. petrochemical industry (the most energy-intensive industry in the sample) indicate that total own-price elasticity of energy demand is close to one.

**“Financial Constraints and Firms' Investment: Results of a Natural Experiment Using Power Interruption” (B.E. Journal of Economic Analysis and Policy, revise and resubmit)**

A substantial literature has attempted to measure the relation between deepening of the financial services industry and economic development. Some papers have focused on the effects of deepening on firm investment decisions. Such research is confounded by the general difficulty of modeling the demand for capital. This paper uses a natural experiment in which power outages indicate shifts in the derived demand for investment in private generators. A theoretical model demonstrates that firms with better access to credit are more likely to invest in generators. The analysis of firm-level data from Sub-Saharan Africa confirms the theory. Controlling for other factors, firms with better access to credit are more likely to invest in generators when public power supply fails.

**“Effects of Regulation on Prepayment and Default of Subprime Mortgages” (under review)**

This study examines the effects of restrictions on prepayment penalties on prepayments and defaults of subprime mortgages from theoretical and empirical perspectives. The theoretical model suggests that, if lenders substitute points for prepayment penalties, prepayment rates will rise and default rates fall. Empirical results are consistent with predictions of the theoretical model. Controlling for other factors, estimated probabilities of prepayment were higher in the states that have restricted prepayment penalties. Though no definite conclusions could be drawn regarding the effect of state laws on subprime defaults, there is evidence that early defaults decreased as regulation expanded.

**“Credit Regulation and the Availability of Subprime Mortgage Credit” (with G. Eliehausen, under review)**

This study investigates the effects of state predatory mortgage lending laws on the availability of subprime mortgage credit. Using the Rothschild-Stiglitz approach to model credit markets under asymmetric information, restrictions on prepayment penalties are shown to reduce the use and attractiveness of mortgage credit. Consistent with model predictions, empirical results indicate that originations of high-cost mortgages subject to tighter restrictions were generally significantly less than predicted in states with more restrictive laws but that this difference of predicted and actual was not significant in states with less restrictive laws. These differences were not found for originations of non-high-cost loans. Thus credit regulation was differentially associated with reduction in originations of high-cost mortgages and non-high-cost lending did not expand in areas where high-cost mortgages were restricted.