

# ARTHUR VAN BENTHEM

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## **EDUCATION**

Ph.D. in Economics, Stanford University

Expected completion: June 2012

Dissertation: “*Unintended Consequences from Environmental Legislation*”

M.S. in Management Science & Engineering, Stanford University, 2005

Specialization in Energy Economics and Policy

M.S. in Econometrics, University of Amsterdam, 2003 (cum laude)

B.S. in Econometrics and Operations Research, University of Amsterdam, 2003 (cum laude)

Minor in Earth Sciences

## **REFERENCES**

Prof. Lawrence H. Goulder (Committee Chair)

Economics Department, Stanford University

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Economics Department, UCSD

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## **CURRENT RESEARCH FIELDS**

Primary: Applied Microeconomics (Environmental and Public Economics)

Secondary: Development Economics

## **TEACHING EXPERIENCE**

- 2010 Teaching Assistant for Prof. S. Kerr, Stanford University, Environmental Economics and Policy (teaching rating 4.8/5.0)
- 2007 Design and teaching of the interdisciplinary honors course for Masters students “From Scientific Reasoning to Public Debate: the Case of Sustainable Energy”, University of Amsterdam, led by Prof. L. Fresco
- 2000-01 Teaching Assistant for Prof. R. Ramer, University of Amsterdam, Linear Algebra and Multivariate Calculus
- 1999 Teaching Assistant for Prof. J.G. de Gooijer, University of Amsterdam, Exploratory Data Analysis

## **EXTERNAL EXPERIENCE**

- 2006-07 Energy Economist, Shell Long-Term Energy Scenarios Team, Royal Dutch Shell, The Hague, Netherlands
- 2005 Quantitative Analyst, Shell Energy Europe, The Hague, Netherlands
- 2003 Research Internship, Shell Hydrogen, Amsterdam, Netherlands
- 2002-03 Evening Stock Trader, IMC Trading, Amsterdam, Netherlands

## **SCHOLARSHIPS, HONORS AND AWARDS**

- 2011-12 *Leonard W. Ely and Shirley R. Ely Graduate Student Fellowship* and *Shultz Graduate Student Fellowship*, Stanford Institute for Economic Policy Research
- 2010 *USAEE/LAEE Best Working Paper Award*, for the paper “Resource Extraction Contracts Under Threat of Expropriation: Theory and Evidence”
- 2010 *Outstanding Teaching Assistant Award*, Economics Department, Stanford University
- 2007-10 *Stanford University Graduate Fellowship* and *Prins Bernhard Cultuurfondsbeurs* for graduate studies in Economics
- 2006-07 *Special Recognition Awards* for the development of the World Energy Model (2006) and the Shell Energy Scenarios (2007), Shell International
- 2005 Award for *Outstanding Academic Achievement at the Graduate Level*, for highest GPA in the Department of Management Science and Engineering, Stanford University
- 2004-05 *Fulbright-Citibank Scholarship*, *Award for Talented Students* (Dutch Ministry of Education), and *VSB Scholarship*, for graduate study in the United States
- 2004 *Thesis Awards for Greatest Academic Achievements*, second prize, University of Amsterdam
- 2000-01 *Bonusbeurs* scholarship University of Amsterdam, Earth Sciences
- 1998 National awards, Dutch Association of Chemical Industry NVCi and Dutch Classics Association NKV, for outstanding exams in chemistry and Latin

## **PROFESSIONAL ACTIVITIES**

Conference presentations at the IAEE International Conference (Berlin, 2006), British Institute for Energy Economic Conference (University of Oxford, 2006), IAEE European

Conference (Florence, 2007), IAEE International Conference (San Francisco, 2009), Energy Institute summer camp (UC Berkeley, 2010), Occasional Workshop on Environmental and Resource Economics (UC Santa Barbara, 2010), World Bank – Development Research Group (2011), Resources for the Future (2011)

Member of the International Association of Energy Economics (IAEE), Association of Environmental and Resource Economists (AERE)

## **PUBLICATIONS**

GOULDER, L.H., M.R. JACOBSEN AND A.A. VAN BENTHEM, 2011, “Unintended Consequences from Nested State & Federal Regulations: The Case of the Pavley Greenhouse-Gas-per-Mile Limits”, *Journal of Environmental Economics and Management*, forthcoming

STROEBEL, J.C. AND A.A. VAN BENTHEM, 2011, “Investment Treaties and Hydrocarbon Taxation in Developing Countries”, CESifo Conference Volume “Taxation in Developing Countries”, The MIT Press, forthcoming

A.A. VAN BENTHEM AND M. ROMANI, 2009, “Fuelling Growth: What Drives Energy Demand in Developing Countries?”, *The Energy Journal* 30(3): 91-114

A.A. VAN BENTHEM, K. GILLINGHAM AND J.L. SWEENEY, 2008, “Learning-by-Doing and the Optimal Solar Policy in California”, *The Energy Journal* 29(3): 131-151

A.A. VAN BENTHEM, G.J. KRAMER AND R. RAMER, 2006, “An Options Approach to Investment in a Hydrogen Infrastructure”, *Energy Policy* 34(17): 2949-2963

## **RESEARCH PAPERS**

### **Do We Need Speed Limits on Freeways? (*Job Market Paper*)**

When choosing his speed, a driver faces a trade-off between private benefits (time savings) and private costs (fuel cost and own damage and injury). Driving faster also has external costs (pollution, adverse health impacts and injury to other drivers). This paper uses large-scale speed limit increases in the western United States in 1987 and 1996 to address three related questions. First, do the social benefits of raising speed limits exceed the social (private plus external) costs? Second, do the private benefits of driving faster as a result of higher speed limits exceed the private costs? Third, could completely eliminating speed limits improve efficiency? I find that a 10 mph speed limit increase on highways leads to a 3-4 mph increase in travel speed, 9-15% more accidents, 34-60% more fatal accidents, and elevated pollutant concentrations of 14-25% (carbon monoxide), 9-16% (nitrogen oxides), 1-11% (ozone) and 9% higher fetal death rates around the affected freeways. I use these estimates to calculate private and external benefits and costs, and find that the social costs of speed limit increases are three to ten times larger than the social benefits. In contrast, many individual drivers would enjoy a net private benefit from driving faster. Privately, a value of a

statistical life (VSL) of \$6.0 million or less justifies driving faster, but the social planner's VSL would have to be below \$0.9 million to justify higher speed limits. The substantial difference between private and social optimal speed choices provides a strong rationale for having speed limits. Although speed limits are blunt instruments that differ from an ideal Pigovian tax on speed, it is highly unlikely that any hidden administrative costs or unforeseen behavioral adjustments could make eliminating speed limits an efficiency-improving proposition.

**Resource Extraction Contracts Under Threat of Expropriation: Theory and Evidence**  
(with Johannes Stroebel) – Revised and Resubmitted at *The Review of Economics and Statistics*

We use fiscal data on 2,468 oil extraction agreements in 38 countries to study tax contracts between resource-rich countries and independent oil companies. We analyze why expropriations occur and what determines the degree of oil price exposure of host countries. With asymmetric information about a country's expropriation cost even optimal contracts feature expropriations. Near-linearity in the oil price of real-world hydrocarbon contracts also helps to explain expropriations. We show theoretically and verify empirically that oil price insurance provided by tax contracts is increasing in a country's cost of expropriation, and decreasing in its production expertise. The timing of actual expropriations is consistent with our model.

**Has Energy Leapfrogging Occurred on a Large Scale?**

Today's less-developed countries (LDCs) have access to energy technologies that did not exist when today's richer countries were at similar stages of development. Do LDCs therefore consume less energy per capita than rich countries in the past? And is their economic growth associated with a lower growth in energy consumption? This paper aims to answer these two questions. I use data on energy consumption, prices and GDP for 76 countries to estimate the income elasticity of energy demand for both current LDCs and industrialized countries in the past. I find that LDCs neither consume less energy than rich countries in the past nor have a lower income elasticity. I conclude that any energy savings from access to more efficient technologies have been offset by other trends, such as a shift towards a more energy-intensive consumption bundle or industrial outsourcing. This conclusion has important implications for projections of future energy consumption and carbon emissions.

**The Power of the Church - The Role of Roman Catholic Teaching in the Transmission of HIV** (with Johannes Stroebel)

We use the appointment of a Kenyan Roman Catholic archbishop as a natural experiment to analyze the impact of church authorities' teaching on sexual behavior. Using a triple-difference approach, we find that following the archbishop's counter-doctrinal assertion that condom use within a marriage can be acceptable to reduce HIV infections, Catholic married couples within the archdiocese who had access to condoms were 7.0 percentage points more likely to use condoms than unmarried Catholics in the diocese, non-Catholics within the diocese, or Catholics in other dioceses. These results are quantitatively large and robust to a number of econometric specifications. The evidence for whether advocating condom use leads to an increase in infidelity or a decrease in respect for women is not conclusive. Our

results suggest an important role for the Catholic church in the fight against HIV. This is especially relevant in light of Pope Benedict XVI's recent reconciliatory statement about condom use.

**Do Property Rights Lead to Sustainable Catch Increases?** (with Josh Sladek Nowlis) –  
Conditionally Accepted at *Marine Resource Economics*

Individual transferable quotas (ITQs) assign property rights in fisheries by granting individual fishers a tradable share of the total allowable catch. ITQs were originally proposed to enhance profitability and safety, but may also provide incentives for more conservation-minded fishing practices. Recent empirical evidence shows a reduction in the likelihood of stock collapse and a threefold increase in catches two decades after ITQ implementation. Yet these spectacular catch increases follow modest 20% reductions in reported catches. We used standard fisheries models to analyze whether these catch trends are consistent with the theory underlying conservation benefits from property rights. We find that it appears unlikely that catch increases are attributable to ITQs alone. Improved catch reporting systems, enacted concurrent with ITQs, may more plausibly explain sustained catch increases. This warrants caution about claims that property rights are the cause of sustainable catch gains.

**OTHER RESEARCH IN PROGRESS**

*Bigger is Better: Avoided Deforestation Offsets in the Face of Adverse Selection*, with Suzi Kerr, Stanford PESD Working Paper #102

*The Efficiency of Renewable Portfolio Standards in the Presence of Cap-and-Trade*, with Kenneth Gillingham

*Elasticity in the Supply of Used Cars: Estimating the Scrap Decision*, with Mark Jacobsen