

**THE PHILLIPE MONASTER CENTER  
FOR ECONOMIC RESEARCH**

**ACTIVITY REPORT**

**2000/01, 2001/2**

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## I. MEMBERS OF THE MONASTER CENTER FOR ECONOMIC RESEARCH

Dr. Suleiman Abubader	Department of Economics
Prof. Arie Arnon	Department of Economics
Dr. Gila Benisti	Department of Economics
Prof. Tuvia Blumenthal	Department of Economics
Dr. Tomer Blumkin	Department of Economics
Prof. Uri Ben-Zion	Department of Economics
Prof. Dov Chernichovsky	Department of the Management and Economics of Health
Prof. Ezra Einy	Department of Economics
Prof. Mark Gradstein	Department of Economics
Dr. Ori Haimanko	Department of Economics
Mr. Gadi Hazak	Department of Economics
Prof. Samuel Hollander	Department of Economics
Prof. Oded Hochman	Department of Economics
Prof. Moshe Justman	Department of Economics, Director of the Center
Dr. Yaakov Khazanov	Department of Economics
Prof. Israel Luski	Department of Economics, Department Chairman
Prof. Uri Regev	Department of Economics
Dr. Bradley Ruffle	Department of Economics
Dr. Aner Sela	Department of Economics
Prof. Haim Shalit	Department of Economics
Prof. Avia Spivak	Department of Economics
Prof. Jimmy Weinblatt	Department of Economics, Rector of the University
Dr. David Wettstein	Department of Economics

### STEERING COMMITTEE:

Prof. Moshe Justman  
 Prof. Israel Luski  
 Dr. Aner Sela

## II. SUMMARY OF ACTIVITIES

During 2000-2002 the Monaster Center continued its support of Economic Research at the university, through its sponsorship of seminars, visits from abroad, conferences, and direct grants to specific projects. Moshe Justman replaced Uri Regev as Director of the Center in 2000-2002, and is now replaced by the newly elected Director, David Wettstein.

The last two years have seen many comings and goings in the Department. Jimmy Weinblatt, former Department Chair and Dean of the Faculty of Humanities and Social Sciences was elected Rector of the University, and we wish him every success in these difficult times. Avia Spivak, also a former Department Chair and Faculty Dean, was appointed to a five-year term as Deputy Governor of the Bank of Israel, and will continue as a part-time member of the Department. To him too go out our wishes for every success in his new position.

The Department has made several senior appointments in the last two years. Uri Ben Zion, a Professor of Finance, and former member of our department, returns to Beer Sheva after spending the last two decades at the Technion. His research focuses on options and futures, and their application to the medical and industrial sectors and to banking. We are also privileged to have with us Samuel Hollander, noted historian of economic thought and definitive biographer of classical economists, after many years at the University of Toronto. Sam's current work in progress is a book on Karl Marx. Also joining us on a part-time basis is Daniel Gottlieb, a labor economist and Special Assistant to the Governor of the Bank of Israel.

The Department also welcomes several young new arrivals to its faculty. Ori Haimanko joined the Department last year following post-doctoral stints at the Cowles Foundation and CORE. Ori is a game theorist by training and completed his PhD at the Hebrew University of Jerusalem. His current research agenda focuses primarily on applications of game theoretic tools in established areas of economics, such as contract theory, public economics, and political economy. Dr Suleiman Abubader officially joined the Department in 2002/3, following a post-doctoral appointment in the Department. Suleiman received his MA in Economics from Ben Gurion University, and his PhD from Cornell University. He specializes in empirical development economics and applications of econometric analysis. Tomer Blumkin has also joined our Department this year, after post-doctoral positions at the Michigan, Penn and Tel-Aviv University, where he received his PhD. He specializes in theoretical labor economics and public economics.

Members of the Monaster Center continue to maintain their strong involvement in issues of central interest to Israeli society and economy. Still in progress is the program on Health Economics and Policy in a Stressed Society, in collaboration with the University's Faculty of Health Sciences, led by Center member Dov Chernichovsky. Uri Ben-Zion carries out research and consulting on finance and options and futures, specifically their application to the medical and industrial sectors and to banking. Avia Spivak chaired a national committee on accreditation of insurance professionals and his research on pensions figures prominently in the national debate on the future of the country's pension funds. Jimmy Weinblatt conducts extensive research on social policy issues with the Center for Social Policy Studies in Jerusalem and has served on several

national committees, including the special committee on the minimum wage, which he co-chaired, with Arie Arnon. Arie Arnon continues his research on the history of monetary thought, particularly during the eighteenth and nineteenth centuries. He is working on a book entitled “Between Monetary Theories of Credit and Credit Theories of Money” and continues his work on issues related to the Palestinian economy in the West Bank and Gaza. Uri Regev continues to serve on the advisory committee of the Central Bureau of Statistics and the Minister of the Environment’s steering committee for determining environmental regulations. Moshe Justman is a member of the steering committee on scientific and technological infrastructure at the Ministry of Science, Culture and Sport. He was a member of the national executive committee of the Israel Economic Association for three years, a position currently held by Arie Arnon.

Other major focal points of research in the Center include: theoretical research in mathematical economics and game theory by Ezra Einy, David Wettstein’s work on mechanism design, Aner Sela’s research on auctions, joint work on industrial organization by Israel Luski and David Wettstein, theoretical analysis of urban economics by Oded Hochman, pest management and environmental economics by Uri Regev, public choice by Mark Gradstein, the political economy of education by Mark Gradstein and Moshe Justman, and financial theory by Haim Shalit. Tuvia Blumenthal remains active in his work on Japan’s economy. Bradley Ruffle’s current research projects include the application of experimental methods to investigate the role of buyers in different market institutions (with Jim-Engle Warnick and with Hans-Theo Normann and Christopher Snyder), coordination in markets with network externalities and critical mass requirements (with Avi Weiss), the origins of cooperation (with Todd Kaplan), and the impact of religious observance and privatization on intra-group cooperation (with Richard Sosis). Yaakov Khazanov, who specializes in macroeconomics, is pursuing a research project the impact of economic growth on nationalist movements, and vice versa.

As every year, we are pleased to acknowledge the invaluable technical support of Ronen Massad. Unfortunately, we have lost Dani Grishchenko to greener pastures; we wish him and his family much success.

Finally, this report would not be complete without giving special thanks to the Monaster Center’s administrative coordinator, Ms. Ella Ginzburg, and the department’s English secretary, Ms. Estelle Schulgasser, for their dedication to the Center and their efforts in producing this report.

Professor Moshe Justman, Director  
Monaster Center for Economic Research

### III. ACTIVITIES IN DETAIL

#### 1) Conferences and workshops organized under the auspices of the Center and the Department of Economics

June 17-21, 2001: The Department of Economics at Ben-Gurion University and at Bar-Ilan University sponsored an International Conference entitled “The Open Economy Macromodel: Past, Present and Future.” The conference was organized by Warren Young (Bar-Ilan University) and Arie Arnon and Jimmy Weinblatt (Ben-Gurion University). Among the speakers were Nobel Prize Laureate in Economics, Robert Mundell. The conference also marked the occasion of the presentation of First Annual Dr. Adam Klug Memorial Lecture, which was delivered by Michael Bordo (Rutgers University) and Harold James (Princeton University). A conference volume was edited by Arie Arnon and Professor Warren Young of Bar-Ilan

#### 2) Guests of the Center and the Department of Economics

Support from the Center allows us to invite economists from abroad. This year we hosted the following guest lecturers:

12/00	Oded Bizan, Northwestern University
1/01	Tanguy van Ypersele, University of Namur
1/01	Ernan Haruvy, Harvard Business School
1/01	Michael Ben-Gad, University of Houston
2/01	Anna Rubinchik, University of Pennsylvania
3/01	Amnon Levy, University of Wollongong
3/01	Ronel Elul, New York University
5/01	Gerhard Glomm, University of Indiana
5/01	Pradeep Dubey, State University at Stony Brook
11/01	Iddo Kan, University of California, Riverside
1/02	Anna Bogomolnaia, Southern Methodist University
1/02	Dror Goldberg, University of Rochester
2/02	Federico Guerrero, University of Maryland
2/02	Nadav Levy, Northwestern University
6/02	Joshua Aisenman, University of California
6/02	Michal Barzura, Harvard University

#### 3) Seminar Lectures Presented by Guests from Israel and Abroad

9.11.00	Ori Haimanko, Hebrew University “Optimal Scrutiny in Multi-Period Tournaments”
16.11.00	Dov Monderer, Technion “From Economics to Artificial Intelligence”
23.11.00	David Wettstein, Ben-Gurion University “Contests with Variable Rewards”

- 7.12.00 Samuel Hollander, Ben-Gurion University  
“‘Classical Economics’ A Reunification Wrapped in an Anachronism?”
- 14.12.00 Arie Gavious, Ben-Gurion University  
“Bid Costs and Endogenous Bid Caps”
- 21.12.00 Fabrizio Germano, Tel-Aviv University  
“A Comparison of Standard Multi-Unit Auctions with Synergies”
- 25.12.00 Oded Bizan, Northwestern University  
“How do Firms Divide the Rent from a Joint Innovation? Evidence from American-Israeli Research Alliances”
- 28.12.00 Yishay Maoz, Hebrew University  
“Capital-Skill Complementarity, Inequality and Development”
- 4.01.01 Morris Teubal, Hebrew University  
“Globalization and Firm Dynamics in the Israeli Software Industry: A Case Study of Data Security”
- 11.01.01 Tanguy van  
Ypersele, University of Namur  
“Fiscal Competition and Regional Differentiation”
- 17.01.01 Ernan Haruvy,  
Harvard Business School  
“Casinos, Traffic, and Markets: A Learning Approach”
- 25.01.01 Moshe Justman  
and Avia Spivak, Ben-Gurion University  
“Socio-Economic Dynamics of Israeli Municipalities: Theory and Evidence”
- 28.1.01 Michael Ben-Gad,  
University of Houston  
“An Analysis of Immigration in a Dynamic Macroeconomic Model”
- 22.2.01 Anna Rubinchik,  
University of Pennsylvania  
“Can Decentralization be Beneficial?”
- 15.3.01 Buly Cardak,  
Hebrew University  
“Education Vouchers, Growth and Income Inequality”
- 22.3.01 Anthony  
Ziegelmeyer, Hebrew University

“Behaviors and Beliefs in Information Cascades”

26.3.01

Amnon Levy,

University of Wollongong

“Median Income Versus Per Capita Income: Implications for Assessing Growth and Convergence”

- 29.3.01 Ronel Elul, New York University  
 “Personal Bankruptcy and Incentives – an International Perspective” (with P. Gottardi)
- 19.4.01 Bradley Ruffle, Ben-Gurion University  
 “Inferring Buyer Strategies to Determine the Effect of Buyer Concentration on Pricing”
- 10.5.01 Elise Brezis, Bar-Ilan University  
 “Population, Social Classes, and Economic Growth during Industrialization”
- 17.5.01 David Wettstein, Ben-Gurion University  
 “Choosing Wisely: A Multi-Bidding Approach”
- 24.5.01 Gerhard Glomm, University of Indiana  
 “Majority Voting and Means-Tested Vouchers”
- 31.5.01 Itzhak Zilcha, Tel-Aviv University  
 “Human Capital, Welfare, and Growth: The Role of Information”
- 7.6.01 Pradeep Dubey (jointly with John Geanakoplos), State University at Stony Brook  
 “Signaling and Insurance in Perfect Competition”
- 11.6.01 Ohad Kadan, Hebrew University  
 “Limit Order Book as a Market for Liquidity”
- 14.6.01 Juergen Bracht, Center for Rationality and Interactive Decision Theory, The Hebrew University of Jerusalem  
 “Estimation of Learning Models on Experimental Data”
- 4.7.01 Yoram Gabai, Past Commissioner of State Income, Ministry of Finance,  
 “Wages in the Third Sector”
- 25.10.01 Shlomit Hon-Snir, Hebrew University  
 “Utility Equivalence in Auctions”
- 1.11.01 David Feldman, Ben-Gurion University  
 “Production and the Real Rate of Interest: A Sample Path Equilibrium”
- 8.11.01 Zvika Neeman, Hebrew University  
 “Markets Versus Negotiations: The Predominance of Centralized Markets”

- 15.11.01 M. Daniele Paserman (Hebrew University)  
“Job Search and Hyperbolic Discounting: Structural Estimation and Policy Evaluation”
- 22.11.01 Danny Cohen-Zada, Ben-Gurion University  
“Religious Education and School Vouchers”
- 29.11.01 Iddo Kan, University of California, Riverside  
“Rent Creation by Extortion”
- 6.12.01 Aviad Heifetz, Tel-Aviv University  
“The Evolutionary Role of Toughness in Bargaining”
- 13.12.01 Benjamin Eden, University of Haifa  
“Sequential International Trade”
- 20.12.01 Ezra Davar, Ben-Gurion University  
“Underemployment: Voluntary and Involuntary”
- 3.1.02 Anna Bogomolnaia, Southern Methodist University  
“Random Matching and Assignment under Dichotomous Preferences”
- 10.1.02 Tomer Blumkin, Tel-Aviv University  
“Efficient UI Time Path”
- 17.1.02 Dana Heller, Tel-Aviv University  
“Social Interactions, Human Capital and Mobility”
- 24.1.02 Dror Goldberg, University of Rochester  
“A Computational Macro Model with Multiple Directed Search”
- 7.2.02 Federico Guerrero, University of Maryland  
“The Adverse Effects of High Inflation-Induced Uncertainty on Capital Accumulation”
- 14.2.02 Rami Yosef, Ben-Gurion University  
“Evaluation of Life Insurance Portfolio Under Random Interest Rates”
- 18.2.02 Nadav Levy, Northwestern University  
“The Boundary of the Firm in a Model of Trade Within a Hierarchy”
- 14.3.02 Aner Sela, Ben-Gurion University  
“Contest Architecture”
- 11.4.02 Daniel Gottlieb, Ben-Gurion University

“The Influence of Non-Israeli Workers” on the Employment Market”

- 18.4.02 Michael Ben-Gad, University of Haifa  
“Importing Human Capital: Immigration in the Endogenous Growth Model”
- 25.4.02 Esteban F. Klor, New York University  
New York University
- 2.5.02 Yaakov Gilboa, Ben-Gurion University  
“University Admissions Criteria: Implications for Output, Distribution and Mobility”
- 9.5.02 Avi Weiss, Bar-Ilan University  
“Coordination and Critical Mass in a Network Market – An Experimental Evaluation”
- 23.5.02 Suleiman Abubader, Ben-Gurion University  
“Government Expenditures, Military spending and Economic Growth: Causality Evidence from Egypt, Israel and Syria”
- 6.6.02 Joshua Aisenman, University of California  
“International Reserve Holdings with Sovereign Risk and Costly Tax Collection”
- 13.6.02 Michal Barzura, Harvard University  
“A Model of State Competition in Corporate Law”
- 20.6.02 Avia Spivak, Ben-Gurion University  
“The Tax Reform: Recommendations of the Rabinovitch Committee”

Also during the months of March through May, 2001, a special series of lectures in the area of the history of economic thought was delivered by Prof. Samuel Hollander of our department:

1. “Malthus and Classical Economics: Rescuing Malthus from Limbo” (March 21)
2. “Sraffa and the Interpretation of Ricardo: the Marxian Dimension” (April 18)
3. “Aspects of the Marx-Engels Relationship: the Early Years” (May 2)
4. “Marx and Engels on Communist Organization, Distribution and the Equality Issue” (May 9)

5. “Marx-Engels vs. Malthus on Distributive Trends and the Population Problem”

(May 16)

#### 4) Research Contracts and Fellowships

Arie Arnon has begun a research project on the Israeli labor market.

Uri Ben-Zion received a grant from the Technion Institute of Management (TIM) to do work on a case study of Elscint Ltd. entitled “The value of the parts is greater than the value of the whole” (with G. Harel). He was also awarded The Joseph Kasierer Grant to study the topic “An evaluation of R&D expenditure by firms: A methodological approach” (with H. Falk and D. Weiss).

In 2001, Ezra Einy and Aner Sela (together with B. Shitovitz from the Technion, Haifa) were awarded a two-year research grant (\$40,000) from The Israel Science Foundation (Israel Academy of Sciences and Humanities) for their study “Information Advantage in Economic Models with Asymmetric Information.”

In 2001 a special volume was published in tribute to Samuel Hollander, *Reflecting on the Classical Canon in Economics: Essays in Honour of Samuel Hollander* (E. Forget and S. Peart eds., London: Routledge).

Uri Regev (together with G. Regev-Yochay, R. Dagan, M. Raz, and E. Rubinstein) is the recipient of a three-year research grant (NIS 750,000) from the Israel National Institute for Health Policy and Health Services Research (NIHP). The project is entitled “Can a change in physician’s antibiotic prescribing habits decrease carriage of resistant pneumococci in the community?”

Bradley Ruffle holds a grant from the Binational Science Foundation (with Richard Sosis, University of Connecticut, Anthropology) to study the role of religious observance and privatization on intra-group cooperation and trust. He along with Hans-Theo Normann (Royal Holloway University) and Christopher Snyder (George Washington University) were recently awarded a grant from the Nuffield Foundation to study buyer market power and mergers and their implications for retailer consolidation.

Avia Spivak completed a report for the World Bank on pension reform and the annuity market in Israel, and is currently working on a research grant from the Ministry of Science, Culture and Sport. He and Moshe Justman received a grant from the Sapiir Forum for their research on socio-economic mobility of local authorities in Israel.

#### 5) Cooperation with Other Institutions in Israel and Abroad

Many of the members of the Center collaborate on a regular basis with investigators from various research centers and academic institutions in Israel and abroad.

Uri Ben-Zion is head of the committee to evaluate the Industrial Engineering Program of the Open University.

Ezra Einy periodically visits the Department of Economics at the Universidad Carlos III de Madrid as a teaching and research professor.

Ori Haimanko is engaged in a research project with S. Weber (Southern Methodist University, Dallas, Texas), and M. Le Breton (Universite de la Mediteranee, Marseille, France) on the subject of efficiency and stability of coalition structures; this activity involved a visit to SMU in October. Other joint projects include a research of labor contests and learning in games with P. Dubey from SUNY at Stony Brook, NY, an institution which Dr. Haimanko visits regularly, and work on congested markets with R. Steinberg from Cambridge University.

Moshe Justman collaborated with Prof. Jacques Thisse of CORE on theoretical aspects of regional development and infrastructure. He is a member of the Executive Committee of the International Joseph A. Schumpeter Society.

Israel Luski is a frequent visiting professor at the University of Kiev, Mohyla Academy.

Samuel Hollander was appointed to the International Advisory Board, Society for the History of Economic Thought, JAPAN (2001-). He was one of the joint organizers of the conference: "British and Continental Classical Political Economy," held at Sophia Antipolis (CNRS) FRANCE, 13-14 December 2001.

Uri Regev continues his collaboration with A.P. Gurierrez and D. Zilberman at the University of California at Berkeley, on biological economic foundations of renewable resource exploitation and problems of pest resistance to pesticides. He continues to cooperate with Kupat Holim, Israel's major health care agency, on a project that deals with bacteria resistance to antibiotics. He is also a consultant on coal pricing for the State of Israel Public Authority for Electricity Regulation.

Bradley Ruffle collaborates on experimental projects with Jim Engle-Warnick (Oxford University) on inferring buyer strategies to determine the impact of buyer concentration on pricing, with Hans-Theo Normann (Royal Holloway University) and Christopher Snyder (George Washington University) on buyer market power and the implications for retailer consolidation, with Avi Weiss (Bar-Ilan University) on coordination in markets with network externalities in which a critical mass of consumers is needed, with Richard Sosis (University of Connecticut, Anthropology) on the impact of religious observance on intra-group cooperation, with Orit Tykocinski (Ben-Gurion University, Behavioral Sciences) on rational reasons for delaying making a decision and with Todd Kaplan (University of Exeter) on the origins of cooperation.

Avia Spivak, before becoming deputy governor of the Bank of Israel was a member of its Bank Licensing Committee; a consultant to the Knesset committee on Work and Welfare, and Chairman of the Board, KAGAM pension fund.

#### **IV. PARTICIPATION OF MEMBERS OF THE CENTER IN CONFERENCES AND PAPERS PRESENTED**

##### **Suleiman Abubader**

EEA - Eastern Economic Association 27<sup>th</sup> Annual Conference, NYC, NY, February 2001. Paper Title: "Export-Led Growth: Empirical Evidence from the MENA Region" (with A. Abu Qarn).

##### **Arie Arnon**

"Sovereignty and Economic Development: The Case of Israel and Palestine," Royal Economic Society, St. Andrews Scotland, July 2000 (invited paper).

"Concluding Notes: Poverty and Income Distribution in Israel" – The Sapir Forum, Jerusalem, December 2000.

"On the Shortcomings of the Invisible and Visible Hands under the Current Recession." An invited presentation in a panel on economic policy, The Israeli Economic Association, Maale Hahamisha, Israel, May 2002.

Conference, Pavia, Italy, "The Links between the Israeli and Palestinian Economies, June 2002.

Conference, Aix en Provence, France, "The Future Trade Regime between the Israeli and Palestinian Economies, July 2002.

##### **Tuvia Blumenthal**

The 14<sup>th</sup> Annual Meeting of the Association of Japanese Business Studies, Seinajoki, Finland, June 11-13, 2001.

##### **Uri Ben-Zion**

Annual Economic Science Association Meetings, New York, June 2000. Paper presented: "On the Evaluation of Lotteries and Options – An Experimental Study" (with T. Shavit and D. Sonsino).

2000 European Financial Management Association Conference, Athens, Greece. Paper presented: "On the Evaluation of Lotteries and Options – An Experimental Study" (with T. Shavit and D. Sonsino).

Ryde Symposium on Experimental Economics, Lund University, Sweden, November 2000, Paper presented: "A Comparative Study of Lotteries Evaluation in Class and on the Web" (with T. Shavit and D. Sonsino).

**Ezra Einy**

International Conference on Game Theory and Economic Theory, SUNY at Stony Brook, July 2001.

International Conference on Game Theory and Economic Theory, SUNY at Stony Brook, July 2002.

Fifth Spanish Meeting on Game Theory, Seville, July 2002.

**Mark Gradstein**

Conference on Political Economy, Tel Aviv University, 2001; CESifo First Public Economics conference, Munich, 2001; CEPR annual conference on Public Policy, Stockholm, 2001; CEPR conference on Dynamic Aspects of Public Expenditure, 2001; CEPR-WZB conference on Contests and Applications, 2001.

**Ori Haimanko**

Annual Summer Festival of Game Theory, June 2001. Talk was titled: "Unilateral Deviations with Perfect Information."

International Conference on Game Theory and Economic Theory, SUNY at Stony Brook, July 2002.

**Oded Hochman**

Presentation at the 48<sup>th</sup> North American Meetings of the Regional Science Association International, Charleston, SC, Nov. 15-17, 2001.

**Samuel Hollander**

"Engels-Marx *versus* Malthus on Distributive trends and the Population Problem." Summer School in the History of Economic Thought, George Mason University, Virginia, USA, 13 July 2001.

"Economic Organization, Distribution and the Equality Issue: the Marx-Engels Perspective" (Carleton Economic Papers, Ottawa Canada, 02-05, February 2002). Paper read at Political Economy Seminar, George Mason University, Virginia, USA, 2 November 2001; and at History of Economics Society section, A.E.A. annual meetings, Atlanta, USA, 4 January 2002.

"The Ricardo-Say Relation: Their Substantive Agreement on Value and Related Matters." Paper read at Department of Economics Seminar, Carleton University, Ottawa Canada, 23 November 2001; and at conference on "British and Continental Classical Political Economy," Nice-Sophia Antipolis (CNRS), FRANCE, 13-14 December 2001.

**Moshe Justman**

“Socio-Economic Dynamics of Local Authorities in Israel: Theory and Evidence” (with A. Spivak), Sapir Forum conference on inequality. Hebrew University of Jerusalem, 2000.

“Quantifying the Benefits of Israel’s Industrial R&D Subsidy Program, 1986-94” (with E. Zuscovitch), EUNIP conference. KUB, Tilburg, The Netherlands, 2000 and R&D Management Conference. Wellington, New Zealand, 2001.

“Transitional Dynamics of Innovation-Led Growth: A General Equilibrium Analysis.” Conference in honor of R. R. Nelson and S. G. Winter. Aalborg, Denmark, 2001.

“Education, Social Cohesion and Growth” (with M. Gradstein), Tel-Aviv Winter Macro Meetings. Tel-Aviv University, 2001.

“Public Education and the Melting Pot (with M. Gradstein), Colloquium in Honor of E. Hochman. Rehovoth, Israel, 2002.

Organizing Committee. Colloquium in Memory of E. Zuscovitch. Strasbourg, France, 2002.

**Israel Luski**

“Contests with Variable Rewards” (with A. Sela, T. Kaplan, and D. Wettstein), presented at the International Conference on Game Theory, Stony Brook, NY, July 2000.

**Uri Regev**

“Pest Resistance to Pesticides and Biotechnology,” presented at the Israeli Economic Association, 16<sup>th</sup> Congress, Jerusalem, June 2000.

“Excess antibiotic treatments: Economic motivations and policy implications,” presented at Resources for the Future. Economics of Resistance, April 2001, Virginia.

**Bradley Ruffle**

“Do Religious Observance and Ritual Promote intra-group cooperation? Field Experiments on Israeli Religious and Secular Kibbutzim”, Annual ESA meetings (Boston, June 2002), Regional ESA meetings (Strasbourg, September 2002).

“Just How Cooperative Are Kibbutz Members? Field Experiments on Israeli Kibbutzim and in Israeli Cities”, Annual AEA meetings (Atlanta, January 2002).

“Tax and Subsidy Incidence Equivalence Theories: Experimental Evidence from Competitive

Markets”, Annual ESA meetings (Barcelona, June 2001), Far Eastern Econometrica Society Meetings (Osaka, July 2001).

### **Aner Sela**

EARIE-European Association of Research in Industrial Economics, Dublin, Ireland, September 2001.

### **Haim Shalit**

“Solving the Portfolio Allocation Puzzle,” presented at the 9th Conference on the Theories and Practices of Securities and Financial Markets, Kaohsiung, Taiwan, December 2000; Eastern Finance Association Meetings, Charleston NC, April 2001; and ASSET 2001 Euroconference Rethymnon, Crete, October 2001.

### **David Wettstein**

“Bidding for the Surplus: Realizing Efficient Outcomes in General Economic Environments” (with D. Pérez-Castrillo and S. Mutuswami), Euro-Workshop on Public Economics in the University of Warwick, Britain, 2001.

“Choosing Wisely: A MA Multi-Bidding Approach” (with D. Pérez-Castrillo), Euro-Workshop on Public Economics in the University of Warwick, Britain, 2001.

## **V. PUBLICATIONS, 2000-2002** (names of Center members appear in capital letters)

ABUBADER, S. (2002) “Institutional Changes and Breakpoints in Israeli Trade,” *Applied Economics*. 34:1893-1901.

ARNON, A. (2000) “Sovereignty and Economic Development: From the Interim to Permanent. Arrangements between Israelis and Palestinians,” *The Economic Quarterly* 47(1):33-47.

ARNON, A. (2001) “Concluding Notes - The Sapir Forum: Poverty and Income Distribution in Israel,” *The Economic Quarterly* 48(4):684-688.

ARNON, A. and WEINBLATT, J. (2001) “Sovereignty and Economic Development: The Case of Israel and Palestine,” *The Economic Journal* 111, F291-F308.

ARNON, A. and Young, W. (eds.) (2002) *The Open Economy Macromodel: Past, Present and Future*, Kluwer Academic Publishing.

ARNON, A. “Thomas Tooke,” entry in the *New Dictionary of National Biography*, H.C.G. Matthew (Ed.), Oxford: Oxford University Press.

BEN-ZION, U., Mador, G., and Sonsino, D. (2000) "On Complexity and Lotteries' Evaluation – Three Experimental Observations," *Journal of Economic Psychology*, 21(6):625-637.

BEN-ZION, U., Hauser, S., Rozenkranz, M. and Yaari, U. (2001) "International Hedge of Fixed-Income Contract," *The Journal of Portfolio Management*, 27(2):91-100.

BEN-ZION, U., Shavit, T. and Sonsino, D. "A Comparative Study of Lotteries Evaluation in Class and on the Web," *Journal of Economic Psychology*. (forthcoming)

BEN-ZION, U., Sonsino, D. and Mador, G. "The Complexity Effects on Choice with Uncertainty – Experimental Evidence," *The Economic Journal*. (forthcoming)

BEN-ZION, U., Shavit, T. and Sonsino, D. "On the Evaluation of Lotteries and Options – An Experimental Study," *Journal of Psychology and Financial Markets*. (forthcoming)

BEN-ZION, U., Gutman, E. and Yagil, J. "Stock Behavior during a Market Crash." In: Cheng-few Lee (ed.), *Advances in Investment Analysis and Portfolio Management*. (forthcoming)

EINY, E., Moreno, D. and Shitovitz, B. (2000) "Rational Expectations Equilibria and the Ex-post Core of an Economy with Asymmetric Information," *Journal of Mathematical Economics* 34:527-535.

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**VI. WORKING PAPER SERIES 00/01/02 AND  
ABSTRACTS OF RECENT WORKING PAPERS  
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**Discussion Paper Series 2000**

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|-------|---|
| 00-1  | E. Einy, R. Orzach<br>and A. Sela, "Dominance Solvability of Second-Price Auctions with Differential Information."            |
| 00-2  | D. Cohen-Zada and<br>M. Justman, "Demand for Public and Private Education: Theory and Evidence."                              |
| 00-3  | E. Einy, R. Orzach and A.<br>Sela, "Information Advantage in Second-Price Auctions."  |
| 00-4  | M. Justman,<br>"Lerner's Index Meets the Coase Conjecture."   |
| 00-5  | T. Kaplan, I. Luski,<br>A. Sela and D. Wettstein, "All-Pay Auctions with Variable Rewards."                                   |
| 00-6  | H. Shalit and S.<br>Yitzhaki, "Solving the Portfolio Allocation Puzzle."  |
| 00-7  | B. Moldovanu and<br>A. Sela, "Patent Licensing to Bertrand Competitors."  |
| 00-8  | M. Justman,<br>"Transitional Dynamics of Output, Wages and Profits in Innovation-Led Growth: A General Equilibrium Analysis." |
| 00-9  | D. Pérez-Castrillo<br>and D. Wettstein, "In Whose Backyard? A Generalized Bidding Approach."                                  |
| 00-10 | U. Ben-Zion, A.   |

Hibshoosh and U. Spiegel, "Price Discrimination by Coupons Restriction."

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- 01-2 B. Ruffle and T. Kaplan, “Here’s Something You Never Asked For, Didn’t Know Existed, and Can’t Easily Obtain: A Search Model of Gift Giving.”
- 01-3 A. Gaviious and A. Sela, “Auctions with Reservation Prices.”
- 01-4 M. Justman, J-F Thisse and T. van Ypersele, “Fiscal Competition and Regional Differentiation.”
- 01-5 O.E. Tykocinski and B.J. Ruffle, “Instrumental Waiting.”
- 01-6 M. Justman and E. Zuscovitch, “The Economic Impact of Subsidized Industrial R&D in Israel.”
- 01-7 M. Gradstein, “Rules, Stability, and Growth.”
- 01-8 E. Einy, O. Haimanko, R. Orzach and A. Sela, “Dominant Strategies, Superior Information, and Winner’s Curse in Second-Price Auctions.”
- 01-9 O. Palmon and A. Spivak, “Adverse Selection and the Market for Annuities.”
- 01-10 B. J. Ruffle, “Competitive Equilibrium and Classroom Pit Markets for the Early 21<sup>st</sup> Century.”
- 01-11 S. Abubader, “Institutional Changes and Breakpoints in Israeli Trade.”
- 01-12 A.S. Abu-Qarn and S. Abubader, “Export-led Growth: Empirical Evidence

from the MENA Region.”

- 01-13 T. Homma, Y. Tsutsui and U. Ben-Zion, “Exchange Rate and Stock Prices in Japan.”
- 01-14 G. Fibich, A. Gavious and A. Sela, “Revenue Equivalence in Asymmetric Auctions.”
- 01-15 R. Sosis and B. Ruffle, “Religious Ritual and Cooperation: Testing for a Relationship on Israeli Religious Kibbutzim.”
- 01-16 O. Haimanko, M. Le Breton and S. Weber, “Transfers in a Polarized Country: Bridging the Gap Between Efficiency and Stability.”
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- 01-22 M. Justman and E. Zuscovitch<sup>\*</sup>, “Economic Impact of Subsidized Industrial R&D in Israel.”
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- 02-11 B.J. Ruffle and R.H. Sosis, “Just How Cooperative are Kibbutz Members? Field Experiments on Israeli Kibbutzim and in Israeli Cities.”
- 02-12 P. Dubey, O. Haimanko and A. Zapechelnyuk, “Strategic Substitutes and Potential Games.” (revised version of DP 02-07)
- 02-13 M. Gradstein, “Bargaining with Secession: Buchanan Meets Coase.”
- 02-14 M. Gradstein, “Governance and Growth.”
- 02-15 G. Fibich, A. Gaviious and A. Sela, “All-Pay Auctions with Risk-Averse Buyers.”
- 02-16 B.J. Ruffle and Z. Shtudiner, “A Rational Explanation for Price Endings in 99: Experimental Evidence.”
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**ABSTRACTS OF WORKING PAPERS** (issued since the previous report)

**BID COSTS AND ENDOGENOUS BID CAPS**

A. Gaviious, B. Moldovanu and A. Sela

Discussion Paper No. 01-1

We study contests where several privately informed agents bid for a prize. All bidders bear a cost of bidding that is an increasing function of their bids, and, moreover, bids may be capped. We show that, regardless of the number of bidders, if agents have linear or concave cost functions then setting a bid cap is not profitable for a designer who wishes to maximize the average bid. On the other hand, if agents have convex cost functions (i.e., an increasing marginal cost) then effectively capping the bids is profitable for a designer facing a sufficiently large number of bidders.

## **HERE'S SOMETHING YOU NEVER ASKED FOR, DIDN'T KNOW EXISTED, AND CAN'T EASILY OBTAIN: A SEARCH MODEL OF GIFT GIVING**

B. Ruffle and T. Kaplan

Discussion Paper No. 01-2

Gift giving is thought to be welfare decreasing. This claim rests on two key assumptions, namely, full information as to the whereabouts of all goods and the ability to reach the stores that contain desired goods costlessly. In this paper, we replace these two assumptions with the more realistic assumptions of uncertainty about the location of goods and search costs. In sharp contrast to existing economic models of gift giving, gifts in our model are given only when they enhance expected welfare, that is, the amount they save the receiver looking for the gift himself is higher than the expected price of unwanted gifts. The more difficult it is for the recipient to obtain the good he desires or the lower the price of this good, the more likely he is to receive it as a gift. Search costs affect not only the decision to give but also the choice of gift. We characterize the relationship between gift giving and the giver's information about the recipient's preferences as well as her information about the gifts available in the economy. We use our model to explain a number of stylized facts about gift giving in modern and foraging societies.

## **AUCTIONS WITH RESERVATION PRICES**

A. Gaviious and A. Sela

Discussion Paper No. 01-3

We study classical auction mechanisms with a single item and  $n$  bidders who have private information about their valuations for the item. Each player's (bidders and seller) valuation for the item is drawn independently from the same interval according to a distribution function that is the same for all the bidders and that is common knowledge. All bidders bear a cost of bidding that is an increasing function of their bids. We show that in second-price auctions as well as in first-price auctions, independent of the form of each bidder's cost function, setting a reservation price is profitable for the seller. On the other hand, unlike first-price and second-price auctions in all-pay first-price auctions, setting a reservation price is not necessarily profitable for the seller who wishes to maximize the average bid. In particular, we show that in all-pay auctions where bidders have convex cost functions (i.e., increasing marginal costs), it might not be profitable for the seller facing a sufficiently large number of bidders to set a reservation price, or, alternatively, an entry fee.

## **FISCAL COMPETITION AND REGIONAL DIFFERENTIATION**

M. Justman, J-F Thisse and T. van Yperselee

Discussion Paper No. 01-4

Regions can benefit by offering infrastructure services that are differentiated. Competition between regions over potential investors is then less direct, allowing them to realize greater benefits from external investors. The two polar cases of full and incomplete information about investors' needs are studied. In both cases, there is regional differentiation. However, fiscal competition is efficient in the former case but not in the latter. Finally, it is shown that free entry in the location market calls for some regulation because of the excessive number of competing regions that would prevail in equilibrium.

## **INSTRUMENTAL WAITING**

O.E. Tykocinski and B. Ruffle

Discussion Paper No. 01-5

Recent decision-making research claims to establish that, in violation of Savage's normative sure-thing principle, individuals often wait to acquire noninstrumental information and subsequently base their decisions upon this information. The current research suggests that the reference to certain types of information as noninstrumental or useless may be overstated. Through a series of experiments we establish, first, that many people choose to wait, even when waiting provides no additional information at all. Second, the longer people are allowed to wait before having to decide, the more people prefer to wait rather than decide immediately. Third, those individuals who choose to wait are the ones less confident about committing themselves to a decision. For them, the information acquired from waiting may be especially valuable by allowing them to come to terms with a less-than-ideal decision.

## **THE ECONOMIC IMPACT OF SUBSIDIZED INDUSTRIAL R&D IN ISRAEL**

M. Justman and E. Zuscovitch

Discussion Paper No. 01-6

Israel offers contingent subsidies to selected industrial R&D projects, with the purpose of creating high-quality jobs, reducing the trade deficit, increasing productivity and promoting growth. In 1987-94, 1,200 firms received \$1,400 million subsidies in support of \$3,500 million of R&D (in constant 1996 dollars). We estimate that this R&D generated more than \$31,000 million of sales, increasing industrial employment by about 10% and contributing to the trade balance a sum slightly less than the entire

private sector deficit in the current account. It added 0.3% to GDP in increased productivity, each dollar of supported R&D adding an additional \$0.45 to GDP and earning the economy a direct annual return of 13.4%. Electronics, broadly defined, received roughly half the subsidies while accounting for nearly two thirds of the gains; small firms that received one sixth of the subsidies contributed over a quarter of the gains.

## **RULES, STABILITY, AND GROWTH**

M. Gradstein

Discussion Paper No. 01-7

This paper examines two systems of fiscal redistribution in the context of a growing economy subject to unexpected shocks rules and discretion. Under the former system, the tax system is in place and is known to households contemplating investment decisions. Under the second, redistribution is decided upon only after the investment decisions have been made. I find that rules always lead to faster capital accumulation and growth, but political support for them is only likely to occur in a stable economy. Income inequality adversely affects the likelihood of adopting rules, especially so in an unstable economy.

## **DOMINANT STRATEGIES, SUPERIOR INFORMATION, AND WINNER'S CURSE IN SECOND-PRICE AUCTIONS**

E. Einy, O. Haimanko, R. Orzach and A. Sela

Discussion Paper No. 01-8

In a general model of common-value second-price auctions with differential information, we show equivalence between the following characteristics of a bidder: (i) having a dominant strategy; (ii) possessing superior information; (iii) being immune from winner's curse. When a dominant strategy exists, it is given by the conditional expectation of the common value with respect to bidder's information field; if the dominant strategy is used, other bidders cannot make a profit.

## **ADVERSE SELECTION AND THE MARKET FOR ANNUITIES**

O. Palmon and A. Spivak

Discussion Paper No. 01-9

The functioning of the annuities market under asymmetric survival information has recently begun to attract considerable attention. The interest partly stems from its policy implications regarding the privatization of public retirement systems. In this

paper we study the qualitative and quantitative effects of alternative information regimes on the annuity market and explore their welfare implications. The alternative regimes differ in the survival information that is available to the insured and the insurer at the initiation of the annuity contract. We show that, in principle, it is preferable to contract before the survival information is revealed. Thus, all other things held constant, a market with deferred annuities that are initiated at a young age (before some survival information signals are received) dominates a market with immediate annuities. Consequently, Defined Benefits plans and the existing Social Security system have an advantage over Defined Contribution plans and the proposed privatized element of the Social Security system. However, our analysis also suggests that the adverse selection equilibrium of immediate annuities is close, in terms of expected welfare, to the deferred annuities equilibrium.

In the absence of a bequest motive, an equilibrium in which all the insureds participate in the market always exists. When agents are assumed to have a bequest motive, some of them choose not to purchase annuities at all, and equilibrium may not exist. Our simulations of a two period and multiperiod model, without and with either a bequest motive or a Social Security system, show a welfare loss of around one percent (relative to the first best allocation). The corresponding loss when agents have no access to the annuities markets is about 31 percent of wealth. Thus we conclude that, unlike other insurance markets, asymmetric information should have little impact on the market for annuities.

### **COMPETITIVE EQUILIBRIUM AND CLASSROOM PIT MARKETS FOR THE EARLY 21<sup>ST</sup> CENTURY**

B.J. Ruffle

Discussion Paper No. 01-10

Small efforts to display the relevance of economic concepts early on in a student's education can serve to prevent the 'economics is not very useful' attitude from setting in. This paper extends the work of Holt (1996) to describe a pit-market experiment used to illustrate the concept of competitive equilibrium. In addition to detailed instructions as to how to set up and conduct a pit-market experiment, features of the data are discussed and many accompanying materials, including software for the display of the data, are provided.

### **INSTITUTIONAL CHANGES AND BREAKPOINTS IN ISRAELI TRADE**

S. Abubader

Discussion Paper No. 01-11

This paper examines the structural changes in Israeli trade trends since the 1970s. Structural change tests do not reject the null of no breaks in Israeli trade trends after Israel signed FTA agreements with the EEC and the US, or after Israel's 1991 new trade policy. The tests, however, show significant evidence for breakpoints in 1993 in

Israel's trade shares with three countries who had adhered strongly to the Arab boycott. This result indicates that the Middle East process, which began in 1991, considerably weakened the boycott and brought about positive changes in Israeli long-term trade patterns.

## **EXPORT-LED GROWTH: EMPIRICAL EVIDENCE FROM THE MENA REGION**

A.S. Abu-Qarn and S. Abubader

Discussion Paper No. 01-12

The paper examines the export-led growth (ELG) hypothesis for eight Middle East and North Africa (MENA) countries in three-variable vector autoregressive and error correction models. When considering total exports, our results reject the ELG hypothesis for most of the cases. However, when considering only manufactured exports, we find no causality for countries with relatively low shares of manufactured exports and a bi-directional causality for countries with relatively high shares of manufactured exports. The findings suggest that promoting exports may contribute to economic growth only after a certain threshold of manufactured exports has been reached.

## **EXCHANGE RATE AND STOCK PRICES IN JAPAN**

Homma, Y. Tsutsui and U. Ben-Zion

Discussion Paper No. 01-13

This paper explores whether export intensity and net foreign position of Japanese firms are carefully watched by investors and are properly reflected in the stock prices. By estimating a multi-factor model including the TOPIX, the call rate, the exchange rate, and other variables representing the characteristics of individual firms, we have examined the market efficiency of the Japanese stock market. The novelty of our paper is that the channels of the effect of exchange rate on stock prices are explicitly formulated and estimated directly, and that the use of daily data enables us to gain knowledge on the market efficiency. Our main results are as follows: (I) Japanese investors adequately consider the characteristics of the firms, such as the exporting behavior and net foreign position. (ii) The market efficiency of the semi-strong form has been improved throughout the period. (iii) Stock investors correctly evaluate firms' foreign asset position and appropriately respond to the change of the exchange rate after 1992. In contrast, investors began to pay attention to exporting firms much earlier, that is, since 1985.

## **REVENUE EQUIVALENCE IN ASYMMETRIC AUCTIONS**

G. Fibich, A. Gaviols and A. Sela

Discussion Paper No. 01-14

The Revenue Equivalence Theorem is generalized to the case of asymmetric auctions in which each player's valuation is independently drawn from a common support according to his/her distribution function as follows. Let  $\epsilon$  be the level of asymmetry among the distribution functions and let  $R(\epsilon)$  be the seller's expected revenue in equilibrium. Then,  $R(\epsilon) = R(0) + \epsilon R'(0) + O(\epsilon^2)$ , where both  $R(0)$  and  $R'(0)$  are independent of the auction mechanism.

## **RELIGIOUS RITUAL AND COOPERATION: TESTING FOR A RELATIONSHIP ON ISRAELI RELIGIOUS KIBBUTZIM**

R. Sosis and B. Ruffle

Discussion Paper No. 01-15

Although anthropologists have long noted that communal rituals can promote intra-group solidarity and cooperation, there has been little empirical research that actually demonstrates this relationship. To evaluate the hypothesis that communal ritual performance increases intra-group cooperation we conducted controlled common-pool resource experiments on Israeli religious kibbutzim. We expected male religious kibbutz members to exhibit higher levels of cooperation than females because of their obligation to participate in group-rituals, such as prayer, and more frequent performance of these ritual activities. Our results indicate that 1) male religious kibbutz members exhibit greater levels of cooperation than female religious kibbutz members, 2) this difference cannot be accounted for by sex difference since male and female secular kibbutz members exhibit nearly identical levels of cooperation and 3) synagogue attendance is a significant predictor of willingness to cooperate for male religious kibbutz members but not for females. Data collected during post-experiment interviews offer further support for these experimental findings.

**TRANSFERS IN A POLARIZED COUNTRY:  
BRIDGING THE GAP BETWEEN EFFICIENCY AND STABILITY**

O. Haimanko, M. Le Breton and S. Weber

Discussion Paper No. 01-16

We consider a political economy model of a country whose citizens have heterogeneous preferences for national policy. We call the country efficient if, due to increasing returns to scale, its break-up into smaller countries leads to aggregate utility loss. It is shown that in an efficient country whose citizens' preferences exhibit a high degree of polarization, a threat of secession cannot be eliminated without inter-regional transfers. Thus, it can be the case that for a country with highly polarized population: (i) a break-up is inefficient, (ii) it is impossible to avoid secessions without using transfers, but (iii) proper compensation schemes may eliminate a threat of secession. We also demonstrate that if the majority voting is used to determine the shape of the compensation schemes within the country, then a high degree of polarization yields a nontrivial compensation scheme as the unique political equilibrium.

**EFFICIENCY DIFFERENCES BETWEEN THE S&P 500 AND THE TEL-AVIV  
25 INDICES: A MOVING AVERAGE COMPARISON**

U. Ben-Zion, P. Klein, Y. Shachmurove and J. Yagil

Discussion Paper No. 01-17

This paper compares the Tel-Aviv Stock Exchange (TASE) 25 Index (TA25) to the S&P 500 Index with respect to the extent that the Technical Analysis method of moving average can beat the buy-and-hold policy. Previous research on the S&P 500 Index is inconclusive, while TA25 has never been tested in this respect. For 1,500 daily observations, our test results imply weak-form efficiency of the S&P 500 Index. For TA25, no market efficiency is found for relatively short moving averages. The results imply that market efficiency is higher in developed financial markets than in an emerging capital market, such as the TASE.

**TAX AND SUBSIDY INCIDENCE EQUIVALENCE THEORIES:  
EXPERIMENTAL EVIDENCE FROM COMPETITIVE MARKETS**

B.J. Ruffle

Discussion Paper No. 01-18

A basic tenet in elementary microeconomics is tax incidence equivalence. This tenet holds that the burden of a unit tax on buyers and sellers is independent of who actually pays the tax. By contrast, policymakers and the public often mistake statutory incidence

for economic incidence. Recent evidence of the empirical validity of tax incidence equivalence is mixed. In this paper, using competitive laboratory markets, I test both tax incidence equivalence and an analogous theorem I refer to as subsidy incidence equivalence. For sufficiently large markets, the results show strong support for both theories. In these markets, there is little to no evidence, even in the short run, of the popular misperception that statutory incidence equals economic incidence. In smaller markets in which competitive forces are weaker and relative bargaining strengths may play a role, the evidence for tax incidence equivalence is weaker as minor price discrepancies may persist between markets.

### **ON THE VALUE OF PUBLIC INFORMATION IN A COURNOT DUOPOLY**

E. Einy, D. Moreno and B. Shitovitzl

Discussion Paper No. 01-19

We provide conditions that allow one to determine whether the value of information is positive or negative in a Cournot duopoly. These conditions identify interest subclasses of industries where the value of public information is positive (negative), and are also useful to determine the value of public information in specific examples.

### **CHOOSING WISELY: A MULTI-BIDDING APPROACH**

D. Pérez-Castrillo and D. Wettstein

Discussion Paper No. 01-20

We analyze situations in which a group of agents (and possibly a designer) have to reach a decision that will affect all the agents. Examples of such scenarios include the selection of a candidate, the location of a nuclear reactor or the siting of a major sports event. To address the problem of reaching a decision, we propose a one-stage multi-bidding mechanism in which agents submit bids to determine the winning project. All Nash equilibria of this mechanism are efficient and immune to any coalitional deviations. Moreover, the payoffs attained in equilibrium by the agents satisfy intuitively appealing lower bounds.

### **TAKING THE BITE OUT OF FISCAL COMPETITION**

M. Justman, J.-F. Thisse and T. van Ypersele

Discussion Paper 01-21

Regions can benefit by offering infrastructure services that are differentiated by quality, thus segmenting the market for industrial location. Regions that compete on infrastructure quality have an incentive to increase the degree of differentiation between them. This places an upper bound on the number of regions successfully able to

participate in the location market, and limits the dissipation of regional surplus through Tiebout competition. It indicates a process of fiscal agglomeration, through which regional concentrations arise, which does not depend on the circulation causation underlying much of the recent literature on economic geography.

## **ECONOMIC IMPACT OF SUBSIDIZED INDUSTRIAL R&D IN ISRAEL**

M. Justman and E. Zuscovitch\*

Discussion Paper 01-22

Israel offers contingent subsidies to selected industrial R&D projects, with the purpose of creating high quality jobs, reducing the trade deficit, increasing productivity and promoting growth. In 1987-94, 1,200 firms received \$1,400 million of subsidies in support of 3,500 million of R&D (in constant 1996 dollars). We estimate that this R&D generated more than \$31,000 million of sales, increasing industrial employment by about 10% and contributing to the trade balance a sum slightly less than the entire private sector deficit in the current account. It added 0.3% to GDP in increased productivity, each dollar of supported R&D adding an additional \$0.45 to GDP and earning the economy a direct annual return of 13.4%. Electronics, broadly defined, received roughly half the subsidies while accounting for nearly two thirds of the gains; small firms that received one sixth of the subsidies contributed over a quarter of the gains.

## **RELIGIOUS EDUCATION AND SCHOOL VOUCHERS**

D. Cohen-Zada and M. Justman

Discussion Paper 01-23

We derive and calibrate a political economy model of education finance and school choice that explicitly incorporates a distinction between secular and religious households, and between nonsectarian and religious private schools. It leads us to conclude that religious households view tuition dollars paid to religious schools as almost twice as effective as education tax dollars. These findings indicate that vouchers restricted to nonsectarian schools, unless they are very large, will not have a significant impact on enrolment. However, smaller means-tested vouchers unrestricted to nonsectarian schools can, without raising taxes, induce large numbers of low-income families to switch to private religious schools while simultaneously increasing spending per pupil in public schools.

## **PUBLIC EDUCATION AND THE MELTING POT**

M. Gradstein and M. Justman

Discussion Paper 02-01

This paper proposes a theoretical framework that combines the role of education as a cultural melting pot with its function as an instrument of human capital accumulation, thus highlighting the important role of education finance in promoting social cohesion. Our analysis shows that an education regime that offers free uniform public education while requiring minority parents to pay twice for culturally distinct private education creates excessively powerful incentives for cultural assimilation. This indicates scope for Pareto improvement by simultaneously subsidizing private education – through vouchers or tax credits – and regulating its content. Subsidizing private schooling without regulating its content increases social polarization, which countervails its potential academic benefits and may partly explain the strong opposition to voucher experiments in practice. The impact of variation in the rate of immigration on cultural assimilation, and the role of multiculturalism in the public school system are also considered.

## **THE STRATEGIES BEHIND THEIR ACTIONS: A NEW METHOD TO INFER REPEATED-GAME STRATEGIES AND AN APPLICATION TO BUYER BEHAVIOR**

J. Engle-Warnick and B.J. Ruffle

Discussion Paper 02-02

We infer unobserved, repeated-game strategies from the observed actions of buyers in posted-offer market experiments to evaluate their effectiveness against a monopolist. While the strategies of one-quarter of the buyers in our experiments correspond to the game-theoretic prediction of passive price-taking, for three-quarters of the buyers we infer different non-trivial, repeated-game strategies that condition on time, price, and combinations of the two variables. The strategies are generally effective: the use of strategies and their complexity correlate negatively with market prices and monopolist profits. One strategy is particularly effective: the unconditional and intense forgoing of profitable purchases early in the game is more effective as a counteracting response to monopoly power than punishments that trigger when the market price exceeds a threshold. We propose that strategy inference should at least complement existing methods of statistical inference on observed strategic behavior.

**UNIVERSITY ADMISSIONS CRITERIA: IMPLICATIONS FOR OUTPUT,  
DISTRIBUTION AND MOBILITY**

Y. Gilboa and M. Justman

Discussion Paper 02-03

Centralized criteria for university admissions, based on prior academic indicators and family income, entail implicit tradeoffs between aggregate output, distribution and intergenerational mobility. To identify these tradeoffs, we define and calibrate a formal model of a centralized university that both screens its graduates and enhances their human capital. We then simulate the effect of varying its admissions criteria, finding that: affirmative action can achieve large gains in intergenerational mobility at little cost in forgone output; lowering admissions requirements reduces wage inequality and inhibits intergenerational mobility; and immigration of unskilled labor increases both inequality and mobility if native output is maximized.

**PRESERVING RELIGIOUS VALUES THROUGH EDUCATION: ECONOMIC  
ANALYSIS AND EVIDENCE FROM THE US**

D. Cohen-Zada

Discussion Paper 02-04

This paper presents a theoretical model of religious segregation in education that predicts an inverse U-shape relationship between private school enrollment and the share of religious minority groups in the population. In our model parents in religious minority groups want to transmit their religious values to their children. When they are a small proportion of the population they have a strong need to send their children to religious private schools, where, hopefully, they will be sheltered from outside influences. But when the share of the religious minority group in the population increases, outside influences are less threatening, and the desire for religious private schools decreases. We check this theory empirically using data on private school enrollment rates and the Catholic share in the population across 3100 counties in the US. The empirical results support our theory by showing that the share of catholic households that send their children to Catholic schools decreases in the share of Catholics in the population, and that there is an inverse U-shape relationship between private enrollment and the share of Catholics in the population. Our findings contribute to understanding the mechanism under which religious minorities try to preserve their identity, as well as the structure of demand for religious schooling.

## **CONTEST ARCHITECTURE**

B. Moldovanu and A. Sela

Discussion Paper 02-05

A contest architecture specifies how the prize sum is split among several prizes, and how the contestants (who are here privately informed about their abilities) are split among several sub-contests. We compare the performance of such schemes to that of grand winner-take-all contests from the point of view of designers who maximize either the expected total effort or the expected highest effort. An important explanatory variable is the form of the agents' cost functions. The analysis is based on simple but powerful results about various stochastic dominance relations among order statistics and functions thereof.

## **ON EFFICIENCY AND SUSTAINABILITY IN A COLLECTIVE DECISION PROBLEM WITH HETEROGENEOUS AGENTS**

O. Haimanko, M. Le Breton and S. Weber

Discussion Paper 02-06

In this paper we examine a collective decision problem, where the set of heterogeneous individuals is partitioned into several groups, each choosing its own policy (e.g., location of a public project) from the given policy space. We first consider the notion of "efficient" partition that minimizes the total policy-related costs and aggregate personalized costs. We then examine "sustainable" partitions, in which the policy-related costs can be distributed in a way that no subgroup (belonging to the partition or not) has an incentive to break away from the rest and to set its own policy. Our main result is that, with a unidimensional policy space and single-peaked personalized costs, every efficient partition is sustainable. We further describe some important features of efficiency by characterizing the efficient distribution (and number) of policies chosen from the policy space when their cost is small. It turns out that efficiency is achieved when the distribution of policies follows the square root of the density of individuals' ideal choices.

## **STRATEGIC SUBSTITUTES AND POTENTIAL GAMES**

P. Dubey, O. Haimanko and A. Zapelchelnyuk

Discussion Paper 02-07

We show that games of strategic substitutes (or complements) with aggregation are "pseudo-potential" games, and therefore possess Nash equilibria in pure strategies. Our notion of aggregation is quite general and enables us to take a unified view of several disparate models.

## **ELECTIONS WITH CONTRIBUTION-MAXIMIZING CANDIDATES**

A Glazer and M. Gradstein

Discussion Paper 02-08

Most analyses of campaign contributions follow the Downsian model to suppose that candidates seek contributions to win elections. This paper takes the opposite approach, by assuming that each candidate aims to maximize the contributions he collects. We let a citizen contribute to a candidate with the aim of increasing that candidate's chances of winning. These assumptions generate several results: in equilibrium citizens make campaign contributions; the positions the candidates adopt differ; the willingness of the rich to make larger contributions than the poor moves the candidates to adopt positions the rich prefer. A cap on political contributions reduces spending by voters and reduces the distance between the platforms adopted by the candidates; public funding of campaign contributions causes an increase in aggregate spending.

## **BUYER COUNTERFAILING POWER VERSUS MONOPOLY POWER: EVIDENCE FROM EXPERIMENTAL POSTED-OFFER MARKETS**

J. Engle-Warnick and B.J. Ruffle

Discussion Paper 02-09

Although much research has been devoted to the impact of seller structure on market outcomes, considerably less is known about the influence of buyer structure. We examine the impact of buyer concentration on the pricing of a monopolist. Markets with both two and four buyers achieve prices well below the monopoly price, attaining even competitive levels – sometimes even lower. Moreover, markets with only two buyers show significantly lower prices than those with four buyers. We design an additional pair of treatments to pinpoint the source of this difference. We attribute the lower prices in the two-buyer treatment to the monopolist pricing more cautiously when there are fewer buyers in order to avoid costly losses in sales. Buyer concentration is thus an effective source of countervailing power: even an unregulated monopolist that faces no possible threat of entry may price competitively.

## **AGGLOMERATION OF SPATIAL CLUBS**

Oded Hochman

Discussion Paper 02-10

The literature on agglomeration has focused largely on direct attraction effects, that is, entities, usually firms, drawn to one another to enhance the output of their activity. In this paper we use an analytical model with general functions to investigate the joint agglomeration of clubs and population arising from their mutual attraction. We show that when the population is uniformly distributed, there is no economic agglomeration of clubs, however, in a first best allocation of spatial clubs, the population is never distributed uniformly over space. To minimize costs, clubs of different types along with population agglomerate in and around centers. We specify conditions for which

the case of a monocentric city, an agglomeration of all club types to a single point, is a unique solution. We also investigate models that yield a solution of multiple centers per complex and show that in addition to the agglomeration of some club types in the center of the complex, the rest of the club types cluster in subcenters which gravitate around the center.

### **JUST HOW COOPERATIVE ARE KIBBUTZ MEMBERS? FIELD EXPERIMENTS ON ISRAELI KIBBUTZIM AND IN ISRAELI CITIES**

B.J. Ruffle and R.H. Sosis

Discussion Paper 02-11

Unlike individuals living in capitalist economies, members of collective societies depend on mutual cooperation to achieve their economic goals. We study the cooperative behavior of one of the most successful and best-known modern collective societies, the Israeli kibbutz. The facts that kibbutz members have voluntarily chosen their lifestyle of cooperation and egalitarianism, the ease with which they could join the surrounding capitalist society, their disproportionate involvement in social and national causes and their revealed willingness to sacrifice for the benefit of Israeli society as a whole suggest that if ever there was a society of individuals whose cooperatives extends equal to members and non-members. The kibbutz is it. Nonetheless, the findings from our field experiments indicate that kibbutz members display higher levels of cooperation when paired with other, anonymous kibbutz members than when paired with city residents. In fact, when paired with city residents, kibbutz members' observed levels of cooperation are identical to those displayed by the city residents. Moreover, we present evidence that kibbutz socialization actually damages the willingness of members to cooperate with one another.

### **STRATEGIC SUBSTITUTES AND POTENTIAL GAMES**

P. Dubey, O. Haimanko and A. Zapechelnyuk

Discussion Paper 02-12 (revised version of WP #02-07)

We show that games of strategic substitutes (or complements) with aggregation are "pseudo-potential" games. The upshot is that they possess Nash equilibria in pure strategies (NE), even if the strategy sets are not convex; and that various dynamic processes converge to NE.

### **BARGAINING WITH SECESSION: BUCHANAN MEETS COASE**

M. Gradstein

Discussion Paper 02-13

In recent decades, the issues of federalism and political integration have gained prominence in public debate and among academics. A frequently made point in this debate is that allowing free secession may protect the minority's interests thus

providing it with an incentive to enter the federation. This paper explicitly considers the political process in the federation arguing that the option to secede may distort the political choices made by the individual regions to improve their bargaining positions. As a result, the allocation of resources in the federation could well end up being inefficient and unattractive for the minority region. In contrast, limiting the secession possibilities by requiring a majority consent through a regional referendum, rather than leaving it to the discretion of the legislature, restores efficiency.

## **GOVERNANCE AND GROWTH**

M. Gradstein

Discussion Paper 02-14

Because of its inappropriability, protection of property rights is widely recognized as being the state's responsibility. Moreover, recent empirical evidence suggests that it leads to higher investment levels and faster growth. Nevertheless, the extent of property rights protection differs significantly across countries. This paper endogenizes the emergency of property rights within a simple growth framework. Drawing on North, 1990, we present a model where economic performance and enforcement of property rights may reinforce each other. Depending on initial conditions, the economy can converge to a high-income or a low-income steady state. The existing empirical evidence seems to offer a tentative support for this theory.

## **ALL-PAY AUCTIONS WITH RISK-AVERSE BUYERS**

G. Fibich, A. Gaviious and A. Sela

Discussion Paper 02-15

We use perturbation analysis to study independent private-value all-pay auctions with weakly risk-averse buyers. We show that in all-pay auctions, risk aversion makes buyers with low valuations bid less aggressively, particularly, less aggressively than they bid in first-price auctions. On the other hand, risk aversion makes buyers with high valuations bid more aggressively, in particular, more aggressively than they bid in first-price auctions. Nevertheless, we show that from the buyer's point of view, the all-pay auction is dominated by the first-price auction.

## **A RATIONAL EXPLANATION FOR PRICE ENDINGS IN 99: EXPERIMENTAL EVIDENCE**

B.J. Ruffle and Z. Shtudiner

Discussion Paper 02-16

There exist numerous theories that attempt to explain the ubiquitous 99-cent price ending. Most of these theories either do not hold up to inspection or posit irrational consumers who serve as a money pump for firms. We offer an experimental test of Basu's (1997) rational expectations equilibrium model, an economic model of the

phenomenon in which consumers are fully rational. We find ample support for Basu's model. Convergence to the 99-cent equilibrium is faster and more widespread when firms are able to observe the previous pricing decisions of others. By imitating the optimal 99-cent price endings of rational firms, less rational firms display an "as if" rationality.

## **DERIVATION OF THE MEAN-GINI EFFICIENT PORTFOLIO FRONTIER**

H. Shalit and S. Yitzhaki

Discussion Paper 02-17

One main advantage of the mean-variance (*MV*) portfolio frontier is its simplicity and ease of derivation. Its major shortcoming lies in its familiar restrictions, such as the quadraticity of preferences or the normality of distributions. We analytically derive the mean Gini (*MG*) efficient portfolio frontier as a workable alternative to *MV*. If asset distributions are restricted, the *MG* frontier derivation is identical in structure to the *MV*-efficient frontier derivation. The price paid for this simplicity is that some information about the distribution of assets gets lost. We numerically derive *MG* and mean-extended Gini (*MEG*) efficient frontiers and compare the results to the *MV* frontier. *MEG* allows for the explicit introduction of risk aversion in building the efficient frontier. For U.S. classes of assets, *MG* and *MEG* efficient portfolios constructed using Ibbotson monthly returns appear to be more diversified than *MV* portfolios. When short sales are allowed, distinct investor risk aversions lead to different patterns of portfolio diversification, a result that is less obvious when short sales are foreclosed.

## **VII. RESEARCH SUMMARIES**

The following presents brief summaries of the research interests and activities of Center members:

### **Suleiman Abubader**

Dr. Abubader's research interest deal with the application of times series econometric techniques, such as cointegration, error correction models, Granger Causality and tests for structural changes, to study macroeconomic relations. His current research is focused on studying the determinations of economic growth in the Middle East countries.

### **Arie Arnon**

Prof. Arnon's research interests primarily deal with the history of economic thought, macroeconomics, monetary economics and banking, the Israeli economy, privatization, and the Arab economies. Prof. Arnon continues to be actively involved in research on economic policies in the Middle East, particularly on Israeli–Palestinian relations. He is also working on a research project entitled “Between Monetary Theories of Credit and Credit Theories of Money.”

### **Uri Ben-Zion**

Prof. Ben-Zion's current research projects deal with evaluation of mutual funds; interrelationship between international markets and country funds; marketing policy by use of cent-off-coupons; and use of activity-based costing in medical decision-making.

### **Tuvia Blumenthal**

Prof. Blumenthal specializes in the Japanese economy and economic development. His current research projects are directed toward the Japanese education system, economic effects of the introduction of industrial robots, and Japanese management practices.

### **Dov Chernichovsky**

Dr. Chernichovsky conducts research on health economics with a particular focus on health policy in societies under social, political, and economic stress. He works extensively with the Russian health system.

### **Ezra Einy**

Prof. Einy's research concentrates on values of games, large games, voting games, utility theory, inequality measures, and refinement of correlated equilibria. His present focus is on solution concepts of economies with differential information.

### **Mark Gradstein**

Prof. Gradstein's research interests are concerned with private versus public provision of public goods and public growth promoting policies. His current project (jointly with M. Justman) focuses on growth promoting policies as implied by actual political mechanisms.

### **Ori Haimanko**

Ori Haimanko's current projects include the study of efficiency and stability of coalition structures arising in presence of horizontally differentiated public goods, comparison of different types of labor contracts, and learning in extensive form games. Among the issues which are somewhat on the back burner is the study of auctions with differential information (joint with Ezra Einy and Aner Sela). This work has thus far yielded two working papers.

### **Oded Hochman**

Prof. Hochman's research interests center on urban and environmental economics, public economics, industrial organization and economic growth. His current research projects include urban location and pollution, marketing of quality differentiated products, efficient water pricing, uncertainty in water supply and its economic implications, and impact of income tax on sizes of cities.

### **Samuel Hollander**

Prof. Hollander is working currently on *The Economics of Karl Marx* for Cambridge University Press and concurrently on *J.B. Say and the Classical Canon*.

### **Moshe Justman**

Prof. Justman's activities focus on the political economy of education. He also does work on technology policy and on regional development.

### **Yaakov Khazanov**

Dr. Khazanov does research on the impact of economic growth on nationalist movements.

### **Israel Luski**

Prof. Luski's research interests deal with the following areas of industrial organization:

1. R&D and patent policy: Optimal strategies for R&D investment.
2. The economics of multinational corporations: The economic impact of multinational corporations on the host country; optimal incentives policy.

Nonprofit organizations: Economic efficiency of nonprofit organizations, government policy toward nonprofit organizations.

**Uri Regev**

Prof. Regev's research focuses on environmental economic issues. These include the impact of coal burning in power stations of the Israeli electric company, policies for enhancing municipal waste recycling and measurement of environmental pollution impacts on health. He is also interested in the problem of bacterial resistance to antibiotics, which has become a number one health problem. The economic incentives that lead to market failure in antibiotic prescriptions is the subject of a new joint research project with Kupat Holim Macabbi.

**Bradley Ruffle**

Bradley Ruffle is an experimental economist. He uses experimental methods in the laboratory and in the field to test theories and examine phenomena in product and labor markets, industrial organization, negotiations, and the role of cooperation, trust, signaling, emotions, and cognitive biases in interactive and individual decision making.

**Aner Sela**

Dr. Sela's research concerns game theory, learning, auction theory, and industrial organization.

**Haim Shalit**

Prof. Shalit's research is directed toward the use of the mean-Gini model and Conditional Stochastic Dominance in financial markets. His work on Marginal Conditional Stochastic Dominance (MCSD) constructs a portfolio of stocks that improves upon the market portfolio. Prof. Shalit succeeded in developing a statistical procedure for MCSD that demonstrates the dominance of the new portfolio. In addition, his work on the mean-Gini model shows how the standard procedure of Ordinary Least Squares used to estimate systematic risk is not robust with respect to wide market fluctuations.

**Avia Spivak**

Prof. Spivak continues his research activities in two main fields of interest: the economics of peace in the Middle East and the economics of pensions and social insurance. He currently serves as chairman of the committee at the Ministry of Finance that is in charge of defining a new curriculum for insurance agents.

**Jimmy Weinblatt**

Prof. Weinblatt's research efforts are devoted to pursuing various issues within the large scale project on the Economic Aspects of Peace in the Middle East: macroeconomic modeling, Israeli-Jordanian-Palestinian trade and the development of special industrial zones. Much of his time at present is taken up with his responsibilities as Dean of the Faculty of Humanities and Social Sciences.

**David Wettstein**

Dr. Wettstein's research interests focus on cost allocation, innovation and the patent system, implementation of cooperation solution concepts (the Shapley value, bargaining sets), and auctions.