THE PHILLIPE MONASTER CENTER FOR ECONOMIC RESEARCH

ACTIVITY REPORT

1996/7

THE PHILLIPE MONASTER CENTER FOR ECONOMIC RESEARCH ACTIVITY REPORT 1996/97

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I. MEMBERS OF THE MONASTER CENTER FOR ECONOMIC RESEARCH

DIRECTOR: Professor Uri Regev

MEMBERS:

Dr. Arie Arnon
Professor Tuvia Blumenthal
Department of Economics
Department of Economics

Dr. Dov Chernichovsky Department of the Management and Economics of Health

Dr. Ezra Einy
Dr. Mark Gradstein
Professor Oded Hochman
Department of Economics
Department of Economics
Department of Economics

Professor Moshe Justman Chairman, Department of Economics

Dr. Todd Kaplan
Department of Economics
Dr. Adam Klug
Professor Israel Luski
Department of Economics
Department of Economics

Professor Abraham Mehrez Department of Industrial Engineering and Management

Dr. Carmel Nadav
Professor Uri Regev
Dr. Bradley Ruffle
Dr. Haim Shalit
Dr. Oren Sussman
Professor Avia Spivak
Department of Economics

Professor Jimmy Weinblatt Department of Economics (Dean, Faculty of Humanities

and Social Sciences)

Dr. David Wettstein Department of Economics Professor Ehud Zuscovitch Department of Economics

STEERING COMMITTEE:

Professor Moshe Justman Professor Uri Regev Dr. David Wettstein

II. SUMMARY OF ACTIVITIES

The Monaster Center continued to expand its activities in 1996-97.

The Center's large scale project on The Economics of Peace in the Middle East, led by Center members, A. Arnon, I. Luski, A. Spivak, and J. Weinblatt, ended last year and resulted in the publication of a book entitled *The Palestinian Economy: Between Imposed Integration and Voluntary Separation* (Brill, Holland), as well as several working papers and journal articles. Several new projects were initiated in its wake, financed by the Bank of Israel (J. Weinblatt, A. Arnon, and A. Spivak) and the Ministry of Industry and Trade (M. Justman and J. Weinblatt). In addition, the Center sponsored a monthly seminar on the economic history of the Middle East jointly with the newly formed Department of Middle East Studies, bringing to Beer Sheva noted scholars from several universities. Dr. A. Arnon collaborated with the World Bank and MAS (The Palestinian Economic Research Center) in their report on the Palestinian economy. In addition, he joined the Harvard Project on Palestinian Refugees. A report on the findings will appear as a chapter in a forthcoming volume.

The Monaster Center continues its commitment to applied research on other issues of central interest to Israeli society and economy. It continued its program on Health Economics and Policy in a Stressed Society in collaboration with the University's Faculty of Health Sciences, led by Center member Dr. Dov Chernichovsky together with an international steering committee. Center member A. Spivak's research on pensions figures prominently in the national debate on the future of the country's pension funds. Center members also participate actively in formulating industrial policy: M. Justman and E. Zuscovitch were awarded a contract from the Chief Scientist's Office to review Israel's R&D subsidy policy. C. Nadav and E. Zuscovitch are working with the chemical industry on forecasting. J. Weinblatt (now serving his second year as Dean of the Faculty of Humanities and Social Sciences) conducts extensive research on social policy issues with the Center for Social Policy Studies in Jerusalem and has served on several national committees. M. Justman is helping to formulate an economicallybased development plan and statutory planning documents for the Beer Sheva metropolitan area. U. Regev continues to serve on the advisory committee of the Central Bureau of Statistics and continues his research on a regional cooperation project of environment and waste management in the Jordan Valley and the Gaza Strip. This is a cooperative effort between Israel, Jordan and the Palestininian Authority (with the Center for Biological Control at Ben-Gurion University).

M. Justman and E. Zuscovitch edited a collective volume with N. Teubal (Hebrew University) and D. Foray (Ecole Centrale) on technological infrastructure policy. In 1996-97, E. Zuscovitch edited a special issue of the journal, Economics of Innovation and New Technology (together with P. Llerena) entitled "Innovation, Diversity and Organization from an Evolutionary Perspective"), and a special issue of Revue Internationale et Syst?mique (jointly with M. Willinger) entitled "Patterns of Change: Learning, Diffusion and Transition." Professor Zuscovitch continues his close scientific collaboration with colleagues at Louis Pasteur University (Strasbourg) and his research affiliation as member of the French National Center of Scientific Research (C.N.R.S).

This applied work is complemented by theoretical research in mathematical economic and game theory by E. Einy, mechanism design by D. Wettstein, industrial organization by I. Luski, D. Wettstein, and T. Kaplan, urban economics by O. Hochman, public choice by M. Gradstein, the political economy of growth by M. Gradstein and M. Justman, and financial theory by H. Shalit and O. Sussman. A. Klug continues his empirical research project on the business expectations of the railroad industry in the U.S. during the Great Depression and T. Blumenthal remains active in his work on Japan's economy

The Center has significantly expanded the infrastructure of services that facilitates research activity. Together with the Economics Department it employs a senior computer expert, Mr. Ilan Ahituv, in support of the computer network and other computer services in the Center. The equipment is continually being improved and upgraded.

The Center has been rejuvenated in recent years by the addition of new young faculty: Dr. Bradley Ruffle, who joined the department last year, is very active in applying experimental methods to investigate the role of buyers in different market institutions.

Finally, I wish to thank our administrative coordinator, Ms. Dorit Tuchler, and our English secretary, Ms. Estelle Schulgasser, for their help in producing this report.

Professor Uri Regev, Director Monaster Center for Economic Research

III. ACTIVITIES OF THE CENTER

1) GUESTS OF THE CENTER AND THE DEPARTMENT OF ECONOMICS

Support from the Center allowed us to invite a number of economists from abroad to visit Ben-Gurion University, some of whom presented seminars.

10/96	Prof. Marc Gaudry, University of Montreal
10/96	Prof. Beda Angehrn, ETH, Zurich
11/96	Prof. David Perez-Castrillo, Universitat Autonoma de Barcelona
12/96	Prof. Uzi Segal, University of Western Ontario
1/97	Dr. Amos Witztum, London Guildhall University
2/97	Prof. Donald Siegel, Arizona State University
3/97	Prof. Larry Westphal, Swarthmore College
3/97	Prof. Larry Neal, The University of Illinois at Urbana
4/97	Prof. Knick Harley, University of Western Ontario
4/97	Dr. Javier Suarez, CEMFI (Madrid)
5/97	Prof. Yves Zenou, University of Paris II
5/97	Prof. Sean Kantor, University of Arizona
6/97	Dr. Sinaia Netanyahu, University of Maryland
6/97	Prof. Ron Oaxaca, University of Arizona
9/97	Ms. Clare Woodcraft and Mr. Layth Dajani, Arab Economics Association,
Ramallah	

2) SEMINARS LECTURES PRESENTED BY GUESTS FROM ISRAEL AND ABROAD

- 17.10.96 Prof. Marc Gaudry, University of Montreal "An Economic Model of Road Accidents"
- 31.10.96 Dr. Adam Klug, Ben-Gurion University of the Negev "Forecasting the Great Depression: Evidfrom the Railroad Shippers' Forecasts"
- 7.11.96 Prof. David Perez-Castrillo, Universitat Autonoma de Barcelona

- "Optimal Auditing Policy with Heterogeneous Income Sources"
- 14.11.96 Dr. Yuval Nachtom, Tel-Aviv University
 "Optimal Policy of Investment, R&D and Exit: An Application to the Israeli
 High Tech Industry"
- 21.11.96 Prof. Dov Monderer, The Technion
 "A Learning Approach to Auctions"
- 28.11.96 Dr. Orna Nachamoni, Hebrew University
 "Allocation of Non-Stationary Natural Resources: External Influences and
 Competitive Equilibrium"
- 5.12.96 Prof. Zvi Hercowitz, Tel-Aviv University
 "Equipment Investment and the Relative Demand for Skilled Labor:
 International Evidence"
- 12.12.96 Prof. Oded Hochman, Ben-Gurion University of the Negev "Zoning as a Control of Pollution in a Spatial Environment"
- 19.12.96 Prof. Uzi Segal, University of Western Ontario "Let's Agree that all Dictatorships are Equally Bad"
- 26.12.96 Dr. Oved Yosha, Tel-Aviv University
 "Income and Consumption Smoothing Among U.S. States: Regions or Clubs?"
- 2.1.97 Dr. Amos Witztum, London Guildhall University
 "Fairness and Justice in Adam Smith's Economic System: A Minimum
 Wage Theory"
- 9.1.97 Dr. Robert Sauer, Tel-Aviv University
 "Job Mobility and the Market for Lawyers"
- 16.1.97 Dr. Yoram Halevi, Hebrew University
 "Trade Between Rational Agents as a Result of Asymmetric Information"
- 9.2.97 Prof. Donald Siegel, Arizona State University
 "External Capital Factors and Increasing Returns in U.S. Manufacturing"
- 3.3.97 Dr. Todd Kaplan, Ben-Gurion University of the Negev "Optimization Costs and Forward Looking Decision Rules"
- 6.3.97 Dr. Omer Moav and Dr. Yishai Maoz, Hebrew University
 "A Growth Model of Education and Intergeneration Mobility"
- 13.3.97 Prof. Larry Neal, The University of Illinois at Urbana
 "John Law and the South Sea Bubble: Speculative Attacks in the First
 Emerging Markets"
- 18.3.97 Prof. A. Arnon, Prof. J. Weinblatt, Prof. I. Luski and Prof. A. Spivak "The Palestinian Economy: Between Imposed Integration and Voluntary

Separation"

- 27.3.97 Prof. Larry Westphal, Swarthmore College "Exports, Technology Transfer, and Industrial Development"
- 31.3.97 Dr. Erez Sinibar, Management College
 "Language and Wages: Acquisition of Language by New Immigrants"
- 3.4.97 Prof. Moshe Justman, Ben-Gurion University of the Negev
 "The Political Dynamics of Education, Endogenous Growth and Inequality in a
 Mixed Economy"
- 8.4.97 Dr. Javier Suarez, CEMFI (Madrid)
 "Capital Budgeting and Stock Options Plans"

10.4.97	Prof. Victor Lavi, Hebrew University "Using "Maimonides' Rule to Estimate the Effect of Class Size on Scholastic Achievement in Israel"	
15.4.97	Prof. Knick Harley, University of Western Ontario "Cotton Textiles and the Industrial Revolution: Profits, Prices and Exports"	
1.5.97	Prof. Avishai Braverman, Ben-Gurion University of the Negev "Issues in Economic Development: The Role of the World Bank"	
5.5.97	Dr. Haim Marantz, Ben-Gurion University of the Negev "Classical Economics and Rationality"	
8.5.97	Dr. Avi Simchon, University of Haifa "Income Inequality in a Search Economy"	
15.5.97	Dr. Gil Epstein, Bar-Ilan University "Inventory, Waiting Costs and the Theory of the Firm"	
19.5.97	Prof. Yves Zenou, University of Paris II "How to Finance Education When the Labor Force is Heterogeneous?"	
22.5.97	Prof. Shawn Kantor, University of Arizona "The Adoption of Workers' Compensation in the United States, 1900-1930"	
2.6.97	Dr. Sinaia Netanyahu, University of Maryland "Trans-Boundary Water Policy Coordination Under Certainty"	
5.6.97	Dr. Oren Sussman, Ben-Gurion University of the Negev "A Stylized Model of Financially-Driven Business Cycles"	
12.6.97	Prof. Ron Oaxaca, University of Arizona "Can Supply and Demand Parameters be Recovered from Data Generated by Market Institutions?"	
16.6.97	Dr. Bradley J. Ruffle, Ben-Gurion University of the Negev "Demand Withholding in Experimental Posted-Offer Markets"	

3) RESEARCH CONTRACTS AND FELLOWSHIPS

Moshe Justman and Ehud Zuscovitch are engaged in a contract to evaluate Israel's industrial R&D subsidy program.

Previous research on networks on behalf of France Telecom to which Ehud Zuscovitch contributed has terminated and a book being published by Sringer-Verlag will appear shortly. Ehud Zuscovitch is engaged in a European research project with Strasbourg colleagues focusing on the technology policy of a knowledge-intensive economy.

Uri Regev continues his joint work (with J. Margalit) on a regional cooperation project (together with Jordanian and Palestinian scientists).

Moshe Justman and Jimmy Weinblatt completed a research project on "Special Industrial Zones on the Israel-Gaza Line" for the Ministry of Industry and Trade.

Dr. Adam Klug was awarded a seed money grant from the Israel Foundation. Bradley Ruffle and Todd Kaplan were each awarded the distinguished Kreitman Post-Doctoral Fellowship. Dr. Ruffle won the 1997 E.A.R.I.E. Young Economists' Essay Competition Award for his essay entitled "Do Buyers Always Act as Passive Price-Takers? Demand Withholding in Experimental Posted-Offer Markets." In addition, he is the recipient of a grant from the Russell Sage Foundation's Small Grants Program in Behavioral Economics for "Buyer Behavior in Posted-Offer Markets."

4) 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.

Arie Arnon has a joint appointment with the Research Department in the Bank of Israel and Avia Spivak collaborates with the Bank of Israel in his research on Israel's pension systems. Oded Hochman collaborates with David Pines from Tel-Aviv University and Jacques Thisse from Universite de Paris, I, on regional and urban economics. Prof. Hochman has begun his sabbatical year at the University of California at Berkeley, part of which time he will be collaborating with Prof. Gordon Rausser on zoning and pollution research.

Ehud Zuscovitch collaborates with the Jerusalem Institute for Israeli Studies in the areas of technological innovation, infrastructure, and growth in Israel. He collaborates with members of BETA at Louis Pasteur University of Strasbourg, and with the European Network in the economics of technology and innovation and its affiliated European institutes: MERIT - Limburg University in the Netherlands, the Department of Economics of the University of Rome and SPRU - University of Sussex. Ezra Einy visited the Department of Economics at the Universidad Carlos III de Madrid during February 1997. Oren Sussman is engaged in joint research with Javier Suarez (CEMFI Madrid).

Uri Regev spent the summer of 1997 at the University of California, Berkeley in the Center for Sustainable Development. At present, Prof. Regev continues his cooperation with P. Rieder at the Federal Institute of Technology (ETH) in Zurich. One outcome of their collaboration was a visit by a Ph.D. student to the Center whose dissertation has just been successfully completed under their supervision. Prof. Rider and U. Regev continue their work on the effects of human capital on demand for crop protection.

Jimmy Weinblatt, Avia Spivak and Arie Arnon ended their project with the Economic Cooperation Foundation and the Truman Institute at the Hebrew University on the economics of peace in the Middle East. This project yielded a book entitled *The Palestinian Economy: Between Imposed Integration and Voluntary Separation*, currently in press. Jimmy Weinblatt also collaborates with the Center for Social Policy Studies in Jerusalem on social policy.

Moshe Justman is engaged in joint research with a colleague at CORE, Louvain-la-Neuve, Belgium. He is also part of a large team preparing a development plan for the Beer Sheva metropolitan area.

The Monaster Center has also joined with the Universities of Athens, Bristol, Cyprus and the Hebrew University in a special traininproject under the European Community's Med-Campus program. We aim to extend our participation in this program in a new collaboration with the

Middle East Technical University of Ankara, and the Universities of Liverpool, Picardie and Montpellier.

IV. PARTICIPATION OF MEMBERS OF THE CENTER IN CONFERENCES AND WORKING VISITS TO INSTITUTIONS

Arie Arnon

"Macroeconomic Implications of Feasible Agreements Concerning the Palestinian Refugees," Workshop organized by the 'Harvard Project on the Palestinian Refugees,' The Institute for Social and Economic Studies in the Middle East, The Kennedy School of Government, Harvard University, Boston, USA, October 1996.

"External Relations, Borders and Development: Some Lessons from Experience Since the Peace Process Started," Conference of the Economic Development Institute, The World Bank and Institute Francais des Relations Internationals on 'New Visions for the Economic and Social Development of the West Bank and Gaza,' Paris, France, November 1996.

"Free (and Not So Free) Banking Theories Among the Classicals or Classical Forerunners of Free Banking and Why They Have Been Neglected," Annual Conference of the European Society for the History of Economic Thought (ESHET), Marseilles, February 1997.

"The Links Between the Israeli and Palestinian Economies," Mediterranean Development Forum (MDF), Economic Development, The World Bank, Marrakech, Morocco, May 1997.

Tuvia Blumenthal

Japan and East Asia: Lessons for the Development of the Middle East in the Era of Peace, Jerusalem, March 26-29, 1996.

Ezra Einy

International Conference on Game Theory and Economic Theory, SUNY Stony Brook, July 1997. Lecture presented: "Von Neumann-Morgenstern Stability of the Symmetric Pareto Optimal Allocations in Pure Exchange Economics."

Mark Gradstein

AEA Meetings, January 1997.

Oded Hochman

International Regional Science Association Meetings, North-American Section, Buffalo, November 1997 (with D. Pines) and the East Asian Section of this meeting in New Zealand in December 1997.

Moshe Justman

"The Democratization of Elites and the Decline in Inequality in Modern Economic Growth: An Integrative Analysis," Conference on Elites, Minorities and Economic Growth, Bar-Ilan University, Ramat-Gan, June 1997.

"Schumpeterian Waves of Technology-Led Growth," 3rd Annual Technion Economic Workshop, Haifa, May 1997.

"Technological Infrastructure Policy in an Integrated World Economy," CEPR Conference on Government Policy in an Integrated World Economy, Bar-Ilan University, Ramat-Gan, April 1997.

Visit to CORE, Universite Catholique de Louvain, Louvain-la-Neuve, Belgium, February 1997.

Visit to the Korean Academy of Industrial Technology, Seoul, November 1996.

Todd Kaplan

"Bounded Rationality and Cycles in Real Estate Models," The Society of Economic Dynamics Conference, Keble College, Oxford University.

AEA meetings in New Orleans.

The Creed Conference on Experimental Economics at the University of Amsterdam.

The 1997 Bonn Workshop on "Theories of Bounded Rationality."

Adam Klug

"Elites and the Economics of Radicalism, Evidence from Oldham, 1840-1852," presented at the International Interdisciplinary Workshop on Elites and Economic Growth, Bar-Ilan University, June 1997.

"Expectations and the Depression: Evidence from the Railroad Shippers' Forecasts," presented at the World Cliometrics Conference, Munich, July 1997.

Israel Luski

"R&D Activity in a General Equilibrium Setting: A Lindahlian Perspective" presented at the 11th Conference on Game Theory and Applications, Bocconi University, Milan, Italy, June 1997 (with D. Wettstein).

"Optimal Patent Length and Height in a Sequential Model of Innovation" presented at the International Conference on Game Theory, Stony Brook, New York, July 1997 (with D. Wettstein).

"Wage Competition in the Labor Market: Equilibria and the Impact of Minimum Wage Laws" presented at the 24th Annual Conference of the European Association for Research in Industrial Economics, Louvain-la-Neuve, Belgium, September 1997 (with D. Wettstein).

Carmel Nadav

"The Measurement of Human Capital," WEA Annual Conference, San Francisco, 1996.

Uri Regev

Western Economic Association, 72nd Annual Conference, July 1997. Organizer of session: The Economics of Humans and Other Species. Paper Presented: "Humans and Animals: How Do They Interact?"

International Association of Agricultural Economics. Symposium: Economics of Agrochemicals, April, 1996. Paper title: "Input-Demand Effect of Human Capital in Plant Protection."

Bradley Ruffle

"Do Buyers Always Act as Passive Price-Takers? Demand Withholding in Experimental Posted-Offer Markets," presented at Russell Sage Foundation's Behavioral Economics Workshop, July 1997; at the Amsterdam Workshop on Experimental Economics (AWEE),

August 1997; and the European Association for Research in Industrial Economics (E.A.R.I.E.) September 1997.

Haim Shalit

Paper presentation "Beating the S&P500: A Dynamic Application of Marginal Conditional Stochastic Dominance" at the International Symposium on Forecasting, Istanbul, June 1996.

Oren Sussman

"Financial Institutions and Economic Growth," Venice, January 1997.

"Schumpeterian Waves of Technology-Led Growth," Haifa, May 1997.

European Summer Symposium on Financial Markets, Gerzensae (Switzerland) July 1997.

"Information and Learning, Financial Intermediates and the Macroeconomy," Alghero-Sardegna, September 1997.

David Wettstein

"R&D Activity in a General Equilibrium Setting: A Lindahlian Perspective" presented at the 11th Conference on Game Theory and Applications, Bocconi University, Milan, Italy, June 1997 (with I. Luski).

"Optimal Patent Length and Height in a Sequential Model of Innovation" presented at the International Conference on Game Theory, Stony Brook, New York, July 1997 (with I. Luski).

"Wage Competition in the Labor Market: Equilibria and the Impact of Minimum Wage Laws" presented at the 24th Annual Conference of the European Association for Research in Industrial Economics, Louvain-la-Neuve, Belgium, September 1997 (with I. Luski).

"Cost Sharing - Efficiency and Implementation" presented at the Annual Meeting of the Public Choice Society in San Francisco (with T. Kaplan).

Seminar presentations at Tel-Aviv University and at the Universitat Autonoma de Barcelona.

Ehud Zuscovitch

"To Have or to Be - that is the question!" Presented at the Seminar in the Department of Agricultural Economics, the Hebrew University, Rehovot, June 1997.

"The Limited Transferability of Technological Knowledge," presented at the 1997 meeting of the European Economic Association, Toulouse, August-September, 1997 (with X. Yin).

V. PUBLICATIONS, 1996 - (names of Center members appear in capital letters)

ARNON, A, with LUSKI, I. SPIVAK, A. and WEINBLATT, J, (1997) *The Palestinian Economy: Between Imposed Integration and Voluntary Separation*. E.J. Brill, The Netherlands (in press).

ARNON, A. and WEINBLATT, J. (1997) "Linder's Hypothesis Revisited: Income Similarity Effects for Low Income Countries," *Applied Economics Letters*, forthcoming.

ARNON, A. (1997) "Thomas Tooke, The Currency Principle and the 1844 Bank Act," Introductory Essay to Tooke's "An Inquiry into the Currency Principle," re-issued in 'Klassiker der Nationalokonomie' series, B. Schefold, ed., Dusseldorf, Germany: Verlag Wirtschaft und Finanzen.

ARNON, A. (1997) "Macroeconomic Implications of Feasible Agreements Concerning the Palestinian Refugees." Chapter in a forthcoming volume to be edited by G. Borjas and D. Rodrik for the 'Harvard Project on Palestinian Refugees,' Kennedy School of Government, Institute for Social and Economic Policy in the Middle East, Harvard University.

ARNON, A. (1997) "The Links Between the Israeli and Palestinian Economies Since 1967: Between Imposed Integration and Voluntary Separation," in: H. Gordon (ed.) *Looking Back at the Six Day War*, Westport: Greenwood.

ARNON, A. and SPIVAK, A. (1996) "On the Introduction of a Palestinian Currency," *Middle East Businand Economic Review* 8:1-14.

ARNON, A. and Gottlieb, D. (1996) "An Economic Analysis of the Palestinian Economy: The West Bank and Gaza 1968-1991," *Bank of Israel Review*, 69:44-70.

CHERNICHOVSKY, D. (1997) "What Can Developing Economies Learn from Developed Economies?," forthcoming in *Health Policy*.

CHERNICHOVSKY, D. (1997) "Health System Reforms in Industrialized Economies; An Emerging Paradigm, forthcoming in *The Milbank Quarterly*.

CHERNICHOVSKY, D., Barnum, HG. and Potapchik, E. (1997) "Health Sector Reform in Russia; the Perspective of Finance," forthcoming in *The Economics of Transition*.

EINY, E. and Shitovitz, B. (1997) "Stability of the Core Mapping in Games with a Countable Set of Players," *International Journal of Game Theory* 26:45-50.

EINY, E., Holzman, R., Monderer, D. and Shitovitz, B. (1997) "Core Equivalence Theorems for Infinite Convex Games," *Journal of Economic Theory*, forthcoming.

EINY, E. and WETTSTEIN, D. (1996) "Equivalence of the Core and Bargaining Sets in Simple Games," *International Journal of Game Theory* 25:65-72.

EINY, E. and Shitovitz, B. (1996) "Convex Games and Stable Sets," *Games and Economic Behavior* 16:192-201.

GRADSTEIN, M. and JUSTMAN, M. (1997) "Democratic Choice of an Education System: Implications for Growth and Income Distribution," *Journal of Economic Growth*, forthcoming.

GRADSTEIN, M. and JUSTMAN, M. (1996) "The Political Economy of Mixed Public and Private Schooling: A Dynamic Analysis," *International Tax and Public Finance* 3:297-310.

GRADSTEIN, M. (1996) "The Politics of Precommitment with Electoral Uncertainty and Transaction Costs," *Economics and Politics* 8:73-84.

HOCHMAN, O. (1997) "More on Scale Economies and Cities," *Regional Science and Urban Economics* 27:373-397.

JUSTMAN, M. and Thisse, J.-F., (1997) "Implications of the Mobility of Skilled Labor for Local Public Funding of Higher Education," *Economics Letters*, forthcoming.

JUSTMAN, M. and Thisse, J.-F. (1997) "Faut-il Regionaliser L'enseignement Superieur," *Revue Economique* 48:569-577.

- JUSTMAN, M. (1996) "Swarming Mechanics," *Economics of Innovation and New Technology* 4:253-244.
- Teubal, M., Foray, D., JUSTMAN, M. and ZUSCOVITCH, E., eds. (1996) *Technological Infrastructure Policy: An International Perspective*, Dordrecht: Kluwer.
- JUSTMAN, M. and MEHREZ, A. (1996) "A Welfare Analysis of Innovation in R&D Markets," *International Journal of Social Economics* 23(2):52-65.
- JUSTMAN, M. and Teubal, M. (1996) "Strategic Technology Policy for New Industrial Infrastructure." X. Vence-Deza and J.S. Metcalfe, eds., *Wealth from Diversity: Innovation, Structural Change and Finance for Regional Development in Europe*, Dordrecht: Kluwer, pp. 199-228.
- KLUG, A. (1997) "The Economics of Buying Back German Debt in the 1930s," in Scott Eddie and John Komlos (eds.), *Selected Cliometric Studies in German Economic History*, Fritz Steiner Publishers, 1997.
- KLUG, A. (1997) "Progress and Paradox in International Economics," forthcoming in the *Journal of International Trade and Development*.
- KLUG, A., and NADAV, C. (1997) "On the predictability of the term structure in the 1930s," forthcoming in *Applied Economics Letters*.
- LUSKI, I. and WEINBLATT, J. (1997) "The Effect of Minimum Wage on Employment and Wages in Israeli Industry," *International Journal of Social Economics* 24(4).
- LUSKI, I. and WEINBLATT, J. (1997) "The Gaza Strip and the West Bank: The Transition Toward Economic Independence," forthcoming in *The Journal of Management Sciences & Regional Development*.
- LUSKI, I. and WEINBLATT, J. (1997) "A Dynamic Analysis of Fiscal Pressure and Demographic Transition," forthcoming in *Applied Economics*.
- NADAV, C. (1996) "On Calorie Counting and Growth Accounting," under review.
- NADAV, C. (1996) "Measuring Aggregate Human Capital," under review.
- NADAV, C. and F. Aziz (1996) "Convergence in Nutrition Clubs," (under review).
- REGEV, U., Gotsch, N. and Rieder, P. (1997) "Are Fungicides, Nitrogen and Plant Growth Regulators Risk-Reducing? Empirical Evidence from Swiss Wheat Production," *Journal of Agricultural Economics* 48:167-68.
- REGEV, U. (1997) "The Interaction of Externalities and Uncertainty in Pest Management Strategy" forthcoming in C. Willis and D. Zilberman, eds., *Economics of Chemical Use: Essays in Memory of Carolyne Harper*, Kluwer Publishing House.
- REGEV, U., Gutierrez, A.P., Schreiber, S. and Zilberman, D. (1997) "Biological and Economic Foundation of Renewable Resource Exploitation," *Ecological Economics*, forthcoming.
- Gotsch, N. and REGEV, U. (1996) "Fungicide Use under Risk in Swiss Wheat Production," *Agricultural Economics* 14:1-9.
- Gotsch, N. and REGEV, U. (1996) "Fungicide Use under Risk in Swiss Wheat Production," *Agricultural Economics* 14:1-9.

SPIVAK, A., (1997) Book review of *The Lessons of Israel's Great Inflation* by Haim Barkai. In: *The Middle East Journal* 51(1), Winter.

SPIVAK, A. and WEINBLATT, J. (1996) "The Potential for Trade Between Israel, the Palestinians and Jordan," *World Economy* 19(1).

Teubal, M. and ZUSCOVITCH, E., eds. (1997) "Evolutionary Product Differentiation and Market Creation in Turbulent Economic Environments," *Economics of Innovation and New Technology* Vol. 4(4):265-285.

Llerena, P and ZUSCOVITCH, E., (1996) "Innovation, Diversity and Organization from an Evolutionary Perspective - Introduction and Overview," *Economics of Innovation and New Technology* Vol. 4(3):187-191.

ZUSCOVITCH, E., (1996) "Sustainable Differentiation," *Revue Internationale de Syt?mique* Vol. 10(3):323-346.

Cohen, G. and ZUSCOVITCH, E. (1996) "Evolution des Connaissances et Modalit?s d'Innovation dans un R?seau de Haute-Technologie - le Cas du Programme Spatial Europ?en," *Economies et Societ?s* Tome XXX, No. 7:79-110.

VI. WORKING PAPER SERIES 1995/96/97 AND ABSTRACTS OF RECENT WORKING PAPERS (issued from the Monaster Center for Economic Research)

Discussion Paper Series 1995

- 95-1 E. Einy and B. Shitovitz, "Stability of the Core Mapping in Games with a Countable Set of Players."
- 95-2 E. Einy and B. Shitovitz, "Convex Games and Stable Sets."
- 95-3 I. Luski and D. Wettstein, "An Optimal Patent Policy in a Dynamic Model of Innovation."
- 95-4 M. Justman, "Swarming Mechanics."
- 95-5 I. Luski and J. Weinblatt, "The Gaza Strip and the West Bank: The Transition Toward Economic Independence."
- 95-6 M. Gradstein, "Implementation of Social Optimum in Oligopoly."
- 95-7 M. Gradstein and M. Justman, "The Political Economy of Education: Mixed Public and Private Schooling."
- 95-8 M. Gradstein, "The Politics of Precommitment with Electoral Uncertainty and Transaction Costs."
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A. Arnon and A. Spivak, "Monetary Integration Between the Israeli, Jordanian and Palestinian Economies."

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- 96-1 R. Ferreira and E. Zuscovitch, "Jack of All Trades or Master of One? The Specialization-Flexibility Trade-off."
- 96-2 O. Hochman, "More on Scale Economies and Cities."
- 96-3 C. Nadav, "The Measurement of Aggregate Human Capital."
- 96-4 C. Naday, "Convergence in Nutrition Clubs."
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- 96-6 A. Arnon, "Free and Not So Free Banking Theories Among the Classicals."
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- 97-1 M. Gradstein and M. Justman, "Democratic Choice of an Education System: Implications for Growth and Income Distribution."
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- 97-10 A. Klug and C. Nadav, "Elites and the Economics of Radicalism: Evidence from Oldham, 1842-1852."
- 97-11 E. Einy, R. Holzman and D. Monderer, "On the Least Core and the Mas-Colell Bargaining Set."
- 97-12 E. Einy, D. Moreno and B. Shitovitz, "The Asymptotic Nucleolus of Large Monopolistic Games."
- 97-13 A. Klug and G.W. Smith, "Suez and Sterling, 1956."
- 97-14 M. Justman, "Schumpeterian Waves of Disequilibrium Growth: A General Equilibrium Analysis."
- 97-15 M. Justman and M. Gradstein, "Industrialization, Democratization and Declining Inequality: The Political Transition After the Industrial Revolution."
- 97-16 M. Gradstein and M. Justman, "The Political Transition: A Turning Point in the Dynamics of Growth and Inequality."
- 97-17 M. Justman, "Technological Infrastructure Policy in an Integrated World Economy:

National Support, International Coordination."

97-18 I. Luski and D. Wettstein, "Wage Competition in the Labor Market: Equilibria and the Impact of Minimum Wage Laws."

ABSTRACTS OF WORKING PAPERS (issued since the previous report)

(96-17)

Zoning as a Control of Pollution in a Spatial Environment

O. Hochman

We show here that space matters not only because of the transportation costs it imposes on the economy but also because it can serve as an effective instrument to control pollution damages. Previous models of pollution either disregard space altogether or presume a predetermined separation between polluters and pollutees, usually into a central business district where the polluting industry is located and a residential ring where the city's laborers dwell. All possible combinations of housing and industry locations are considered in this study. The results demonstrate that the management of pollution requires the recognition of a trade-off between two cost components: pollution costs and transportation costs. This, together with a nonconvexity inherent in spatial models, results in multiple local optima which involve different zoning solutions as well as a no-zoning internal solution. In such an economy, Pigouvian taxes are generally inefficient. Instead the efficient tax is a per unit land tax equal to the marginal damages contributed by the unit's pollution. Negligible commuting costs combined with pollution emissions bearing ill effects at a rate declining with distance leads to an allocation with one industrial zone and one residential zone. As commuting costs increase, the optimal allocation passes through an endogenously determined series of increasing thresholds of commuting costs. Each time a threshold is crossed the number of zones of each type increases until the internal solution is reached after the final threshold has been crossed. In the internal solution there is no commuting, and housing and industry are located one next to the other. This final threshold can be any non-negative number, and the number of thresholds can be any non-negative integer.

(97-1)

Democratic Choice of an Education System: Implications for Growth and Income Distribution

M. Gradstein and M. Justman

We use an OLG model to examine democratic choice between two modes of government support for education: subsidies for privately purchased education and free uniform public provision. We find little conflict between democracy and growth: the same factors that generate popular support for subsidization over free uniform provision -- large external benefits, a large excess burden and little inequality -- also favor its relative growth performance. Furthermore, restricting the franchise to an upper-income elite may also reduce growth. Two extensions examine the effect of intergenerational mobility and indicate the possibility of periodic swings in the balance between public and private spending.

The Political Dynamics of Education, Endogenous Growth and Inequality in a Mixed Economy

M. Gradstein and M. Justman

Empirical evidence shows a negative link between inequality and economic growth while indicating that fiscal redistribution does not impede growth. We offer an explicit, consistent interpretation of these effects using an overlapping-generations model of endogenous growth in a mixed economy in which human capital is formed through a combination of politically determined public schooling and supplementary private education. Our analysis separately identifies the short-term effect of inequality on growth, in transition to equilibrium; the endogenous co-determination of the steady-state values of inequality and growth in the long run; and the effect of initial inequality on the choice between multiple equilibria.

(97-3)

Surplus Sharing with a Two-Stage Mechanism

T. Kaplan and D. Wettstein

In this paper, we consider environments where agents jointly produce a private output by contributing privately owned resources. An efficient outcome may not be realized due to strategic behavior and conflicting interests of the agents. We construct a two-stage mechanism, building upon a Varian [1994] mechanism. The modified mechanism ensures an equilibrium for a large class of preferences and guarantees the feasibility of outcomes.

(97-4)

Mixed-Strategy Equilibria with Constant-Returns-to-Scale Technology under Bertrand Competition

T. Kaplan and D. Wettstein

We analyze the Nash equilibria of a standard Bertrand model. We characterize a class of demand functions for which mixed-strategy equilibria exist. There is a continuum of such equilibria, yielding positive levels of profits for the two competing firms.

(97-5)

Progress and Paradox in International Economics

A. Klug

(97-6)

Von Neumann-Morgenstern Stability of the Symmetric Pareto-Optimal Allocations

E. Einv and B. Shitovitz

We apply the notion of von Neumann-Morgenstern stable sets to pure exchange economies with a finite number of traders and also to atomless economies with a finite number of types. We show that in a (finite) neo classical pure exchange economy (with a weaker monotonicity condition than the usual one): if the number of traders of each type is the same and every type has a corner on one of the commodities, then the set of all symmetric Pareto-optimal allocations in the economy (i.e., Pareto-optimal allocations which assign indifferent commodity bundles to traders of the same type) is a von Neumann-Morgenstern stable set. A similar result holds in atomless economies with a finite number of types without the convexity assumption on the preference relations. It is also not necessary to assume (in the atomless case) that the members of the types' partition have the same measure.

(97-7)

Local Public Funding of Higher EducatiWhen Skilled Labor is Mobile

M. Justman and J-F Thisse

Inter-jurisdictional labor mobility when public funding of higher education is sub-federal leads to a disparity between a centralized output-maximizing allocation of resources to education and decentralized equilibria. We show that when local governments choose their level of spending of higher education at a Nash equilibrium, this disparity depends strongly on the political balance of forces at the sub-federal level. The more common case of under-investment can be alleviated through inter-jurisdictional subsidies of local education expenditures based on net migration flows.

(97-8)

On the Predictive Power of the Term Structure During the 1930s

A. Klug and C. Nadav

This paper investigates the predictive power of interest rates during 1929-1940 in the United States. Our empirical evidence finds no support for the one-to-one relationship between the term structure of short term interest rates and inflation for forecasting horizons of six months or less or greater than one year. The hypothesis is not rejected for the 3 to 12 month horizon or for the 12 to 24 month horizon with a structural break.

(97-9)

The Core of a Class of Non-Atomic Games Which Arise in Economic Applications

E. Einy, D. Moreno and B. Shitovitz

We prove a representation theorem for the core of a non-atomic game of the form $v = f \circ \mu$ where μ is a finite dimensional vector of non-atomic measures and f is a non-decreasing continuous concave function on the range of μ . The theorem is stated in terms of the subgradients of the function f. As a consequence of this theorem we show that the game v is balanced (i.e., has a non-empty core) iff the function f is homogeneous of degree one along the diagonal of the range of μ and it is totally balanced (i.e., every subgame of v has a non-empty core) iff the function f is homogeneous of degree one in the entire range of μ . We also apply our results to some non-atomic games which occur in economic applications.

(97-10)

Elites and the Economics of Radicalism: Evidence from Oldham, 1842-1852

A. Klug and C. Nadav

(97-11)

On the Least Core and the Mas-Colell Bargaining Set E. Einy, R. Holzman and D. Monderer

We show that the least core of a coalitional game with a finite set of players is contained in the Mas-Colell bargaining set. This result is extended to games with a measurable space of players in which the worth of the grand coalition is at least that of any other coalition in the game. As a consequence, we obtain an existence theorem for the Mas-Colell bargaining set in games with a measurable space of players.

(97-12)

The Asymptotic Nucleolus of Large Monopolistic Games E. Einy, D. Moreno and B. Shitovitz

We study the asymptotic nucleolus of large differentiable monopolistic games. We show that if v is a monopolistic game which is a composition of a non-decreasing concave and differentiable function with a vector of measures, then v has an asymptotic nucleolus. We also provide an explicit formula for the asymptotic nucleolus of v and show that it coincides with the center of symmetry of the subset of the core of v in which all the monopolists obtain the same payoff. We apply this result to large monopolistic market games to obtain a relationship between the asymptotic nucleolus of the game and the competitive payoff distributions of the market.

(97-13)

Suez and Sterling, 1956

A. Klug and G.W. Smith

Daily data on spot and forward dollar/sterling exchange rates and on Britain's foreign exchange reserves are used to reassess the financial history of the 1956 Suez crisis. We find that support of sterling at its Bretton Woods lower band lost credibility as early as July. The stability of the exchange rate in early November reflected large reserve losses. Statistical evidence suggests that the Bank of England's interventions reacted strongly both to official sterling and to the transferable sterling market in New York.

(97-14)

Schumpeterian Waves of Disequilibrium Growth: A General Equilibrium Analysis

M. Justman

The paper represents "disequilibrium" growth -- Schumpeterian waves of progress through which the economy advances between notional steady-states of technological development -- as a stochastic general equilibrium. Each such wave is initiated by a *radical* innovation -- an exogenous, random event that realizes its economic value through subsequent *incremental* innovations which are also stochastic events, but depend on endogenous innovative effort. The analysis demonstrates the existence of a unique Markov-perfect equilibrium in contingent consumption, production and development strategies. The diffusion process it generates

conforms, in expected values, to patterns observed at the outset of the current technological revolution: an initial measured productivity decline (followed by a greater rise), and a short-run decline in the value of traditional companies coupled with a sharp rise in the value of new companies. Other results are a steady rise in real wages, and stability of the functional distribution of income. A numerical example illustrates these characteristics, as well as the sigmoid shape of the diffusion process.

(97-15)

Industrialization, Democratization and Declining Inequality: The Political Transition after the Industrial Revolution

M. Justman and M. Gradstein

Changes in the distribution of income in Britain in the aftermath of the Industrial Revolution and on through the early twentieth century had their roots in fundamental structural changes in the methods of production. But these were amplified by a political transition that saw a dramatic expansion of political influence, and a consequent shift in the distributional impact of government policies. We use a political-economic OLG model in which individual decisions on political participation and economic investment interact with collective political decisions on redistribution to demonstrate how increasing incomes first lead to a gradual democratization of elites, even while the rich become richer. Only when the franchise expands sufficiently to tip the balance of political power are regressive policies displaced by progressive ones.

(97-16)

The Political Transition: A Turning Point in the Dynamics of Growth and Inequality

M. Gradstein and M. Justman

We propose an integrative model of the concurrent expansion of political participation and decline of income inequality that accompanied modern economic growth. In the early stages of growth only an elite minority is able effectively to participate in the political arena, and uses its control of the machinery of government to redistribute the gains from growth disproportionately in its favor. In the course of economic development, political participation expands with rising incomes, while individual and collective decisions on redistribution interact. The model indicates a point of "political transition" at which the regressive tendencies of government are reversed and progressive policies lead to a decline in inequality. Empirical evidence from a cross-section of thirty-six countries and a more recent panel of eight provides tentative support for this hypothesis.

(97-17)

Technological Infrastructure Policy in an Integrated World Economy: National Support, International Coordination

M. Justman

A well-developed infrastructure of technological services characterized by economies of scope, is a key factor in attracting internationally mobile investment in local manufacturing. A simple theoretical model demonstrates the rationale for public support of such infrastructure when viewed from the unilateral perspective of a small country. However, when such policies proliferate among a group of countries (or regions) competing for a shared pool of capital, excess support may result, indicating an import role for supra-national (or supra-regional) agencies.

Wage Competition in the Labor Market: Equilibria and the Impact of Minimum Wage Laws

I. Luski and D. Wettstein

We examine the wage dprocess in a monopsonistic labor market. The labor market is characterized by employers who compete over a homogenous labor force by making simultaneous wage offers. We analyze the one-period and corresponding infinite horizon games and characterize a range of equilibrium wage offers. We consider the implications of minimum wage legislation and show that a rise in the minimum wage might be followed by an increase in employment. This provides one possible theoretical explanation for the findings reported in Card and Krueger (1994) where a rise in the minimum wage led to an increase in employment.

Our predictions vary with the degree of competitiveness in the market. To allow for more competition we consider large markets. We show that as the number of employers grows the upper bound of the equilibrium wage offers increases and approaches the competitive wage level.

VII. RESEARCH SUMMARIES

The following is a brief summary of the research interests and activities of Center members for 1996/97:

Arie Arnon

Dr. Arnon is still actively involved in research on Peace in the Middle East. He has also been working on another project entitled "Free (and not so free) Banking Theories." Dr. Arnon's research interests deal with the history of economic thought, macroeconomics, monetary economics and banking, the Israeli economy, privatization and the Arab economies.

Tuvia Blumenthal

Professor 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

Dr. Einy's research concentrates on values of games, large games, voting games, utility theory, inequality measures, and refinement of correlated equilibria. His current studies are centered on solution concepts of large games.

Mark Gradstein

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

Oded Hochman

Professor 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.

Moshe Justman

Professor Justman's research activities focus on three areas: theoretical analyses of the political economy of growth and income distribution, on which he cooperates with Mark Gradstein; technology policy and the economics of technical change on which he collaborates with Ehud Zuscovitch; and regional development in Israel and abroad on which he collaborates with an interdisciplinary planning group in Israel.

Todd Kaplan

Dr. Kaplan's research interests focus on mechanism design, debt contracts and experimental economics.

Adam Klug

Dr. Klug's principal research interests concentrate on quantitative economic history, focusing on international monetary and trade issues and political economy.

Israel Luski

Prof. Luski's research interests deal with the areas of industrial organization, productivity, technological change, technology diffusion and wage policy. His present research projects focus on patent policies, economics of the Middle East, government expenditure and demographic transition.

Carmel Naday

Dr. Nadav's research activities concentrate on economic development, health, nutrition and food availability, human capital and labor efficiency.

Uri Regev

Professor Regev's research focuses on environmental implications of pest management policies which involve issues of environmental sustainability and the ability to maintain a quality life style in a world governed by a population explosion and increasing environmental pressures. Measurement of environmental amenities and mechanism design problems in regulation of economic activities that affect the environment are the subjects of a prospective Ph.D. project to be undertaken in the Center as part of the regional Jordanian Palestinian and Israeli cooperation project.

Bradley Ruffle

Dr. Ruffle's current research activities use experimental methods in the areas of bargaining theory, individual rationality, and industrial organization, particularly the role of buyers in different market institutions.

Haim Shalit

Dr. 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. Since MCSD states the conditions under which all risk averse investors prefer to increase some stock shares over others, a dominant portfolio can be constructed. Dr. Shalit developed a statistical procedure for MCSD that demonstrates the dominance of the new portfolio.

Avia Spivak

Professor 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.

Oren Sussman

Dr. Sussman's main research interests focus on two topics: i) macroeconomics and finance and (ii) contract-standardization and institutional change.

Jimmy Weinblatt

Professor 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 mechanism design in economic environments, innovative activity in a general equilibrium setting, patent policy, cost allocation, and bargaining sets.

Ehud Zuscovitch

The scope of Dr. Zuscovitch's research interests include economics of technological change, evolutionary economics, diffusion of innovations, innovations in complex systems, industrial learning and competitive strategy, and economic features of advanced technologies. Dr. Zuscovitch also explores the implications of survival to evolutionary economics. In monetary theory, Dr. Zuscovitch focuses on the informational efficiency of the account function unit of money.