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Program Report

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International Trade and Investment

Robert C. Feenstra*

The International Trade and Investment (ITI) Program does research on patterns of international trade and foreign direct investment; policies designed to influence the level of trade and investment; and their consequences on importing and exporting countries, such as for their wages, growth, the environment, and so on. Empirical work in the Program has benefited from several new datasets covering both U.S. and global trade at a detailed level; these are now available from the NBER (see the accompanying box).¹ In this review, we cover work completed since last the Program Report in Winter 2000/2001, beginning with a new research area dealing with the microeconomics of the trading firm.

Microeconomics of The Trading Firm

Traditionally, theories of international trade have explained trade patterns by appealing to differences in the factor endowments found in various countries or to cross-country differences in industry productivity. That type of research continues, extending earlier models to allow for multiple industries, factors of production, and countries.² However, a new line of research digs deeper into the determinants of trade by allowing for differences across firms and recognizing that only the most productive firms will become exporters. That theoretical prediction receives strong empirical confirmation; generally, the new theory allows for a rich exploration of firm-level differences in datasets for the United States and other countries. Here are summaries of several research areas within this broad topic:

Firm Heterogeneity

The first way that firms can differ is in terms of productivity. Jonathan Eaton and Samuel Kortum introduced a Ricardian model with

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heterogeneous firms.³ In that model, firms receive random productivity draws and compete with other firms producing the identical product, so that only the most productive firm survives within each country. Across countries, however, firms face differing transportation costs on their sales to external markets, so that multiple firms can be producing the same product and selling to different markets.

A second model with heterogeneous firms is attributable to Marc Melitz.⁴ His work builds on an earlier model of monopolistic competition and trade in which goods are differentiated. In contrast to other researchers, Melitz allows the firms within an industry to be heterogeneous in their productivities. Each firm has to pay a fixed cost (for example, to develop its differentiated product), so that only the more productive firms will end up being profitable, while the least-productive firms exit the market. Furthermore, Melitz assumes that there is an additional fixed cost of exporting (for example, to market the product abroad), so that only the most productive firms find it profitable to export. This model has been extended to allow for multiple industries with differentiated products in each.⁵

These ideas have been applied to datasets on U.S. and French firms, as well as some for developing countries.⁶ For the United States, Andrew B. Bernard, J. Bradford Jensen, and Peter K. Schott have studied the factors leading to the exit of manufacturing firms, including competition from low-wage countries and declining trade barriers.⁷ Generally, exits occur less frequently at multi-product plants, at exporters, and at plants paying above average wages. In addition, productivity growth is faster in industries with falling trade costs, and plants in industries with falling trade costs are more likely to die or become exporters. Eaton, Kortum, and Francis Kramarz find that in France, firms differ substantially in export participation, with most firms only selling at home, and that markets in which French firms have a large share are also those where many more firms are exporting.⁸

These empirical applications depend on having firm-level datasets, which are not always available. An alternative is to use product-level trade data. This approach does not allow for the measurement of firm heterogeneity, but does allow for the entry and exit of products across years, as analyzed by Thomas I. Prusa.⁹ David Hummels and Peter J. Klenow decompose the growth of world trade into that part attributable to countries exporting new products — what they call the “extensive margin” — and that part attributable to countries

exporting more of the same products — the “intensive margin.” They find that extensive margin accounts for two-thirds of the greater exports of larger economies, and one-third of their imports.¹⁰ Hiau Looi Kee and I estimate the impact of new goods on productivity growth for the exporter, and find that export variety accounts for 13 percent of within-country productivity growth.¹¹ Conversely, Christian Broda and David E. Weinstein measure the impact of new goods on the welfare of the importer. For the United States, they find that upward bias in the conventional import price index (because of ignoring product variety) is approximately 1.2 percent per year, implying that the welfare gains from cumulative variety growth in imports are 2.8 percent of GDP in 2001.¹²

Incomplete Contracts

Aside from firm heterogeneity, a second theoretical innovation has been to take partial-equilibrium models of incomplete contracts between firms and apply them to a general equilibrium setting with trade. One example of this approach is the work by Pol Antràs dealing with the well known “product cycle,” originally studied by Raymond Vernon. Under this story, new products are developed in advanced countries like the United States or Europe, and only later do these technologies diffuse to developing countries where wages are lower. What factors explain this diffusion? While earlier research on growth models has stressed the imitation of products by developing countries, Vernon’s story instead had the technologies voluntarily transferred abroad, either within the multinational firm or between firms. How are we to explain the decision of the firms to transfer their production abroad?

Antràs specifies that contracts between a firm and its subsidiaries are incomplete, and shows how the dynamics of the product cycle can be described effectively.¹³ In particular, he models the Northern firm as having two activities: R and D and production. It is more difficult to write contracts to specify and compensate the R

and D activity, and more difficult still to write these contracts in the South. Over time, however, R and D becomes less important relative to production. With this framework, Antràs solves for the equilibrium time at which the Northern firms will shift production to the South, and for whether the firm will engage in multinational activity there, or arms-length contracts that license its technology to unrelated firms. In other work, Antràs finds that capital-intensive industries are more likely to engage in intra-firm trade across borders, and he offers an incomplete-contracting explanation for this finding.¹⁴

There are many other papers that explore incomplete contracts and outsourcing. Gene M. Grossman and Elhanan Helpman develop general equilibrium models of outsourcing building upon either the property-rights approach or the incentive-systems approach to the theory of the firm.¹⁵ Gordon Hanson and I test these two approaches using data for processing trade in China, while Keith Head, John Ries, and Barbara J. Spencer examine vertical networks in Japan,¹⁶ and Deborah L. Swenson considers U.S. offshore assembly.¹⁷ Motivated by evidence on the importance of incomplete information and networks in international trade, James E. Rauch and Joel Watson investigate the supply of “network intermediation.”¹⁸ They provide both empirical evidence and a theoretical explanation for this activity. Finally, Diego Puga and Daniel Treffer examine how the tension between innovation and the control over this activity shapes the organization of the firm.¹⁹

Foreign Direct Investment

Both the monopolistic competition model with heterogeneous firms and the incomplete contracting model can be used to analyze foreign direct investment (FDI). The challenge in the FDI literature has been to also explain why firms need to have ownership in their foreign subsidiaries, rather than just exporting or licensing their technologies abroad. By modeling this decision as being made by heterogeneous firms under incomplete con-

tracts, one can obtain new insights into the determinants of FDI.

Helpman, Melitz, and Stephen R. Yeaple model the decision of heterogeneous firms to serve foreign markets either through exports or FDI.²⁰ These modes of market access involve different relative costs, some of which are sunk while others vary with sales volume (such as transport costs and tariffs). Relative to investment in a subsidiary, exporting involves lower sunk costs but higher per-unit costs. In equilibrium, only the more productive firms choose to serve the foreign markets, and the most productive among this group will further choose to serve the overseas market via FDI. Testing their predictions on data of U.S. affiliate sales and exports, they confirm that having more productive firms leads to significantly more FDI relative to export sales. Likewise, Head and Ries confirm this prediction for Japanese multinationals.²¹

Prior literature on multinationals has distinguished two main reasons for FDI to occur: “vertical” investment, which takes advantage of lower factor prices abroad; and “horizontal” investment, which takes advantage of proximity to foreign markets by operating abroad. Recent literature has recognized that the rationale for FDI is more complex, though. Grossman, Helpman, and Adam Szeidl expand the set of choices available to the firm to include production of intermediate goods and assembly performed at home, in another Northern country, in the low-wage South, or in several of these locations.²² Notice that these choices include the so-called “export platform” FDI, under which production occurs in another Northern country for export from that country, as described by James Markusen and co-authors.²³ Grossman and Helpman study how the size of the cost differential between North and South, the extent of contractual incompleteness, the size of the industry, and the relative wage rate affect the organization of industry production.

The ideas that firms can pursue “complex integration strategies,” and that they are heterogeneous in their capabilities, are also central to the work of Yeaple and Volcker Nocke.²⁴ They

assume that firms' capabilities differ in their degree of international mobility. By allowing capabilities to be traded on an international merger market, these researchers develop a quite general model of cross-border mergers, which may involve the most or the least efficient firms.

Notice that in these theoretical models the productivity of firms affects their decision to engage in FDI. That link works in the opposite direction of the question sometimes asked, as to whether FDI enhances productivity in the host country? Yeaple and Wolfgang Keller investigate this question for the United States, and Matthew J. Slaughter and co-authors for the United Kingdom.²⁵ Linda Goldberg²⁶ and Robert E. Lipsey²⁷ also review evidence on FDI and productivity, along with the impact of foreign firms on wages in the host countries. On the financial side, Ann E. Harrison and Margaret S. McMillan²⁸ ask whether inward FDI affects the credit constraint facing domestic firms, while Joshua Aizenman examines the links between financial openness and trade flows.²⁹

The most direct empirical evidence on the ownership structure of foreign affiliates comes from Mihir A. Desai, C. Fritz Foley, and James R. Hines, Jr.³⁰ Using data on foreign affiliates of U.S. firms, they study why partial foreign ownership has declined markedly over the last 20 years, in favor of complete foreign ownership. They argue that there is a complementarity between whole ownership and intrafirm trade, suggesting that reduced costs of coordinating global operations, together with regulatory and tax changes, gave rise to the sharply declining propensity of American firms to organize their foreign operations as joint ventures over the last two decades. In related work, Hanson, Raymond J. Mataloni, Jr., and Slaughter investigate the extent to which U.S. affiliates engage in intrafirm purchase of intermediate inputs from their parent firms.³¹

There is also much work dealing with the impact of taxes on FDI. For example, Bruce A. Blonigen and Ron B. Davies show that bilateral tax treaties do not promote new invest-

ment, contrary to the common expectation.³² Using tax treaties negotiated by the United States and national-level data, they find that treaty formation may actually reduce investment, as predicted by arguments suggesting that treaties are intended to reduce tax evasion rather than to promote foreign investment. Desai, Foley, and Hines also study the ability of U.S. multinationals to avoid paying U.S. taxes and find that "chains of ownership" increasingly are being used to avoid U.S. tax liabilities.³³ However, in that case U.S. FDI abroad is even more sensitive to host-country taxes, because it does not receive credit for those taxes paid on its U.S. liabilities.

Political Economy of Trade Policy

A second major focus of the ITI program is on the political economy of trade policy. One important policy question is whether countries should pursue unilateral trade reform, multilateral trade reform, or bilateral deals with particular countries, as under customs unions and free trade areas. Research in the ITI program sheds light on these various alternatives.

Unilateral, Bilateral, and Multilateral Reform

On the first question — whether to pursue unilateral trade reform — Pravin Krishna and Devashish Mitra have argued that this action may lead to trade reform in the partner country, too, through changing the voter incentives there.³⁴ In their research, unilateral reform works to eliminate equilibria in which both countries pursue protectionist policies, and to move the world economy towards freer trade under either majority voting or interest-group lobbies. Grossman and Helpman, in contrast, identify a protectionist bias in majority politics, caused by a conflict between the *ex ante* objectives of national party leaders and the *ex post* objectives of elected legislators. When trade policy is chosen by the majority delegation, and legislators in the minority have limited means to influence choices, the parties

announce trade policies that favor specific factors, and the expected tariff or export subsidy is positive. Positions and expected outcomes monotonically approach free trade as party discipline strengthens.³⁵

The second question — whether to pursue bilateral or multilateral reform — can be modeled as a comparison between sequential versus simultaneous bargaining, as studied by Philippe Aghion, Antràs, and Helpman.³⁶ In the sequential game, a country make deals with a series of other countries, where the bargains negotiated must be consistent with the deals that potentially will be made in the future. Aghion, Antràs, and Helpman show that global free trade is not achieved if the political-economy motive for protection is sufficiently large. Furthermore, the model generates both "building bloc" and "stumbling bloc" effects of preferential trade agreements, to use the terminology of Jagdish Bhagwati. In particular, these researchers find conditions under which global free trade is attained only when preferential trade agreements are permitted to form (a building bloc effect), and conditions under which global free trade is attained only when preferential trade agreements are forbidden (a stumbling bloc effect).

In related work, Kyle Bagwell and Robert W. Staiger analyze a sequential bargaining game in which the countries are constrained by the GATT/WTO provision of most-favored nation (MFN), which states that all GATT/WTO members must be treated equally.³⁷ This means, for example, that a concession (that is, reduced trade barrier) given to a current negotiating partner must automatically be extended to later partners. Bagwell and Staiger argue that the MFN principle can make it less likely for countries to be willing to offer concessions at early stages of the sequential bargaining process, but that this potential source of conflict can be avoided by two other GATT/WTO principles: renegotiation at later stages, and reciprocity in the concessions made by each country. Incorporating these provisions into the bargaining game allows for an efficient outcome

even under the MFN principle. This general line of research enables Bagwell and Staiger to rationalize a number of GATT/WTO provisions.³⁸

In empirical applications, Trefler investigates the 1989 Canada-U.S. Free Trade Agreement, and finds results consistent with the heterogeneous-firm models discussed earlier.³⁹ Trefler used the experience of Canadian manufacturing industries over 1989-96 to examine the short-run adjustment costs and long-run efficiency gains that flow from trade liberalization. For industries subject to large tariff cuts, the short-run costs included a 15 percent decline in employment and a 10 percent decline in both output and the number of plants. Balanced against these large short-run adjustment costs were long-run labor productivity gains of 17 percent or a spectacular 2 percent per year. Surprisingly, this growth is not attributable to rising output per plant, increased investment, or market share shifts to high-productivity plants. Instead, half of the 17 percent labor productivity growth appears to be caused by favorable plant turnover (entry and exit) and rising technical efficiency. John Romalis also investigates the impact of the Canada-U.S. and the North America Free Trade Agreements on trade between Canada, the United States, and Mexico.⁴⁰ He argues that these trade agreements increased North American output and prices in many highly protected sectors by driving out imports from non-member countries.

In other work, Krishna and co-authors investigate the impact of foreign lobbies on tariffs and non-tariff barriers in the United States.⁴¹ They find that foreign lobbying activity has a significant impact on trade policy, and in the predicted direction: tariffs and non-tariff barriers are both negatively related to foreign lobbying activity. Pushan Dutt and Mitra investigated the influence of domestic ideology on trade policies, finding that left-wing governments adopt more protectionist trade policies in capital-rich countries, but more pro-trade policies in labor-rich economies than right-wing ones.⁴² Finally, Andrew K. Rose has conducted a series of investigations into whether WTO members have more

liberal trade policy, and higher or more stable trade volumes.⁴³ Those investigations have received substantial attention in the press, and also have been responded to by Arvind Subramanian and Shang-Jin Wei.⁴⁴

Tariffs, Subsidies, and Dumping

Moving beyond large-scale trade reform to the application of tariffs or subsidies in specific industries, the first question is why such interventions are permitted under the GATT/WTO framework. Bagwell and Staiger argue that the ability to “escape” from GATT obligations to keep tariffs low – as under the escape clause – is a desirable feature of a self-enforcing trade agreement in the presence of uncertainty about future political pressures.⁴⁵ They also provide a new interpretation of a feature of the WTO Safeguard Agreement, under which escape clause actions cannot be re-imposed in the same industry for a time period equal to the duration of the most recent escape clause action. A dynamic constraint of this kind can raise the expected welfare of negotiating governments, they find. In other work, Bagwell and Staiger investigate the new rules on subsidies that were added to GATT rules with the creation of the WTO.⁴⁶ The GATT subsidy rules typically were viewed as weak and inadequate, while the WTO subsidy rules are seen as significantly stronger. But these researchers argue that the key changes introduced by the WTO subsidy rules ultimately may do more harm than good to the multilateral trading system, by undermining the ability of tariff negotiations to serve as the mechanism for expanding market access.

Douglas A. Irwin investigates the application of the escape clause provision in practice in the United States.⁴⁷ There has been a conflict between the U.S. application of these rules (under Section 201 of U.S. trade law) and the WTO procedures. Irwin suggests a method by which the United States can ensure that future decisions conform to the WTO Safeguards Agreement. On the issue of export subsidies, Irwin and Nina Pavcnik model the market for wide-body aircraft, including the

super-jumbo A-380 being marketed by Airbus.⁴⁸ They first investigate the effects of the 1992 U.S. — European Union agreement to limit subsidies in civil aircraft, and argue that this raised prices by about 3 percent. Then they simulate the impact of the entry of the A-380 on the demand for other wide-bodied aircraft, notably the Boeing 747. They find that the A-380 could reduce the market share of the 747 by up to 14 percent in the long range wide-body market segment (depending upon the discounts offered on the A-380), but would reduce the market for Airbus’s existing wide-bodies by an even greater margin.

Desai and Hines investigate the market reaction to another U.S. export subsidy: the provision by which corporate income taxes could be reduced by establishing a Foreign Sales Corporation (FSC).⁴⁹ When the European Union announced its intention in 1997 to file a complaint before the WTO arguing that the FSC amounted to an illegal export subsidy, share prices of American exporters fell sharply. The share price declines were largest for exporters whose tax situations made the threatened export subsidy particularly valuable, and for those with high profit margins. The latter finding is consistent with strategic trade models in which export subsidies improve the competitive positions of firms in imperfectly competitive markets.

Besides the escape clause, import duties often are applied because of anti-dumping actions, and the use of those provisions in the United States and abroad has been increasing over time, as documented by Irwin.⁵⁰ James E. Anderson and Maurizio Zanardi argue that the administration of anti-dumping law by the executive branch in the United States, and not the Congress, is a compelling example of how legislators can avoid taking responsibility for such trade actions while also deterring their political challengers.⁵¹ These authors argue that the political explanation for the anti-dumping program is more compelling than other explanations, such as predatory pricing. Blonigen and Prusa, with various co-authors, also investigate the increasing use of anti-dumping filings along with detailed features of the pro-

gram, such as: administrative reviews in the calculation of anti-dumping duties; discretionary practice by the Department of Commerce; and the prospect of foreign retaliation.⁵² Blonigen finds that prior anti-dumping experience leads to greater filing activity and the likelihood of affirmative decisions or suspension agreements, but to significantly lower dumping margins.⁵³ This suggests that experience does not affect dumping margins as much as it lowers filing costs, leading to the petitioning of weaker cases. Further evidence on the use of anti-dumping petitions and the reaction of firms to other trade policies was presented at a May 10-11, 2002 conference entitled “Firm-level Responses to Trade Policies,” organized by Blonigen.⁵⁴

Trade and Developing Countries

Researchers in the ITI program are investigating a variety of other topics, some of which focus on developing countries. One example was the conference on “Globalization and Poverty,” organized by Ann Harrison, held in September 10-12, 2004. That conference included contributions by ITI researchers Donald Davis, Hanson,⁵⁵ James Levinsohn,⁵⁶ Penny Goldberg, and Pavcnik;⁵⁷ their work is summarized in the Winter 2004/5 NBER Reporter.⁵⁸ Here I describe research in several other areas that is relevant to developing countries.

Trade and the Environment

Research on trade and the environment frequently addresses the issue of whether lower-income countries serve as a “pollution haven” for dirty industries. The conclusion of Harrison and other authors is that the incentives to move industries based on pollution regulations are quite small, and not robust to alternative specifications.⁵⁹ Furthermore, foreign plants located in developing countries are more energy efficient and use cleaner types of energy than domestic plants. Arik Levinson and M. Scott Taylor question such conclusions, though, arguing that previous estimates of the relationship between regulatory costs and

trade/investment flows are plagued by estimation problems.⁶⁰ Using data on U.S. regulations and manufacturing trade flows among the United States, Canada, and Mexico, these authors find that industries whose abatement costs increased most experienced the largest increases in net imports. For the 20 industries hardest hit by regulation, the change in net imports ascribed to the increase in regulatory costs amounts to more than half of the total increase in trade volume over the period.

Related to the “pollution haven” hypothesis is the general question of whether an increase in international trade is good or bad for the environment. Three measures of environmental quality can be distinguished: environmental regulation, pollution, and the sustainability of resource stocks. Jeffrey A. Frankel and Rose find that increased trade may indeed have a beneficial effect on some forms of pollution, such as SO₂, as well as regulations, though not on other emissions such as CO₂ (where the free-rider issue is more prevalent).⁶¹ On the third measure — resource stocks — Brian R. Copeland and Taylor provide theoretical reasons to be less than optimistic.⁶² They identify characteristics of economies that, when faced with an increase in world prices for resources, may end up depleting their stocks because of common-property problems, or not, depending on the extent to which regulations can evolve.

Openness and Growth

A second area of relevance to developing countries is the link between openness to trade and growth. Dani Rodrik, Roberto Rigobon, and co-authors investigate the linkages between trade and growth, while controlling for variables such as democracy, income, and institutions.⁶³ Generally, they find that a straight-forward positive relationship between increasing openness and faster growth is not supported by the data. Juan Carlos Hallak and Levinsohn express a similar skeptical viewpoint on the positive relationship between openness and growth, arguing instead that the mechanisms by which trade affect growth should be the subject of investigation.⁶⁴

On the measurement of real GDP and growth, Alan Heston and I, with our co-authors, argue that previous measures from the Penn World Tables conflate productivity growth with terms-of-trade changes.⁶⁵ We distinguish real GDP measured on the expenditure side from real GDP measured on the output side: the current measure of real GDP reported in the Penn World Tables is the former. The difference between these two is the terms of trade, that is, an index for each country of actual export and import prices relative to average world export and import prices. Countries that earn lower-than-average prices for their exports, or pay higher-than-average prices for their imports, will have a low terms of trade, and for that reason will have real GDP on the expenditure side less than on the output side. Heston and I find that this is a typical situation for poor countries with below-average export prices.

Why are the export prices low for poorer countries? One possibility is that they are selling lower-quality goods, as discussed by Hallak.⁶⁶ In that case, the export prices used to construct real GDP should be quality-corrected. Alternatively, it may be that poorer countries face higher-than-average trade barriers in their export markets, as found by Anderson and Eric van Wincoop.⁶⁷ Both higher trade costs and remoteness reduce the prices that countries receive for their exports. Stephen Redding and Schott provide a model describing the relationship between countries’ distance from global economic activity, educational attainment, and economic development.⁶⁸ Firms in remote locations face greater trade costs on both exports and intermediate imports, reducing the amount of value added left to remunerate domestic factors of production. Redding and Schott show theoretically that remoteness depresses the skill premium and therefore incentives for human capital accumulation. Empirically, they find that countries with lower market access have lower levels of educational attainment, and that the world’s most peripheral countries are becoming increasingly remote over time.

Labor Markets

A third research area of relevance to developing countries concerns the labor market. Kala Krishna and co-authors have argued that distortions in that market — attributable to imperfect wage compensation or to credit constraints on financing education — can substantially limit the gains (and even lead to losses) caused by trade.⁶⁹ To give one example, McMillan, Rodrik, and Karen Horn Welch report on the widely discussed liberalization of the cashew sector in Mozambique.⁷⁰ While the rise in cashew prices brought gains to farmers, it also resulted in unemployment in the urban cashew processing industry, where workers and firms were unwilling to shift to other activities because they did not expect the liberalization to continue. The magnitude of these gains and losses is roughly the same, so the net welfare effect was very small, but with large distributional consequences. This example highlights the importance of trade on affecting labor market outcomes, as has been investigated in several other empirical papers.

Eric Edmonds and Pavcnik study the impact of trade on the use of child labor, recognizing that trade flows are endogenous. Using geography as an instrumental variable, they find that countries that trade more have less child labor.⁷¹ That finding is confirmed in their detailed investigation of the experience of one country: Vietnam.⁷² In that case, Edmonds and Pavcnik find that increases in the price of rice (an export crop) were associated with declines in the use of child labor, especially for girls of secondary school age. Overall, rice price increases can account for almost half of the decline in child labor that occurred in Vietnam during the 1990s. Their results suggest that the use of trade sanctions on exports from developing countries to eradicate child labor is unlikely to yield the desired outcome.

In a related context, Harrison and Jason Scorse confirm that finding by investigating actions taken by the U.S. government and by non-governmental organizations (NGOs) to limit “sweat shop” activities in Indonesia.⁷³ Under the U.S. government threat of withdrawing tariff privileges for Indonesia,

the minimum wage was doubled in real terms. That reduced employment of unskilled workers by as much as 10 percent, but anti-sweatshop activism targeted at textile, apparel, and footwear plants did not reduce employment. Plants targeted by activists were more likely to close, but those losses were offset by employment gains at surviving plants. The message of this study is that pressure from the U.S. government to raise wages was too blunt a tool to be effective, whereas the actions of NGOs were better targeted at particular plants, resulting in higher wages with little or no net loss in employment.

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World Trade Flows, 1962-2000

A new dataset of worldwide bilateral trade data by commodity, for 1962-2000, is available from www.nber.org/data (choose: International Trade Data; World Trade Data; NBER-United Nations trade data; documentation is presented in NBER Working Paper No. 11040). Prepared by Robert C. Feenstra and Robert E. Lipsey, with assistance from Haiyan Deng, Alyson C. Ma, Hengyong Mo, and Harry P. Bowen, the data are derived from the United Nations (UN) trade statistics and organized by the 4-digit Standard

International Trade Classification, revision 2, with country codes similar to the UN classification. This dataset updates the Statistics Canada World Trade Database for years 1970-92 that was available from the NBER. In that database, Statistics Canada had revised the United Nations trade data, mostly derived from the export side, to fit the Canadian trade classification and in some cases to add data not available from the export reports. In contrast, the new NBER-UN dataset gives primacy to the trade

flows reported by the importing country, whenever they are available, assuming that these are more accurate than reports by the exporters. If the importer report is not available for a country-pair, however, then the corresponding exporter report is used instead. Corrections and additions are made to the United Nations data for trade flows to and from the United States, exports from Hong Kong and China, and imports into many other countries.

Research Summaries

Mental Health and Public Policy

Sara Markowitz*

Mental illnesses are debilitating diseases affecting millions of people each year. These conditions constitute five of the top ten leading causes of disability worldwide. Depression alone is responsible for more than one in every ten years of life lived with a disability.¹ Despite the severity of the burden of mental illness, many cases of mental disorders remain untreated.

Estimates show that about 28 percent of the U.S. adult population in any year has a diagnosable mental or addictive disorder, yet only 8 percent seeks treatment.² The burden of depressive disorders lies not only with those afflicted, because others bear the costs as well. Maternal depression, for example, is associated with adverse outcomes for children, including children's behavioral and emotional problems.³ In the workplace, mental disorders impose costs on both employers and employees, including unemployment, reduced labor supply, absenteeism, disability-related work leaves,

lower perceived workplace productivity, and reduced earnings.⁴

My current research focuses on the ways in which public policy might intervene and improve mental health outcomes. The first set of studies summarized here examines one of the most serious outcomes associated with mental illness: suicide. The goal of this research is to identify policies that have the potential for reducing suicide attempts and completed suicides. The first paper I discuss examines the effectiveness of mandated mental health benefits in reducing suicide rates among adults in the United

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