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PN-AAC-313

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NEW YORK
CAMBRIDGE
PALO ALTO
WASHINGTON

Annual Research Report

The Relationship between Trade Strategies
And Employment Growth

Contract No. AID/otr-C-1323

June 30, 1976

AID/otr-C-1323 GTS
AN-AAC-313

A. ANNUAL REPORT SUMMARY SHEET

The Relationship Between Trade Strategies and Employment Growth
Project Title

Contract Number: AID/csd-C-1323

Anne O. Krueger
Department of Economics
University of Minnesota
Principal Investigator

National Bureau of Economic Research
261 Madison Avenue
New York, N.Y. 10016
Contractor

(NUMBER)

July 1, 1974 to Sept. 30, 1978
Contract Period (as amended)

July 1, 1975 to June 30, 1976
Reporting Period

Total Expenditures and Obligations
Through Previous Contract Year

\$24,719

Total Expenditures and Obligations
For Current Contract Year

\$98,294 (10 months through April 1976)

Narrative Summary of Accomplishments and Utilization:

The project is intended to provide a theoretical and empirical analysis of the employment related to export-promotion and import-substitution strategies in developing countries. The first phase of the project, which was completed last year, was devoted to developing the underlying theory and the methodology to be followed in studies of individual countries. During that time agreements or preliminary contacts were also made with competent parties interested in undertaking the individual country studies.

During the twelve months ended June 30, 1976, the project has continued as anticipated. Final or near-final arrangements have been made with authors to undertake 10 country studies, and three others are being carried out, on a closely comparable basis, under the auspices of the Council for Asian Manpower Studies (CAMS). The first working party of participants, including CAMS authors, was held in December 1976, and was mainly devoted to a discussion of methodology and data problems. This discussion was based on the Principal Investigator's draft plan of research and other project working papers then available (see list in Attachment A). Country authors have since been engaged in gathering and analyzing data for their countries and in the preparation of draft reports on their findings. These reports are scheduled to be circulated to participants shortly before the second working party, set for August 30-September 3, 1976. This will be the occasion for a critical appraisal by the group of findings in the individual studies and for formalizing plans for completion of the project.

B. Project Objectives

The objectives of the project, as stated in the contract, are to investigate the relationship between alternative trade strategies and employment growth. There are three phases to the attainment of this objective: 1) a careful statement of the theory of the relationship between trade strategy and employment was to be developed; 2) the theory was to develop empirically testable hypotheses which would then be used, in a series of country studies constituting the second phase of the research, to ascertain the employment implications of export promotion and import substitution; and 3) the country studies and other research were then to be drawn upon in an overall synthesis of these findings, investigating not only the magnitudes of the labor coefficients of output and value added in different lines but also the determinants of those coefficients. The project is intended to include an examination of the employment effects of specific policy instruments used in promoting exports, import substitutes, and domestic objectives.

There has been no modification of the original objectives of the project. Indeed, initial research points increasingly to the importance of the problem and to the need to carry out the country studies in line with the original objectives.

C. Accomplishments to Date

1) The principal thrust of the initial research effort was, as anticipated, to develop a theoretical framework and a methodology statement which would serve as a basis for the individual country studies. Those documents were developed during the first contract year, but revised during the year under review and, in addition, several new working papers were completed, as listed in Attachment A. Since research on individual countries is still in progress, the principal findings to date continue to relate to the development of the underlying theory and the methodology of the study.

As stated in the initial annual report a year ago, careful examination of the underlying theory suggests that past efforts to examine the trade strategy-employment relationship have generally used erroneous tests: the relationship will show up best either by examining a country's pattern of specialization or by inspecting the relationship of the height of protection to the capital-intensity of the industry. Where protection is not a significant factor, it is pointless to try to examine import-substitution industries in the context of an export-oriented, specialized economy.

The theory, properly spelled out, suggests that individual country studies will have to break apart the country's trade and production structure first, with respect to natural-resource-based commodities, for which there is no basis to expect a relationship between trade and employment,⁽¹⁾ and, second, with respect to trade with different groups of trading partners when the country under consideration is somewhere in the middle of the development spectrum. One would anticipate, for example, that Japan would be importing labor-intensive manufactures from less capital-abundant countries such as Korea, and simultaneously importing, and not producing, heavily capital-intensive commodities from countries such as the U.S. and Germany with their (presumably) higher capital-labor endowments.

The basic model that was developed was a 2-sector, 3-factor, n-commodity model of m countries. The sectors are agriculture and manufacturing. The factors are capital (which is assumed to be employed only in manufacturing), land (assumed to be employed only in agriculture), and

(1) There may be, however, a basis for expecting the choice of techniques to be more capital-intensive under an import-substitution regime than under an export-oriented regime insofar as incentives are provided under the first type of regime which make capital appear cheaper and labor more expensive than they would under an alternative regime.

labor (assumed to be employed in both sectors). The basic model examines the case wherein labor is paid a common wage in both sectors. It is seen that countries will produce different bundles of commodities, depending on their endowments of land, labor, and capital. In particular, it is shown that it is possible to be a "poor developed" country (with a poor endowment of land relative to labor, but a fair amount of capital and therefore a sizeable manufacturing sector) or a "well-off underdeveloped country" with a high land-man ratio (and therefore high wage rate and per capita income). The pattern of specialization within manufacturing is linked to the country's labor-capital utilization in industry and the wage in agriculture. It is shown that, as a country accumulates capital (for given land and labor), its pattern of production changes, so that output of more capital-intensive goods expands while that of more labor-intensive goods contracts, and after a while, goods formerly produced are entirely imported. At any point in time, it is an accident, under free trade, whether a particular commodity is exported or is an import substitute.

The model is then extended to examine the impact of factor and goods market distortions upon the pattern of specialization and trade. In the goods market, as long as the pattern of protection is roughly uniform across commodities, it is relatively simple to show the divergence between production and trade patterns and that which would occur under optimal resource allocation. The fact that higher protection would be necessary to induce production of goods in which the country is further removed from comparative advantage has already been mentioned.

Factor market distortions are more difficult to deal with. Four cases are examined: 1) there is a wage differential between the rural and urban sectors, with full employment; 2) there is a wage differential between the sectors, a la Harris and Todaro, with unemployment; 3) there is an economy-wide real minimum wage; and 4) there is a wage differential within the manufacturing sectors. In the first two cases, it is shown that it is possible for a country that "should" be a net exporter of agricultural output to be a net exporter of manufactured goods, or conversely, but it is not possible to reverse comparative advantage among industries. In the third case, it is quite possible that too high a minimum wage will shift the pattern of manufacturing toward commodities that are too capital intensive. In the final case, it is possible that the factor intensity of industries would reverse, and it is shown that simulation techniques would have to be employed in order to test the hypothesis that observed production patterns bear an inverse relationship to patterns that would prevail in the absence of distortions. These results are spelled out in the theoretical paper "Growth, Distortions, and Patterns of Trade among Many Countries" (see Attachment A).

2) The operational significance of these findings is that they enable clear-cut methods of estimating and quantifying the effects of alternative trade strategies on employment. More detailed guidance is given in Project Working Papers Nos. 1 through 4 which formed the basis for discussion at the first working party of participants.

3) At this point there are no side effects of a substantive nature presenting unforeseen complications. It has become clear, however, that the work load confronting country authors is very sizeable, and that the task of coordinating the content and timing of their studies as required

for the synthesis is also a difficult one. The National Bureau accordingly requested an extension of the contract termination date from June 30, 1977, to September 30, 1978 together with supplementary financing, and this request was approved by the Research Advisory Council to A.I.D., thus providing the necessary authorization.

4) The research design has not undergone significant modification so far. It is only now, after several months of work by country authors on data collection and analysis, that significant problems with data availability or other empirical matters can be expected to emerge. Whether changes in the research design will be needed cannot be judged until reports are considered at the second working party a few weeks hence.

D. Dissemination and Utilization of Research Results

1) A list of papers developed under or in conjunction with the project is given in Attachment A. It should be noted that project working papers are intended for use within the group and are not for general distribution.

2) It is still far too early to expect dissemination of the results. It should nonetheless be noted that Committee V of the CAMS decided to adopt the topic and methodology of the project for its own use, and several project participants will contribute to a CAMS conference in Pattaya, Thailand, in July 1976. The International Labour Organization has also expressed keen interest in the project and is using papers as they appear. The underlying theory paper will be published this fall by the International Finance Section at Princeton.

3) The empirical results are not yet in, so it is far too early for findings to be used.

4) Again, the project has not yet progressed far enough to generate feedback in the form of requests for information or publications.

5) LDC personnel were included in the design of the project from the beginning, and the majority of the country studies are being undertaken by economists of the countries concerned. The project working papers all served as drafts for comments and suggestions by participants before they began the country studies, including discussion at the first working party.

The individuals and institutions undertaking country studies as part of or in collaboration with the project are as follows (the studies sponsored by CAMS being preceded by an asterisk):

Brazil:	Jose Carvalho, Claudio Haddad (Fundacao Getulio Vargas)
Chile:	Patricio Meller (Universidad Catolica de Chile), Vittorio Corbo (International Institute of Quantitative Economics, Montreal)
Colombia:	Francisco Thoumi (George Washington University)
India:	T.N. Srinivasan (Indian Statistical Institute)
Indonesia:	Mark Pitt (University of Minnesota)
Ivory Coast:	Terry Monson (Illinois State University), Jacques Pegatienan (Centre Ivoirien de Recherches Economiques et Sociales)
Kenya:	Peter Hopcraft (Institute for Development Studies, Nairobi, Kenya), Leopold Mureithi (University of Nairobi)
*Korea:	Wontack Hong (Korea Development Institute)
Pakistan:	Stephen Guisinger (Pakistan Institute of Development Economics), Syed Naseem (University of Islamabad)
*Taiwan:	Kuo-shu Liang (Central Bank of China, Taiwan)
*Thailand:	Narongchai Akrasanee (Council for Asian Manpower Studies, Thammasat University, Bangkok, Thailand)
Tunisia:	Mustapha Nabli (Institut Ali Bach-Hamba), Mondher Gargouri (University of Tunis)
Uruguay:	Alberto Bensi6n, (University of Uruguay)

E. Work Plan for the Coming Year

A crucial event in the year ahead is the second working party, which will be held August 30 -- September 3, just outside of New York City. It is expected that all participants will present progress reports on their research at that time. Some will have completed first drafts of their analyses and findings, while others will not have gone far beyond their initial empirical results. On the basis of the exchange of comments and ideas, authors will then complete first drafts of their papers. It is anticipated that these papers will be commented upon by the Principal Investigator as they are received.

Later on during the year 1976-77, it is expected that final drafts of the various country studies will begin being received. On that basis, the authors of special topic papers will prepare their first drafts (it will be decided, after the second working party, whether any additional special topic papers are called for). When the country studies and special topic papers are available, work will begin on the synthesis of findings of the project and consideration of methods of dissemination will begin in earnest. It is hoped that that stage can be reached by late spring or early summer next year.

F. Involvement of Minority Personnel and Women

The Principal Investigator, or Project Director, is a woman, Professor Anne Krueger. Otherwise, the emphasis that would have been given to the involvement of women and minority personnel has been subordinated to the mutually agreed aim of enlisting economists of the less developed countries in the execution of the project. As noted above, most of the country studies are, in fact, being carried out by economists of the

countries concerned. A number of them would qualify as "minority personnel" in the United States but not, of course, in their own countries.

G. Smithsonian Science Information Exchange, Inc.

A copy of the first report on this report to Smithsonian is attached.

Attachments

- A. List of papers pertaining to the project
- B. Copy of report to Smithsonian Science Information Exchange
- C. Statement of Expenditures

ATTACHMENT A

List of Papers Pertaining to the Project

I. Theoretical Basis

Growth, Distortions, and Patterns of Trade Among Many Countries
(Dec. 1975)* Anne O. Krueger

II. Project Working Papers**

- No. 1 Plan of Research for Country Studies
(Revised February 1976) Anne O. Krueger
- No. 2 Data Requirements and Rectification Procedures
(August 1975) James M. Henderson
- No. 3 Programming Models of Optimal Production and Trade
(November 1975) James M. Henderson
- No. 4 Data Requirements for Statistical Exploration of
Production Relations (October 1975) Jere R. Behrman
- No. 5 Alternative Trade Strategies and the Accumulation
of Human Capital (November 1975) Jean-Claude Koeume
- No. 6 Investigating Distortion in the Labor Market: Data
Requirements and Methods (May 1976) T. Paul Schultz

* Revision of Frank Graham Memorial Lecture, delivered April 10, 1975,
and scheduled for publication by Princeton University.

** Project Working Papers are internal documents not for publication.

ATTACHMENT B

SMITHSONIAN
SCIENCE INFORMATION EXCHANGE, INC.
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WASHINGTON, D.C. 20036

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MAY 1962 EDITION

SIE NO.

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:		AGENCY'S NUMBER(S):	
Agency for International Development		Contract No: AID/otr-C-1323 and/or Control No:	
TITLE OF PROJECT:			
The Relationship Between Trade Strategies and Employment Growth			
PRINCIPAL INVESTIGATOR, ASSOCIATES		School or Division	Department
Professor Anne O. Krueger		University of Minnesota	Economics
RECIPIENT INSTITUTION:		PERIOD FOR THIS NRP:	
Name and Address: Including Zip Code.		National Bureau of Economic Research, Inc. 261 Madison Avenue New York, N.Y. 10016	
		Start Date: July 1, 1974 End Date: September 30, 1978 Annual Funding: \$112,000 (average)	
SUMMARY OF PROJECT: Be brief-200 word maximum: (Include Objective, Approach, Current Plans and/or Progress)			
<p>The project aims at evaluating and comparing the employment effects of export-promotion and import-substitution policies in less developed countries. Considerable research has been devoted by the economics profession to the trade policies of these countries, including the effects of alternative trade regimes on economic growth. But the effects on employment creation -- a matter of growing concern to these countries -- has heretofore received surprisingly little systematic study. The project seeks to fill this gap.</p> <p>The research takes the form of a series of country studies, the results of which will be brought together by the Principal Investigator in an overall synthesis. Ten country studies are underway plus three closely related studies by the Council for Asian Manpower Studies. Authors have been selected chiefly from the countries concerned. Comparability of the studies has been sought through a detailed plan of research elaborated by the Principal Investigator, discussed with project participants at an initial working party in December 1975, and subsequently revised. A second working party is set for August 30-September 3, 1976, to review preliminary results of the country studies and consider problems encountered.</p>			

ATTACHMENT C

Statement of Expenditures by N.B.E.R.

7/1/74 through 4/30/76

under Contract No. AID/otr-C-1323

<u>ITEM</u>	<u>TOTAL BUDGET</u>	<u>EXPENDITURES</u>		
		<u>12 Months</u> <u>7/1/74-6/30/75</u>	<u>10 Months</u> <u>7/1/75-4/30/76</u>	<u>Cumulative</u> <u>7/1/74-4/30/76</u>
	(1)	(2)	(3)	(4)
Salaries	\$ 109,502.00	\$ 12,325.25	\$ 32,670.62	\$ 44,995.87
Fringe Benefits	18,516.00	819.12	2,271.25	3,090.37
NBER Consultant Fees	15,318.00		4,445.50	4,445.50
Honoraria for Outside Studies	96,000.00		2,616.67	2,616.67
Advances for Outside Studies			10,500.00	10,500.00
Travel	44,100.00	1,102.50	24,189.91	25,292.41
Supplies	7,000.00		141.60	141.60
Miscellaneous	9,000.00	3,900.00	2,242.90	6,142.90
Dissemination	20,000.00			
Total Direct Costs	319,436.00	18,146.87	79,078.45	97,225.32
Overhead	64,009.00	6,572.20	19,215.23	25,784.43
Grand Total	\$ 383,445.00 ^(a)	\$ 24,719.07	\$ 98,293.68	\$123,012.75

a) Total is as given in original contract budget. Does not include \$93,169 additional funding approved in May 1976, of which official notification not yet received.