PROGRAM OF DEVELOPMENT STUDIES
121 Sewall Hall
WILLIAM MARSH RICE UNIVERSITY
Houston, Texas 77001

Paper No. 35

THE CONTRIBUTION OF TRADITIONAL AND SMALL SCALE CULTURE GOODS IN INTERNATIONAL TRADE AND IN EMPLOYMENT

By

Yhi-Min Ho

and

Donald L. Huddle

Fall, 1972

Yhi-Min Ho is Chairman and Professor of Economics, University of St. Thomas, Houston; Donald L. Huddle is Professor of Economics, Rice University. They were supported by the Program of Development Studies through National Science Foundation Grant No. GS34581 during 1972 when the study was undertaken. Program Discussion Papers are preliminary materials circulated to stimulate discussion and critical comment. References in publications to Discussion Papers should be cleared with the authors to protect the tentative character of these papers.

The Contribution of Traditional and Small Scale Culture Goods in International Trade and in Employment*

1. Introduction

Traditional and small scale industries have received little, if any, attention in the literature on the strategy and planning of economic development. The reasons for this inattention are well known. Traditional and small scale industries are widely identified as belonging to the most rudimentary, early stages of development. Indeed, the very essence of development is seen as the progress from traditional and small-scale industry to modern and large-scale industry.[1] Most typically, economists conveniently perceive the development process in a two-sector model framework in which the small scale and traditional sector are practically synonymous with inefficiency, backwardness, and underdevelopment.[2] Even on the

*We wish to thank Dr. Barry Wilbratte for assistance on the computer and on programming, Mr. Mike Holmes for research assistance, and the Program of Development Studies, Rice University, for general assistance. Drs. Marian Krzyzaniak, Gordon Smith and Ronald Soligo were helpful critics. We take full responsibility for the content of the paper.

[1] Cf. Rosenstein Rodan, "Problems of Industrialization of Eastern and Southeastern Europe," The Economic Journal, June 1943; W. Rostow, The Stages of Economic Growth: A Non-Communist Manifesto (Cambridge, 1961). Similar judgments are found in survey texts on development: cf. Benjamin Higgins, Economic Development (Norton, 1968), pp. 204-205, 463-472, for example. See also E. E. Hagen, The Economics of Development (Irwin, 1968), H. Bruton, Principles of Development Economics (Prentice-Hall, 1965), and J. K. Galbraith, Economic Development (Houghton-Mifflin, Sentry Edition, 1964), in which neither small-scale industry nor traditional industries are even listed in the indices.

[2] A. O. Hirschman in The Strategy of Economic Development (Yale University Press, 1958) does not take this position nor that of those authors listed in note 1 above. Though he was one of the originators and popularizers of the backward and forward linkage approach which has often been used to justify large-scale manufacturing industries as an investment strategy, he himself carefully states that preserving handicrafts and small-scale traditional activities is important and that larger scale manufacturing should stress new product development which is in the main non-competing with these. P. 131.

demand side, the products of such industries are viewed as being 'inferior' and replaceable by 'better' mass-produced, standardized products as larger scale, capital-intensive production proceeds.[3] To economists writing on the subject the only regrettable aspect of this historical process is the employment problem which may develop as labor-intensive, albeit low productivity, production is replaced by capital-intensive production.[4]

The present paper challenges the accuracy and validity of these widely accepted views as a description of the present. Indeed, such a framework has always been overly simplistic. Instead of seeing the complicated process of growth as fundamentally and necessarily involving substitution between sectors via the reallocation of labor from rural, traditional sectors to large-scale industry; or within sector substitution by the replacement of artisan cottage and handicraft activities in urban areas themselves by large-scale industry, we postulate a process which intimately involves the small-scale traditional sectors in an important way. This is not to deny that historically certain types of traditional industries have been both non-competitive in production and deficient in demand when faced with larger scale, more efficient factory production. However, data from more recent years do not confirm the pattern of diminishing size and of product inferiority. Instead, over a broad range of such products we find that expansion has occurred. It is interesting and significant that this expansion has not been primarily for consumption in the domestic

---

[3]Cf. S. Resnick, "A Socio-Economic Interpretation of the Decline of Rural Industry under Export Expansion: A Comparison among Burma, Philippines, and Thailand," The Journal of Economic History, pp. 51-73; and S. Hymer and S. Resnick, "A Model of an Agrarian Economy with Non-Agricultural Activities," The American Economic Review, September 1969, pp. 493-506. These two innovative papers stimulated the present authors' original interest in the subject.

[4]See, for example, Anthony Bottomley, "The Fate of the Artisan in Developing Countries," Social and Economic Studies, June 1965, pp. 194-203, where he states on p. 203 that "The replacement of the artisan by factory production seems inevitable, but ways must be found of keeping these handicraft workers employed."

markets of developing countries; hence, the characterization of small-scale, traditional products as being inferior at this particular stage of development may be accurate for the local market.[5] But it is not accurate as a characterization of the markets in the developed countries. To the contrary, the expansion in these products is observable in international trade where many of the traditional and culture-oriented products have been highly income elastic in demand as well as being responsive to population expansion. Using cross section data for O.E.C.D. countries and time series data for the U.S. we analyze 81 culturally oriented goods which are produceable by small-scale, traditional industries. Contrary to the expectation that these products have performed poorly, as a group they have performed as well as, and in many cases better than, all internationally traded goods in a period of rapidly expanding trade, particularly as between the advanced countries. Nonetheless, between 1964 and 1970, both broad groups have had an income elasticity of demand of about about 1.3 cross section in O.E.C.D. countries for the year 1968-69 pooled and 1.7 in the U.S. The growth rates in U.S. imports of these products per annum were on the average 8.3% between 1965 and 1971.

How can the rapid expansion of demand for such small scale, traditional products be explained when historically they have tended to disappear as development proceeded? The basic reason is probably that taste is changing in the direction of differentiated,

---

[5] S. Hymer and S. Resnick, op. cit., identify the historical process of replacement of traditional products with the present as well, seeing them as being inferior goods in both domestic and international markets. In fact, they appear to have identified all traditional goods as being what they call Z goods when in fact their Z goods pertain to only one portion of the small scale, traditional goods sector, viz., cottage industry goods which are produced in the home as a part-time occupation primarily by members of one family using human or animal power, according to the definition used by Herman, op. cit., p. 356. But, as Herman notes, such goods have little commercial importance as they are for household or local village use. Handicraft goods, in contrast, are usually produced full time in a separate shop by family members and outsiders together who have gone through an apprenticeship, and who make objects of art, ceremonial and decorative use. Only in the most primitive of societies are the cottage and handicraft sectors likely to be synonymous and is the Hymer-Resnick aggregation appropriate in the broad context discussed in the present paper.

distinctive products as the growing middle income classes in the wealthy countries have become more affluent. As affluence has become widespread, the vast middle class is responding to the same product attributes as the courtly ruling classes of the past. As average consumers have become more highly educated, their wants have become more distinctive. In this setting, mass produced factory goods lose much of their appeal whereas handmade, non-standardized, goods of artistic merit and goods reflecting distinctive cultural character become much more appealing. Concomitantly, of course, demand patterns for decorative, artistic goods may shift drastically for no apparent reason and result in serious productional dislocations.[6]

Our interest in cultural and artistic goods lies largely in two areas. It is well recognized that larger scale, capital-intensive industries have not provided the desired amount of employment creation during the 1960s and early 1970s despite rapid GNP growth and industrialization in numerous developing countries. It is of great social import, therefore, that viable solutions be found. With this question in mind we demonstrate below that the employment content has been high for the small scale, traditional industries in our categories which have done so well in international trade. We would argue that the relatively low value added per worker which necessarily results from such activities is relatively insignificant in a society where labor has few alternative skills or opportunities. Where man must compete against a machine it will eventually be uneconomic to support traditional industries; but this is not the case where the hand producer can command a market not available to machine made goods.[7]

---

[6]Our time series data are not sufficiently extensive to allow us to test the hypothesis that the products in our categories are less stable in consumption than are other 'more necessary' types of goods. General demand theory would seem to indicate that goods further up in the hierarchy of demand would be less stable and subject to fads, etc. If true, then the industries producing such products might consider innovating in terms of tastemaking with deliberate design changes over time, creation of new styles, and other stabilizing factors.

[7]This point was raised by T. Herman, op. cit., in his rejoinder to J. S.

Our second point of interest in these industries lies in their tendency to be rural based. Their expansion can slow the destabilizing flow of population to the urban areas insofar as employment opportunity is a fundamental variable in the migratory flow equation. We believe that a diversified geographical and industrial structure is a more desirable and efficient solution to the social and economic problems facing the developing countries today as compared to the alternative of continued centralization and the growth of cities with the accompanying external diseconomies.

Taking a longer view, the traditional demarcation between urban and rural may soon become obsolete in the highly densely populated areas, e.g., Korea, Japan, and Taiwan. Thus, long-term economic development calls for planning involving overall community development, industrial structure, and its geographical locations. In our view, the type of industries we are dealing with here has the definite advantage of being either rural or urban based.

The final point raised in this article is that of the importance quantitatively of goods suitable for small scale production which are of a cultural character. Though they might be of growing importance in international trade and of increasing interest to consumers in the wealthiest country's markets, they could, nevertheless, be trivial from the point of view of the strategy of development. We demonstrate that by a number of 'reasonable' measures the 81 products which we have analyzed in this paper are of significant size in both the recent past and for the future in their potential economic impact. The commodity set is chosen as a broad indicator of the general direction to which the potential of these goods may be further developed and explored. We believe that they offer an important, though relatively ignored, avenue of relief at

Spengler's "Cottage Industries: A Comment," in "A Reply," Economic Development and Cultural Change, July 1957, pp. 371-374. The emphasis upon cottage industry as opposed to small scale and handicraft industry differs from our approach. Spengler made no comment upon the latter and they are the important economic categories in terms of past earnings and potential future size.

the margin in countries facing problems of employment creation, balance of payments gaps, and socially costly rural-urban migration; they may be of even greater significance to countries which are small and do not have the large sized domestic market necessary to nurture industries in which economies of scale are vital in reducing costs of production.

2. Methodology and Data

In the frame of the above argument, we propose the following:

$$M = f(Y, P; U).$$

where M is the import demand for the goods that are produced by small-scale industries, handicraft industries, and/or artisans, Y is per capita income, P is population, and U is the random disturbance term. The particular demand function for such goods is specified as

$$M = A \cdot Y^{\alpha} P^{\beta}$$

The estimates of the parameters of the specified import demand function are obtained from the following logarithmic regression equation.

$$\text{Log } M = \text{Log } A + \alpha \text{ Log } Y + \beta \text{ Log } P. \qquad (1)$$

where α is income elasticity, β is population elasticity, and A the scale factor.

Two estimates are made. One is obtained on the basis of a sample of 81 commodities that closely approximate the specification we describe above for a sample of the same group of commodities imported by the 15 O.E.C.D. countries during 1968 and 1969. Another is made on the basis of U.S. imports during the period 1964-70. The cross-section analysis is based on data drawn from Trade by Commodities, OECD. The time series data for the U.S. are drawn from U.S. Imports for Consumption and General Imports, U.S. Department of Commerce.

U.S. import data are compiled under the classification of the Tariff Schedules

of the United States Annotated (TSUSA) while import data for OECD countries are under the Standard International Trade Classification (SITC). The two samples for the time series and cross-section analyses and paired as closely as possible.[8]

We note that all OECD countries, except the U.S. and Canada, record imports on the C.I.F. basis, as contrasted to the F.O.B. basis followed by the U.S. and Canada. Thus, in the cross-section analysis, import data for the U.S. and Canada are adjusted to the C.I.F. basis comparable to other OECD import figures.[9]

For the purpose of further analyzing the demand characteristics, the sample of the 81 commodities are divided in five large groups and 16 sub-groups. Demand characteristics for each group are identified by income and population elasticities obtained from the regression equations.

Group 1 - wood and paper products
- 1a - wood carving and other wood products
- 1b - bamboo and rattan products
- 1c - baskets and/or bags of bamboo

Group 2 - textiles, fibers and textiles products
- 2a - handknitted goods
- 2b - cotton furnishings
- 2c - wool, lace and other cotton products

Group 3 - non-metallic mineral products
- 3a - marble, precious and semi-precious stone products
- 3b - earthenware, china ware

---

[8]For the detailed matching see Appendix A. U.S. imports for consumption and general use are classified under the TSUSA classifications beginning February 1964, whereas imports were classified under Schedule A prior to that date. The short coverage of the time series study for the U.S. is for the obvious reason that one-to-one correspondence between TSUSA and Schedule A is difficult to establish for earlier periods.

[9]The conversion of the F.O.B. based import data for U.S. and Canada to that of C.I.F. basis is to multiply the F.O.B. data by a factor of 1.1. The ratio of 1.1 for C.I.F./F.O.B. is based on Hal B. Lary's study shown in Hal B. Lary, Imports of Manufactures from Less Developed Countries (New York: National Bureau of Economic Research, 1968); Appendix E.

3c - ceramic products

Group 4 - metal products (household ware, silver, brass)

Group 5 - miscellaneous and specified products

5a - headwear

5b - men's/women's gloves, lined, handseamed.

5c - billfolds, handbags

5d - furniture

5e - dolls and ornamented articles

5f - artistic goods and antiques

The methodology of selection of the commodities included in the time series and cross section samples are listed, along with detailed descriptions, in Appendix A.

While these commodities are selected on the basis of a priori considerations, and are independent of the labor-intensive criterion, they all turn out to be commodities of high labor content, judged by U.S. data. Thus, it seems reasonable to assume that they are also commodities of high labor content in the exporting countries. In a study of the imports of manufactures from the less developed countries Hal B. Lary proposes to use value added by manufacture per employee as an indication of interindustry differences in capital intensity.[10] That is, the lower the value added per employee, the more is its labor intensity. Taking value added by manufacture for all U.S. per employee as 100, none of the commodities selected in the samples are produced by industries with value added per employee greater than 100. (See Lary, Appendix B.)

It is also interesting to note that all commodities included in the samples are produced by industries that are classified in the light industry category, according to the definition used by the United Nations Industrial Development Organization (UNIDO).[11] Moreover, according to a study of a sample of 14 developed and developing nations by the United Nations Industrial Development Organization, value-added per

---

[10] Hal B. Lary, op. cit., p. 14.

[11] U.N. Industrial Development Organization Policy and Programmes for the Development of Small-scale Industry. ID/CONF. 1/6. April 1967. Annex 1, p. 2.

employee is lowest in the light industry in all the developed nations sampled. The findings by UNIDO are obviously in agreement with Hal B. Lary's evidence relating to the U.S. experience. Thus, it is reassuring that none of the commodities included in the present study is contradictory to the small scale criterion we have set forth at the outset.[12]

We also note that all commodities included in the study are non-food consumer goods.

3. The Findings

The Cross-Section Analysis

Income and population elasticities for the sample group, major commodity groups, and sub-commodity groups derived from the regression equations are shown in Table 1.

1. Per capita income and population appear to be two major variables in explaining variations in the import demand for the 15 OECD countries under study.

2. Income elasticity estimates for the type of goods we specified are all greater than unity; this is true for the sample group as well as for the major commodity groups with the exception of group 1; even there the estimated income elasticity is virtually unity. The derived income elasticity, 1.30, is at least comparable to the magnitude of various income elasticity estimates for manufactures as a whole.[13]

Income elasticity estimates for all five commodity groups are statistically significant at the 99 per cent confidence level. Twelve out of 16 income elasticity estimates for the sub-commodity groups are statistically significant at least at the 95 per cent level. Of the twelve income elasticity estimates that are statistically sig-

---

[12] Ibid., see p. 4.

[13] See United Nations, Department of Economics and Social Affairs. A Study of Industrial Growth (New York: UN, 1963), p. 7. We note that the cited estimate is not strictly an estimate of demand elasticity for manufacturing as a whole. Rather, the U.N. estimate is an output elasticity.

TABLE 1: Regression Results from Cross-Section Data'

Commodity Group	Constant	α, Income Elasticity (t value)	β, Population Elasticity (t value)	Multiple R Square (f value)
TOTAL	-0.55420	1.29910	0.43381	0.79552
		(4.02589)*	(5.14072)*	(21.39720)*
Group 1	-3.81742	0.98693	0.67940	0.85792
		(2.89059)*	(7.60892)*	(33.21056)*
1a	-6.17204	1.12970	0.74890	0.79824
		(2.41774)*	(6.12874)*	(21.76067)*
1b	-0.72577	0.06955	0.77429	0.88584
		(0.20072)	(8.80550)*	(38.79641)*
1c	-2.97057	1.01783	0.46453	0.80600
		(3.35543)*	(5.85583)*	(22.85062)*
Group 2	-4.49045	1.66148	0.38382	0.64757
		(3.36300)*	(2.97074)*	(10.10607)*
2a	-1.96071	1.13594	0.25271	0.21653
		(1.32554)	(1.12763)	(1.52007)*
2b✓	-2.70789	1.21836	0.39434	0.54355
		(2.27034)*	(2.80984)*	(6.54942)**
2c	-7.52139	2.02719	0.36654	0.59214
		(3.28116)*	(2.26861)*	(7.98499)**
Group 3	-0.25665	1.12401	0.38553	0.70687
		(3.11701)*	(4.08810)*	(13.26329)*
3a	1.68166	0.42576	0.58973	0.56858
		(0.70590)	(3.73879)*	(7.24866)**
3b	-10.08858	2.21721	0.31250	0.39001
		(2.85724)*	(1.53989)	(5.28453)**
3c	1.03630	0.72951	0.23572	0.35480
		(1.5440)	(1.90818)**	(3.02452)
Group 4	-2.56831	1.59887	0.18496	0.57561
		(3.52739)*	(1.56036)	(7.45984)**
Group 5	-3.60746	1.55080	0.44137	0.77549
		(4.16270)*	(4.53021)*	(18.99815)*
5a	-6.84225	1.75213	0.27749	0.66864
		(4.02308)*	(2.43632)*	(11.09823)*
5b	-12.10818	2.48284	0.26393	0.70561
		(4.75039)*	(1.93097)**	(13.18281)*
5c	-7.41218	1.83419	0.35614	0.75622
		(4.68148)*	(3.47582)*	(17.06156)*
5d	-4.14590	1.86079	0.15495	0.43719
		(2.78224)*	(0.88592)	(4.27240)**
5e	-5.32782	1.42539	0.58515	0.91505
		(5.83805)*	(9.16440)*	(59.24090)*
5f	-11.05759	1.73110	0.81432	0.69857
		(2.44928)*	(4.40569)*	(12.74616)*

*Significant at the 95% level.

**Significant at the 90% level.

✓This subgroup is equivalent to 2b and 2d in Table 2.

nificant, 5 estimates are between 1.00 and 1.50, 4 between 1.51 and 2.00, and 3 between 2.01 and 2.50.

3. Population elasticity estimates are all positive but less than unity; this holds true for the sample as a whole as well as for the 5 major commodity groups and the 16 sub-commodity groups. Estimates for the sample and for the major commodity groups are statistically significant at the 99 per cent level with the exception of Group 4. Twelve of the 16 sub-commodity groups population elasticity estimates are significant statistically at the 90 per cent level or higher. Seven out of the 12 are less than 0.5 elasticity and 4 have elasticities of between 0.51 and 1.00.

4. Of the 16 subgroup income by population elasticities estimates, 12 (not the same groups) are significant. Of the 12 income elasticities, five estimates are between 1.00 and 1.50; four between 1.51 and 2.00 and 3 between 2.00 and 2.50.

The Time-Series Analysis

Despite the short period of time the present study covers, estimates obtained here are informative and consistence with those obtained from the cross-section analysis. The income elasticity of the estimate derived from U.S. times series data for the U.S. is higher than that found for the OECD countries cross section. This is consistent with what we would expect inasmuch as the U.S. is a higher income country and, according to our expectations commodities of cultural and individual artistic distinction, should be in greater demand by its population. In addition, the time series data should yield higher income elasticities because it is longer term, prices vary more fully, whereas in the cross section data prices tend to be more constant insofar as these commodities tended to be treated internationally at one price.[14]

[14] It would have been desirable to include price as another independent variable in the regression equations, particularly for the U.S. time series. This was

1. Whereas per capita income remains an important determinant of the import demand for the set of goods we have specified, population is no longer a significant factor for the sample group as a whole.

2. Two income elasticity estimates are statistically significant and one population elasticity estimate is significant (at the 99 and 90 per cent levels respectively).

3. Income elasticity estimates for the sample and for the major commodity groups that are statistically significant are not only all greater than unity but are also greater than those obtained from the cross-section regressions.

4. The population elasticity estimate that is statistically significant is much greater than unity, apparently because of the size effect of U.S. imports relative to total world trade.

5. Although population is insignificant for the sample group, it is an important determinant for four sub-commodity groups (3a, 3c, 5d, and 5f). It appears that population has a positive effect on the import demand for these subsets of commodities except for group 5f.

6. Note that estimates derived for group 2 (textile products and textile related products) are erratic in sign as well as in magnitude in comparison with those obtained from the cross-section data. In fact, per capita income and population appear to be unimportant for this major commodity group. It is tempting to argue here that the U.S. quota restrictions on textiles products could be sought as an explanation.

---

not possible, however, as no price data of any accuracy exists for these commodities individually as of now to the authors' knowledge. The price variable is not, in any case, at all essential to the basic point of this paper. We would be very surprised if the price variable washed out the significance of the highly income elastic demand found here for the U.S. though it might well lower it to a value closer to that of the cross section elasticity. But we are unsure as to the sign of the price variable for these commodities for the U.S. It could be either positive or negative and it could possibly even raise the income elasticity value.

TABLE 2: Regression Results from U.S. Time Series Data'

Commodity Group	Constant	α, Income Elasticity (t value)	β, Population Elasticity (t value)	Multiple R Square (F value)	Durbin Watson Statistics
TOTAL	-22.52563	1.75061	1.73981	0.97454	2.71824
		(2.55107)	(0.51244)	(76.56010)*	
Group 1	-15.66748	1.34361	1.27081	0.97564	1.96840
		(2.63037)*	(0.50285)	(80.10655)*	
1a	-24.66040	1.52779	1.86417	0.98609	2.06897
		(3.34617)*	(0.82524)	(141.77565)*	
1b	56.96997	0.49100	-4.31982	0.26763	2.50411
		(0.35235)	(0.62658)	(0.73086)	
1c	4.23560	1.22498	-0.44101	0.94863	2.39259
		(2.27894)*	(0.16583)	(36.93244)*	
Group 2	31.01416	-0.93716	-1.01028	0.74753	2.79726
		(0.69973)	(0.15247)	(5.92158)	
2a	61.09985	-0.47389	-3.86490	0.61356	3.11979
		(0.23628)	(0.38950)	(3.17551)	
2b✓	-24.99365	-1.60252	3.73203	0.71534	2.25600
		(1.40552)	(0.66159)	(5.02594)	
2c	28.96826	-0.92273	-0.91257	0.54392	2.45848
		(0.45064)	(0.09008)	(2.38519)	
2d✓	-68.06445	-2.40264	7.90625	0.29845	2.65475
		(0.82156)	(0.54643)	(0.85083)	
Group 3	-109.31934	0.20086	9.73254	0.96734	1.48159
		(0.24922)	(2.44070)*	(59.22849)*	
3a	-221.56860	-2.31001	20.45328	0.92341	1.58162
		(1.99815)**	(3.57594)*	(24.11233)*	
3b	-59.99048	2.29151	4.22916	0.97777	2.23626
		(2.39593)*	(0.89376)	(87.95984)*	
3c	-113.41328	-0.73109	10.61432	0.87442	1.31265
		(0.65681)	(1.92739)**	(13.92635)**	
Group 4	2.99341	3.97061	-2.07404	0.75991	1.83524
		(0.97668)	(0.10312)	(6.33032)**	
Group 5	-4.32861	2.12427	-0.03415	0.97153	2.88736
		(2.88919)*	(0.00939)	(68.25360)*	
5a	-108.35840	-1.63554	10.62204	0.25960	1.92240
		(0.69042)	(0.09630)	(0.70125)	
5b	-67.97021	0.07641	6.16592	0.56899	1.26456
		(0.03278)	(0.53464)	(2.64022)	
5c	-24.72290	2.72610	1.08456	0.98546	2.42165
		(3.76441)*	(0.30271)	(135.53025)*	
5d	-122.88379	0.97775	10.32596	0.97285	1.88393
		(0.97490)	(2.02339)**	(71.66983)*	
5e	-201.54956	0.07698	17.28510	0.91641	1.83067
		(0.03522)	(1.59825)	(21.92651)*	
5f	138.69507	3.70906	-12.86624	0.82868	2.98993
		(2.97776)*	(2.08761)**	(9.67415)**	

*Significant at the 95% level.
**Significant at the 90% level.
✓The two subgroups are combined as 2b in Table 1.

Temporal Differences

Recall that the particular import demand function we specify for the set of commodities selected for the present study is

$$M = f(Y, P; U)$$

Whereas our statistical results derived from the cross-section analysis indicate that per capita income and population explain a significant part of the variations in import demand for the particular set of samples of commodities for the 15 OECD countries as a whole, the random disturbance term may conceivably affect each major commodity group and each sub-commodity group quite independently. That is, the all-inclusive composite explanatory variable U may exert differentiated effects upon each subgroup of the sample. To distribute the unexplained residuals over the components of the sample, we introduced the residual obtained for each country as an additional independent variable into the regression equation to reach "residual elasticity" estimates for the five major commodity groups as well as for the 16 sub-commodity groups. We, therefore, obtained a second set of income and population elasticity estimates for all commodity groups as well as sub-commodity groups on the basis of the following regression:

$$\text{Log } M_i = \text{Log } A_i + \alpha_i \text{Log } Y + \beta_i \text{Log } P + \gamma \text{Log } D \qquad (2)$$
$$(i = 1 \ldots 20)$$

The new variable introduced into the equation is the ratio of the observed and the calculated value of M. The values of D for the jth country are derived from the following:

$$\text{Log } D_j = \text{Log } M_j - \text{Log } M_j^*$$
$$= \text{Log } M_j - \text{Log } A^* + \alpha^* \text{Log } Y_j + \beta^* \text{Log } P_j$$

where Log A*, α^* and β^* are estimates from the sample of 81 commodities as a whole.

For the results obtained from equation (2), as shown in Table 3, we note that:

TABLE 3: Estimated Elasticity of the Residual

Commodity Group	Elasticity of the Component Factor	(t value)	Multiple R Square	(F value)
Group 1	0.37469	(1.19741)	0.87574	(23.49144)*
1a	0.23194	(0.51315)	0.80342	(13.62334)*
1b	0.64516	(2.54155)*	0.93354	(42.13800)*
1c	0.75916	(4.33022)*	0.93252	(46.06681)*
Group 2	1.36276	(6.17513)*	0.92678	(42.19124)*
2a	1.61491	(2.42223)*	0.50623	(3.41751)
2b	0.62717	(1.28763)	0.60846	(5.18011)**
2c	1.74183	(6.92926)*	0.92970	(44.08038)*
Group 3	0.93415	(4.81626)*	0.91170	(34.41649)*
3a	1.00622	(2.02004)*	0.69361	(7.54595)**
3b	1.03246	(1.50326)**	0.58401	(4.67976)**
3c	0.91076	(2.51312)*	0.60456	(5.09602)**
Group 4	1.29659	(7.58750)*	0.96874	(49.73932)*
Group 5	1.07114	(7.86288)*	0.96874	(103.30770)*
5a	0.87019	(2.66704)*	0.80638	(13.88271)*
5b	1.00733	(2.51143)*	0.81947	(15.13125)*
5c	0.91439	(3.61481)*	0.89448	(28.25596)*
5d	1.78512	(5.35997)*	1.85468	(19.60472)*
5e	0.45682	(2.39499)*	0.94601	(58.40989)*
5f	1.05408	(1.73610)**	0.76838	(11.05795)*

*Significant at the 95 per cent level or higher.

**Significant at the 90 per cent level.

---

a. Constant terms as well as α_i and β_i are virtually the same here as those obtained in equation (1).

b. Equation (2) gives a much better "goodness of fit" than equation (1), though the results derived from equation (1) are quite satisfactory in themselves.

c. It appears that the estimated residual elasticity is highest for group 2. That may be interpreted as the required adjustment for differences in the composite term, U. Judged on the basis of the calculated variations in the estimates between the cross-section and time series data, the result is of interest.

More importantly, our income elasticity estimates seem to be positively correlated with the degree of labor intensity. In the afore-mentioned study of imports of manufactures from less developed countries, Hal B. Lary has compiled a selected list of labor-intensive industries in the U.S. manufacturing sector of the U.S. Obviously, the lower the ratio, the higher is the intensity of labor input. By adopting Lary's value-added per employee data and matching and arranging with our commodity groups we can derive measurements of the labor intensity for our commodity groups and sub-groups. Ranking income elasticities estimates that are statistically significant with that of the degree of labor intensity so measured, we derive Table 4;[15] and we obtain a Spearman's rank correlation coefficient of 0.58, which is significant at the 90 per cent confidence level.

TABLE 4: Estimated Income Elasticities and Value Added per Employee

Commodity Group	Income Elasticity *	Rank	Value Added** per employee U.S. Manufacture	Rank
5b	2.48284	1	39.2	1
3b	2.21721	2	68.7	8.5
2c	2.02719	3	47.7	2
5d	1.86079	4	66.8	7
5c	1.83420	5	51.6	3
5a	1.75213	6	57.6	4
4	1.59887	7	85.7	12
5e	1.42539	8	64.4	6
2b	1.21836	9	69.5	10
1a	1.12970	10	62.0	5
1c	1.01783	11	77.8	11
3c	0.72951	12	68.7	9.5

*from table 1.

**weighted averages; see Appendix B for detail.

[15] The income elasticity estimate for commodity group 3c is significant at the 90 per cent level. If 3c is excluded, by re-ranking the remaining groups, the Spearman's rank correlation coefficient of 0.54 is still significant at the 90 per cent level.

4. The Quantitative Significance of Traditional and Small Scale Culture Goods

The policy importance of this class of goods depends upon their quantity and expandibility without a significant deterioration in their price.

In the recent past for which we have data, both the size and expansion of such culture goods were impressive. As mentioned above, in the U.S. market alone culture goods rose from a value of $428 million in 1965 to over $638 million by 1970 which gives an annual compound growth rate of more than 8.3%.

These totals include all culture goods imports to the U.S. and other OECD countries. In other words, import totals here should not be taken as the equivalent of total exports from LDCs. Data shown in Trade by Commodities with country origins cover only a part of our 81-commodity sample. Therefore, an analysis of import demand by OECD countries from LDCs was made on the basis of a partial list of commodities defined for the study. Income and population elasticities of import demand of OECD countries from LDCs are estimates, as before, from equation (1). The results are shown in Table 5. Because of the incomplete coverage of the sample, commodities are identified by their SITC numbers. Comparable classification according to our previous groups is shown in the parentheses.

Income and population estimates obtained from this partial sample are interesting in several respects: income elasticity for the partial sample as a group is higher than that based either on the U.S. time-series data (1.75) or on the cross-section data for OECD countries (1.30); population elasticities that are statistically significant here are higher than those based on the OECD cross-section data though lower than the counterparts obtained from U.S. time-series data.

The estimates obtained from this partial sample are reassuring in that import demand for this type of small scale and culture-accentuated goods is highly income

TABLE 5: Imports by OECD Countries from LDCs 1968-69
Cross Section OECD Trade by Commodities

Commodity Group (SITC)	Constant	α Income Elasticity (t value)	β Population Elasticity (t value)	Multiple R Square (F value)
TOTAL	-13.49365	2.08692 (3.74827)*	0.79218 (5.44061)*	0.79933 (21.90828)*
267 (2d)	-8.05308	-0.01840 (0.02347)	1.33130 (6.21734)*	0.77847 (19.32764)*
841.44 (2c)	-20.78034	3.16570 (3.11123)*	0.62896 (2.36367)*	0.58212 (7.66172)**
276.2 (3a)	-3.08321	-0.55134 (0.57397)	1.39749 (5.56308)*	0.73966 (15.62660)*
666.4 (3b)	-16.08264	2.08037 (1.96259)**	0.45269 (1.68288)	0.40159 (3.35546)
897.1 (4a)	-17.07657	1.40137 (1.31195)	1.24237 (4.44750)*	0.66202 (10.77330)*
697.2 (4a)	-17.83321	1.81083 (1.68005)	1.02112 (3.62262)*	0.59249 (7.99644)**
894.2 (5e)	-12.88423	1.63439 (2.63261)*	0.92461 (5.69499)*	0.78209 (19.73965)*
896 (5f)	-14.67157	1.62272 (2.52013)*	0.93733 (5.56636)*	0.77293 (18.72184)*

*Significant at 95% level.
**Significant at 90% level.
Source: Ibid., Table 1.

elastic no matter where they originated.

To derive an estimate of total cultural goods imports for both the world and for the advanced market economies, the assumption is made that both imported the same proportion of culture goods as did the U.S. (1.99% in 1965). Reducing these for non-LDC participation, and combining them with the value of world and advanced market economy imports yields values of cultural goods imports of between $1.8 billion and $2.6 billion for 1965, as shown in Table 6, numbers 4 and 6.

As a further step in the exercise, the income and population elasticity estimates are used to estimate the flow of cultural goods exports from LDCs for 1970 and 1975. To keep the computations simple the mean of the income and population

TABLE 6: Calculation of Estimated Cultural Goods Participation in International Trade

	Years and Values (mil.'s of $'s)		
	1965	1970	1975 (est.)
1. Total world imports (C.I.F.)	$196,800.0	$300,000.0*	$456,000.0
2. Cultural goods imports by the U.S.	428.0	638.0	--
3. Value of total world imports of cultural goods from LDC's	2,617.4	4,612.0	8,128.0
4. Total U.S., enlarged E.E.C., Japan, and developed market economy imports	136,900.0	236,100.0	406,090.0
5. Value of cultural goods imports from LDC's by developed market economies (assuming same %'s as 3)	1,820.8	3,208.5	5,654.5
6. #4 as % of U.S. foreign aid: non-military grants	71.7	158.3	359.0**
7. #4 as % of LDC public debt service payment	77.0	87.7	99.5
8. #4 as % of LDC primary product exports by value	8.7	11.2	15.1

*Estimated by adding 10% to actual 1969 figures.

**Foreign aid and public debt service at 1970 levels.

Sources: (1) and (4) Statistical Yearbook 1967, Table 186, pp. 582-88, and 1971, Table 144, p. 382.

(2) U.S. Imports for Consumption and General Imports 1965 and 1970, U.S. Census Bureau, May 1966 and May 1971, FT 246.

(3) Estimated by assuming that: (a) .67 of all cultural goods emanated from LDC's. This seems reasonable in that these are labor-intensive goods by and large. Additionallly, there are additional but undetermined cultural goods which our coverage of 81 commodities has not picked up which bias our percentages in the downward direction; and (b) that about 2% of the world market imports were cultural goods in 1965, which was the actual proportion in the U.S. market.

(6) World Bank, International Development Association, Annual Report 1970, IBRD, Table 10, pp. 78-79.

(7) Statistical Abstract of the United States 1970, U.S. Bureau of the Census (92nd Edition), Washington, D.C., 1971, Table 1247, pp. 777-778.

(8) Handbook of Trade and Development Statistics, United Nations, 1972 and Monthly Bulletin of Statistics, July 1972, Special Table C. For 1975 continued growth of 5.5% per annum in primary products imports was assumed.

elasticities from our samples of LDC culture goods exports to OECD countries in 1968-69 and the U.S. time series which resulted from an assumption of growth in GNP projected of 5% and in population growth of 2% for both world and advanced economies were used. A mean annual change of 12.07% in LDC culture goods exports was derived and resulted in the export values shown under the 1970 and 1975 columns in Table 6 of between $3.2 billion and $8.1 billion (rows 3 and 5).

To give some perspective of the relative magnitude of cultural goods exports, item 4, the value of total cultural goods exports (imports) is compared with U.S. non-military grants, LDC public debt series payments, and LDC primary imports by value in nos. 6-8. Cultural goods imports were a rising proportion in each instance.

Although not too much confidence should be placed in the details of these projections, they nonetheless do demonstrate that this much neglected category of production and trade is of present and potential future policy significance in quantitative terms.

5. Concluding Remarks

The process of development has typically been seen in the literature as being the movement from small scale, traditional handicraft industries to large scale manufacturing industries. Such products have generally been aggregated into larger categories which have been characterized as being inferior in nature. In the present paper some 81 commodities were examined cross-section and in time series. It was discovered that products of cultural and artistic distinction have been participating at a rising level in international trade being produced largely by developing countries and exported to the U.S. and OECD markets. Moreover, it was found that these commodities consistently had income elasticities of demand of greater than unity, in some instances

greatly exceeding unity. Inclusion of an adequate price variable, if the data were available, might lower the income elasticity for the time series, but it would be very unlikely to alter the basic finding that they were greater than unity.

Concomitant with this finding, is the question of policy significance. Most importantly, the labor intensity of these commodities is shown to be very high. For countries with surplus labor and for small countries in particular which cannot establish competitive large scale industries, such commodities should have a special policy significance. Additionally, the foreign exchange created by exports of cultural, artistic goods is also of great importance inasmuch as exchange shortages have usually constituted a severe bottleneck in the postwar period. The foreign exchange revenues produced by exportation of the products was shown to be quite large and rising. We expect this trend to be accentuated in the future if we are correct in presuming that these commodities will not be easily produceable by large scale factory methods which can duplicate their artistic, cultural, and handmade qualities; and that as affluence and education increase around the world similar tastes for the characteristics of these products will be manifested.

A future paper will examine the production patterns and the distribution of benefits of small scale, traditional production among developing countries. The analysis will include more detailed consumption patterns and tariff barriers and will try to determine intercountry comparative advantages as well as the labor content of production. As of now, however, adequate data are not available on production functions by country for small scale, traditional products so that field work involving sample surveys will be required for inputs.

Appendix A

The 81 commodities that the present study covers are classified into 5 major commodity groups and 17 subgroups. Descriptions of these commodities along with their standard International Trade Classification code and Tariff Schedules for the U. S. Annotated code (TSUSA) are shown below:

commodity group	SITC code	TSUSA code	description
Group 1			Wood and paper; printed matter
1a			
	631.8760	202.6600	Wood moldings, carvings and ornaments for decorations
	632.7360	206.9700	Household utensils and parts wood, exc. mahogony, NSPF
	632.8890	207.0020	Wood carvings, NSPF
	632.7220	207.0040	Articles of wood
1b			
	292.3030	222.0520	Bamboo and rattan sticks RGH/cut. for umbrellas, parasols
	292.3030	222.0540	Rattan stick RGH/cut
	292.3050	222.1020	Rattan webbing
	292.3050	222.1040	Rattan, exc. webbing
1c			
	899.2240	222.4200	Baskets and bags of rattan or of palm leaf
	899.2240	222.4400	Baskets and bags of unspun or vegetable materials, NES
	899.2260	222.6000	Articles NES, of bamboo, rattan, willow, or chip
	899.2260	222.6400	Articles NES, of unspun fibrous materials
Group 2			Textile fibers and textile products
2a			
	651.2500	307.6403	Handknitting and fancy yarns of wool or hair NES
	266.3120	309.4320	Man made fiber carpet
	266.3140	309.4325	Man made fiber wholly of filaments

2b			
	656.9135	365.7840	Cotton furnishings NES ornamented
	656.9135	365.8200	Furnishings of vegetable fiber except cotton orn. NES
	656.9135	365.8540	Wool furnishings ornamented NES
2c			
	841.4445	382.5780	Women's and girls' wool knit sweaters
	841.4448	382.5790	Women's and girls' wool knit outerwear
2d			
	656.9310	386.0560	Lace or net articles and other art ornamented
	656.9330	386.5000	Other cotton articles
	267.0230	390.2000	Rags and baggings NSPF except knit pile
Group 3			Non-metallic minerals and products
3a			
	661.3430	514.8100	Marbles and breccia and oynx articles, NES
	276.2240	517.3100	Natural graphite
	667.3010	520.1140	Precious stones and semi-precious
	667.3050	520.6100	Semi-precious stones and articles of such stone
3b			
	666.5020	533.1100	Earthen or stone ware, coarse-grain for food beverage
	666.5020	533.1400	Earthen ware, fine grain
	666.5020	533.1600	Earthen ware, fine grain
	666.5020	533.3100	Earthenware steins, mugs, candy boxes, decanters, etc.
	666.5020	533.3700	Tableware, NES, fine grain
	666.4020	533.4100	Bone chinaware
	666.4040	533.6300	Non-bone chinaware, household spec. set
	666.4040	533.6700	Non-bone chinaware, household
	666.4040	533.6900	Non-bone chinaware
	666.4040	533.7100	Steins, mugs, candy boxes, decanters, non-bone
3c			
	666.6000	534.1100	Ceramic statues, statuettes, etc.
	666.6000	534.2100	Ceramic tile smokers and household articles
	666.5040	534.8100	Earthenware or stoneware Eg. smokers
	666.5040	534.8400	
	666.5040	534.8700	
	666.4040	534.9400	Non-bone chinaware or subporcelain household articles
	663.9200	536.1500	Ceramic articles and wares
Group 4			Metals and metal products
	897.1540	653.6200	Household sanitary wares NES of silver
	897.1540	653.8000	Silver plated household articles and wares
	697.2230	654.0020	Brass kitchen and table wares not coated, etc.
	698.9700	654.2040	Household metal articles NES not coated

Group 5			Specified products; miscellaneous and and non-enumerated products
5a			
	655.7210	702.3500	Headwear no cap palm leaf no saw no block no trim
	655.7210	702.3720	Headwear no cap palm leaf no saw
	655.7290	702.3780	Headwear other fiber no saw
	841.5320	702.5600	Wool headwear knit
5b			
	841.3020	705.4400	Gloves, mens leather
	841.3020	705.4600	"
	841.3020	705.5200	"
	841.3030	705.5400	"
	841.3040	705.6000	Gloves, leather, womens
	841.3040	705.6200	"
	841.3040	705.6400	"
5c			
	831.0005	706.0400	Billfold, lettercase and other flat goods
	831.0005	706.0500	"
	831.0012	706.0620	Handbags or pocket books,women's or girls'
	831.0015	706.0820	"
	899.2230	706.1220	Rattan, handbags or pocket books
	899.2230	706.1420	"
	831.0055	706.6020	"
5d			
	891.4240	725.0600	Stringed musical instruments, except keyboard
	891.8400	725.3200	Drums
	821.0850	727.1000	Furnitures and parts, unspun vegetable fibrous materials
	821.0815	727.1500	Furnitures and parts of bentwood
	821.0830	727.3500	Furniture, wood
	821.0840	727.4000	Furniture parts, wood
	821.0860	727.5500	Other furnitures
5e			
	894.2220	737.2020	Dolls, dressed or undressed
	899.9200	748.4000	Feathers and ornamented articles
5f			
	896.0150	765.0500	Paintings, pastels, drawings, etc. originals
	896.0200	765.1000	Engravings, etchings, prints, etc. unbound
	896.0300	765.1500	Sculpture, statuary
	896.0160	765.2500	Original works of the free fine arts
	896.0600	766.2560	Antiques

The selection of the 81 commodities was made from the fairly comprehensive description contained in the TSUSA from the Department of Commerce U.S. Imports for Consumption and General Imports. A commodity was included if the description indicated that it was either a cultural or artistic good. In some cases the good might not have distinct cultural or artistic qualities or even be definitely small scale

in production; but it was included if it was judged to be at least potentially small scale. In most instances, however, the term 'hand produced' or 'hand made' was contained implicitly in the description.

Appendix B

The Derivation of Value Added per Employee as a Measurement Of Labor-Intensity for Each Commodity Group

1. The labor intensity of the commodity set we select for the present study is measured by the value added per employee, as compiled by Hal B. Lary, for selected industries in the U.S. in 1965. The precise matching of our commodity groups and the Standard Industrial Classification of U.S. is shown below:

commodity group	SIC code
1a	2429, 2491, 2499
1c	2643, 3999
2b	2261, 2299
2c	225, 234, 2311 232, 235, 2381 233, 236, 2384
3b	326
3c	326
4	3911, 3912, 3914 34611, 34615, 34614, 34618
5a	239
5b	3151
5c	3161, 3171, 3172
5d	251, 259 2531, 2541, 3652, 3931 25121
5e	3942, 3962, 3999

2. Value added per employee for each group is the weighted average. Relative weights are value added in 1965.

PROGRAM OF DEVELOPMENT STUDIES

Discussion Papers

No. 17 "The Incidence of Taxation in West Malaysia" (1971) Charles E. McLure, Jr.

No. 18 "Vocational Improvement Centers: A Successful Nigerian Experiment" (1972) . . . . . .Gaston V. Rimlinger and Carolyn Stremlau

No. 19 "Government Expenditures, the Revenue Constraint and Wagner's Law: The Case of Turkey" (1972) . . . . . Marian Krzyzaniak

No. 20 "The Long-Run Incidence of Government Spending on Education" (Rev. No. 10) (1972) . . . . . .Marian Krzyzaniak and Ibrahim Eris

No. 21 "On Solow's Method of Estimating the Residual" (1972) . . . . . .Yhi-Min Ho and Clive Bell

No. 22 "Models of Development Incorporating Income Distribution" (1972) . . . . . .James W. Land and Ronald Soligo

No. 23 "Disguised Unemployment in a Subsistence Economy" (1972) . . . . . Jose Hamilton Gondim Silva

No. 24 "A Proposal for Research on 'Distribution of Gains, Wealth and Income from Economic and Political Development'" (1972) . . . . . James W. Land

No. 25 "Optimal Wage and Education Policies with International Migration" (1972) . . . . . R. Albert Berry and Ronald Soligo

No. 26 "Marketing and Economic Development: A Brazilian Case Study, 1930-70" (1972). . . . . .Gordon W. Smith

No. 27 "Indigenisation of Industry and Progress of the Second Nigerian National Development Plan" (1972) . . . . . Gaston V. Rimlinger

No. 28 "The Distribution of Incomes and the Short-Run Burden of Taxes in Turkey, 1968" (1972). . . . . Marian Krzyzaniak and Suleyman Ozmucur

No. 29 "The Proper Use of Indirect Taxation in Latin America: The Practice of Economic Marksmanship" (1972). . . . . Charles E. McLure, Jr.

No. 30 "Distributional Equity, Inflation, and Efficiency in the Brazilian Fluctuating Exchange Rate System" (1972) . . . . . .Donald L. Huddle

No. 31 "A Diagrammatic Exposition of General Equilibrium Tax and Expenditure Incidence Analysis with One Immobile Factor" (1972) Charles E. McLure, Jr.

No. 32 "Social and Economic Conditions and Political Violence" (1972) . . . . . .Fred R. von der Mehden with Kim Q. Hill

No. 33 "Income Distribution, Efficiency and the Experience of Colombian Farm Mechanization" (1972). . . . . Wayne R. Thirsk

No. 34 "Ease of Factor Substitution in Agriculture" (1972). . . . Wayne R. Thirsk

No. 35 "The Contribution of Traditional and Small Scale Culture Goods in International Trade and in Employment" (1972) . Yhi-Min Ho and Donald L. Huddle

---

Note: Discussion Papers are available upon request to individual scholars and researchers and libraries of educational institutions.