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**Further evidence
of the transition
in the value of children**

Rodolfo A. Bulatao



EAST-WEST CENTER
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CURRENT STUDIES ON THE VALUE OF CHILDREN is a subseries of PAPERS OF THE EAST-WEST POPULATION INSTITUTE. It presents analyses of data from the Value of Children project, a cross-national study of parents' perceptions of the satisfactions and costs of children, and findings from similar studies. A description of the project may be found in the Editor's Foreword of Paper 60-A, *On the Nature of the Transition in the Value of Children*.

All papers in Current Studies will be assigned the number 60, to indicate that they are part of Papers of the East-West Population Institute. The serial number for each subseries paper, however, will include a letter suffix (A, B, etc.) designating its sequence in the subseries.

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ABSTRACT The transition in the value of children consists of changes in parents' perceptions of specific values and disvalues attached to children that accompany the secular decline in fertility rates. To supplement the evidence from nine countries on this transition reported in a previous paper, data from a variety of sources on an additional 14 countries are considered. The new data reinforce the previous findings. This paper argues that the transition in the value of children can be seen as a dual process of liberation. First, children are liberated from having to contribute their labor to their families; then, parents are liberated from the burden of caring for many children.

The modern transition from high to low fertility rates means that successive generations of parents have fewer and fewer children. Why this happens is one of the most intensely researched questions in population studies. This paper argues that a central reason for the decline is a set of changes in the values and disvalues that parents attach to children. In some sense children become less valuable, but they also become valued for different reasons and the burdens they impose on their parents are altered not just quantitatively but also qualitatively.

These changes have been collectively labeled the transition in the value of children. The first section of this paper briefly reviews the character of this transition, the arguments for it, and the evidence that has been provided elsewhere (Bulatao, 1979). The burden of the paper, however, is not to expand on the theory but to attempt to confirm its elements, drawing on a fresh sample of studies. The previously presented evidence was limited to the seven Asian countries and two Western countries that had been included in the Value of Children (VOC) project. Consistent differences across countries on many measures of values and disvalues were observed. For some, this evidence may be reasonably convincing. For others, doubts may persist about the evidence, among other reasons because of the small number of countries selected. This paper is directed toward the latter group of readers and attempts to assuage some of the doubts.

The new evidence to be presented is from a miscellany of surveys in a more varied assortment of countries in Africa, Latin America, Europe, Asia, and Oceania. Cross-national comparisons will be made among values and disvalues attached to children. A number of methodological adjustments will be shown to improve the comparability of

the data and facilitate interpretation. Properly handled, the disparate data sources are shown to lead to conclusions that are surprising only in one sense: that there are so few surprises, that the essential elements in the theory of the transition in the value of children appear confirmed. A brief restatement of the theory, therefore, closes the paper.

THEORY

The theory of the transition in the value of children, as presented in a previous paper (Bulatao, 1979) on which this section is based, involves individual fertility motivations but is not a theory of individual fertility. It attempts to explain, rather, the long-term change in fertility levels that accompanies modernization. Factors that explain this secular fertility decline may or may not be identical to factors that explain individual differences in fertility within a society.

The theory arose from an analysis of previous studies on the demographic transition. Various explanations of secular fertility decline are offered, often in unsystematic fashion, in this literature. An attempt was made to organize the explanations, and it was promptly discovered that the majority of the explanations involved changes in values and disvalues attached to children.

Seven basic explanations of secular fertility decline were distinguished in the previous paper: (1) fertility decline results from increased contraceptive availability and efficiency; (2) delayed marriage causes fertility decline; (3) mortality reduction leads to fertility decline; (4) as people's aspirations rise, fertility decline takes place; (5) fertility decline is the result of vanishing economic roles for children; (6) the emergence of the conjugal family and the values and social relations connected with this family type produce fertility decline; and (7) as cultural props for high fertility weaken, fertility declines. Each explanation has at least some adherents, though many writers mix together several explanations. These factors are not, of course, mutually exclusive. Several of them may be part of a complete explanation.

The first two of these explanations, involving changes in family-limitation costs and in the supply of children, do not directly affect the values parents hold regarding children. One does not expect them to be reflected in value-of-children data.¹ The latter five explanations do, however, involve changes in the demand for children, or in values

1 Some indirect effect, such as a change in motivations resulting from a change in actual childbearing behavior, cannot be ruled out. It is not possible to predict, however, which values or disvalues might be affected in this indirect manner.

and disvalues. Assuming each of these explanations is valid, one can predict specific differences between the values and disvalues attached to children under different fertility regimes (Table 1). These predictions about value and disvalue contrasts were tested through cross-sectional comparisons in the same paper. It was assumed that societies go through essentially similar changes in the values and disvalues attached to children, although precise trends in fertility rates may differ, and that their current fertility levels represent the stage they have reached in this process. Cross-sectional comparisons of fertility regimes, therefore, were taken as a substitute for the more appropriate longitudinal comparisons.

The countries compared were four high fertility countries (the Philippines, Turkey, Indonesia, and Thailand), three moderate fertility countries (South Korea, Taiwan, and Singapore), and two low fertility countries (the United States of America and West Germany). The data used were perceived advantages and disadvantages of having children, ratings of values and disvalues, and responses to related questions by wives and husbands interviewed between 1975 and 1977, using similar questionnaires in each country. Roughly 1,000 to 3,000 wives and a quarter to a half of their husbands were sampled in each country, except in West Germany, where only 300 wives were interviewed. These samples were designed to be nationally representative, except again in West Germany and in Indonesia, where only two ethnic groups on the island of Java, Javanese and Sundanese, were interviewed. Besides comparisons among countries, comparisons were also made among regions in the Philippines, among cities and counties in Korea, and between high-parity respondents who were not limiting their families and low-parity respondents who were limiting their families in each country.

From these comparisons, I drew conclusions about trends in values and disvalues and the consequent validity of each explanation. I discovered that, in accordance with the vanishing economic roles explanation, the economic help children provide declined in salience and in centrality² from high to low fertility countries. Consistent with the rising aspirations explanation was the finding that the restrictions children impose on parents were increasingly salient and central at lower fertility levels. These two trends across countries were the strongest and most consistent identified. Two further trends were noted. Also consistent with the rising aspirations explanation was a

2 Salience and centrality, as two dimensions of value importance, are distinguished in Bulatao (1975:81-84). The former refers to the readiness with which values are verbalized, the latter to their rank in personal value hierarchies.

TABLE 1 Predicted effects of demand-related explanatory factors on values and disvalues attached to children

4

Value or disvalue cluster	Explanatory factor				
	Mortality reduction (Demographic)	Rising aspirations (Psychological)	Vanishing economic roles for children (Economic)	Emergence of the conjugal family (Social)	Weakening cultural props (Cultural)
Value cluster					
1 Instrumental assistance	D1 Insurance against mortality should become less prominent		E1 Economic benefits should decrease		C1 Status, social benefits should become less prominent
2 Rewarding interactions				S2 Marital bond, companionship should become more prominent	
3 Psychological appreciation		P3 Should become more prominent			
Disvalue cluster					
4 Financial costs		P4 Should rise		S4 Should rise	
5 Childrearing demands		P5 Should become heavier		S5 Should become heavier	
6 Restrictions on parents		P6 Should become more prominent			
7 Costs to social relationships				S7 Marital strain should become more prominent	C7 Concern about over-population should become more prominent

NOTE: Each predicted effect is identified by a capital letter and a number. The letter represents the explanatory factor (as characterized in parentheses in the table heading); the number represents the value or disvalue cluster affected.

SOURCE: Bulatao (1979:8).

slight increase in the salience and centrality of psychological appreciation values (children to provide fulfillment, to satisfy achievement and power needs, etc.). Consistent with the emergence of the conjugal family explanation was an increase in salience and centrality for companionship values and for children enhancing the marital bond. There were also disconfirmatory findings. Perceptions of the financial costs of children and of childrearing demands showed no rise, a finding partly contradicting both the rising aspirations and the conjugal family emergence explanations. Status-related, social, and religious values attached to children showed no decline, contradicting the cultural props explanation. Little data was available to support the mortality reduction explanation. Within-country comparisons were generally consistent with these conclusions. There was, finally, some indication that particular value and disvalue differences were greater between high and moderate fertility countries and that others were greater between moderate and low fertility countries. The early fertility transition appeared to be characterized by a decline in some types of economic assistance from children, the late transition by declines in other types of assistance (principally help in old age), combined with a greater emphasis on parents' personal aspirations and on the conjugal family. Table 2 reproduces the trends observed in the values and disvalues attached to children, which constitute what I am referring to as the theory of the value-of-children transition.

This picture of the transition was based on data from only the nine countries studied in the second phase of the Value of Children project. When a broader range of countries is considered, do the conclusions still hold? In attempting to answer this question, I shall not simply re-examine the value trends in Table 2, but actually reevaluate all the predictions in Table 1, including those that were not borne out with the nine countries.

DATA AND PROCEDURES

From assorted sources, survey data for 14 countries have been marshalled for this paper. Data from three other countries were considered and rejected, for reasons explained below. As in the previous paper (Bulatao, 1979), value measures will be compared across countries, cross-sectionally rather than longitudinally. The assumption must be made again, therefore, that each country is going through the same basic transition process, regardless of the stage it has currently attained. A customary interpretation of cross-sectional results is that they involve long-run comparisons as opposed to the short-run adjustments

TABLE 2 Observed changes in values and disvalues attached to children across nine countries in the Value of Children project

Explanatory factor	Transition from high to moderate fertility levels	Transition from moderate to low fertility levels
Vanishing economic roles for children	Financial, practical help declines Help in housework declines	Financial, practical help declines Help in old age declines
Rising aspirations	Cost of education declines (contrary to prediction) Emotional strain rises	Being tied down rises Fulfillment rises Achievement, power rises Discipline declines
Emergence of the conjugal family	Cost of education declines (contrary to prediction) Emotional strain rises Companionship, love rises (less sharply) Fun rises (less sharply) Marital bond rises (less sharply)	Discipline declines Companionship, love rises (more sharply) Fun rises (more sharply) Marital bond rises (more sharply)
Weakening cultural props for high fertility		Adult status, social norms rises (slightly, contrary to prediction)
Mortality reduction	Insurance against mortality declines	

NOTE: The nine countries in the Value of Children project are: the Philippines, Turkey, Indonesia, Thailand, South Korea, Taiwan, Singapore, the United States, and West Germany.

SOURCE: Bulatao (1979:95).

reflected in time-series results (e.g., Chenery and Syrquin, 1975). This interpretation also relies on the assumption of a uniform process.

Each survey contained at least one question about the advantages or disadvantages of having children. The discussion below focuses entirely on responses to these questions. The previous paper also considered a number of other measures of values and disvalues; none of

these other measures was available for the majority of the surveys to be considered. Although a broader range of countries is discussed here, therefore, the substance of the investigation is narrowed to one type of measure reflecting the salience of values and disvalues.

The following section describes the surveys and samples used. Then attention is paid to the ways in which the data were massaged to get them into proper shape for comparison. The reader who is not interested in methodological details might skip lightly over these sections. They do indicate the diversity of the data sources, however—which makes comparisons more difficult but increases confidence in the generalizability of the findings. They also provide a few insights about the phrasing of questions on the value of children and explain why the statistics here may differ from other published figures.

Surveys, samples, countries

The surveys were conducted between 1963 and 1978 by about a score of investigators, most working independently. Some surveys were explicitly about the value of children, but others were general fertility surveys. The surveys fall into two distinct sets. Set A includes surveys very similar to those in the Value of Children (VOC) project, with which comparisons of specific value categories can be made. Set B includes surveys that were less similar, permitting only broad comparisons. The surveys in each set will now be described.

In Set A, one survey, that for Japan, was in fact part of the first phase of the VOC project. This phase covered small, selected samples rather than national samples, but used essentially the same methodology. All the countries studied in the first phase were also included in the second phase and have been previously discussed,³ with the exception of Japan. The Japanese survey was conducted in 1972–73 by Iritani (1979). The other surveys in Set A all followed the approach

3 The data from the other first-phase surveys were quite similar to the second-phase data. Comparisons between the advantages and disadvantages cited in the first-phase and in the second-phase surveys indicated that: (1) most results were equivalent, if one took into account the urban bias of most first-phase samples; (2) the measures were insufficiently precise and the samples too poorly matched to establish changes between 1972–73, when the first-phase surveys were conducted, and 1975–76, when the second-phase surveys were conducted; and (3) in the only important difference, the second-phase data for Thailand appeared to indicate a lower level of response, across the board, to both the advantages and disadvantages questions, in comparison with the first-phase results (and also in comparison with second-phase results for other countries), possibly as a result of more limited probing.

and partially replicated the methodology of the first phase of the VOC project. These surveys were: a large national survey in the Netherlands conducted in 1975 and reported by Niphuis-Nell (1976); a similar survey in 1975--76 in Dutch-speaking Belgium reported by Deven (1977a, 1977b); a two-part Indian study conducted around 1976 by Khan (1977); a 1977 survey in Sydney, Australia, conducted by Callan (1979); and a 1978 study in West Malaysia by Kee Poo-kong for which no report has been completed so far.

Three of these surveys had samples between 4,000 and 6,000, but the other three were smaller, with samples of 400 to 700. The largest sample was that for the Belgian survey, which included 4,877 women between ages 16 and 44, both married and single, and 690 husbands. The Dutch survey covered 4,522 currently married women. The Indian study actually covered two samples, an urban sample of 4,000 male industrial workers in four cities and a rural sample of 613 female and 784 male ever-married villagers from six states. The Indian rural sample was the only one in this set for which male and female data were not reported separately. Among the smaller surveys, the Australian sample was 717 married men and women in Sydney who were either migrants or nonmigrants—412 born in Greece or in Italy against 305 born in Australia—and who were further classified into three roughly equal occupational groups (professional, skilled, and unskilled). The West Malaysian sample was about 260 wives and their husbands, 57 percent from plantations and the rest urban. The Japanese sample was the smallest, being 211 wives and 201 of their husbands, distributed between urban and rural areas roughly in proportion to population.

The Set A surveys thus appear quite heterogeneous, but the surveys in Set B were even more diverse. Set B included surveys in four African countries (Nigeria, Ghana, Kenya, and Sierra Leone), five Latin American countries (Mexico, Peru, Colombia, Costa Rica, and Chile), and two Asian countries (Bangladesh and Iran). The largest of the African studies was a 1969 survey of 5,952 wives and mothers in Sierra Leone (Dow, 1971a, 1971b). There were three studies for Nigeria. The first was of moderate size, a 1973 survey of 1,499 Yoruba women and 1,497 Yoruba men in the Western and Lagos states of Nigeria (Australian National University, 1974). A second, much smaller study of 202 Yoruba men was conducted in 1974--75 (Orubuloye, 1977), and a study of 1,278 male and female Ibos, also in Nigeria, was conducted in 1974 (Okore, 1975, 1977). For Ghana there were two studies, an early (1963) survey of 709 rural households, in which respondents

were entire households interviewed together rather than as individuals (Caldwell, 1967), and a smaller study in 1975 of 235 male and female Sisala of Northern Ghana (Mendonsa, 1977). The Kenyan study was conducted in 1974–75 with 656 Akamba (Kabwegyere, 1977).

Four of the five Latin American surveys were part of the same study, a rural fertility survey coordinated by the Centro Latinoamericano de Demografía between 1968 and 1969 (Simmons, 1974). The samples for these surveys in Mexico, Peru, Colombia, and Costa Rica were between 2,100 and 3,000 women selected to be representative of all women 15 to 49 years old in rural areas and small urban areas (populations of 20,000 or less) in each country. The fifth Latin American survey was quite different, a study of only 60 married women and 75 married men from two housing projects in Santiago, Chile (Turner, 1975).

Information on the two Asian surveys came from preliminary reports. The study in Bangladesh was conducted in the village of Barkait around 1975. Although about 300 respondents were interviewed, data for only 102 have been reported (Barkat-e-Khuda, 1977). The study in Iran was conducted in the industrial city of Shiraz at about the same time. Again, data for only 107 respondents have been reported (Mehryar, Tolnay, and Jamshidi, 1977), though the sample was much larger.

Relevant characteristics of all the surveys in both sets are summarized in Table A1 in Appendix A. A few other studies provide the same type of data, but involve countries that were part of the VOC project. Because the VOC countries have been covered with representative samples, these other studies will not be discussed. There is one exception, however. Data from the Survey of Fertility in Thailand, conducted in 1975 as part of the World Fertility Survey, are presented in Appendix B to clarify some characteristics of the measures used in this paper. The data were for 2,960 husbands, those who could be matched with their wives after fieldwork was completed (Arnold and Pejaranonda, 1977). These data will not be included, however, in the main comparisons.

The countries covered by the surveys under consideration were divided into five groups by fertility level: countries with extremely high fertility, very high fertility, high fertility, moderate fertility, and low fertility. Table 3 indicates the grouping, which includes the nine VOC countries and was based on fertility rates from external sources. The cutting points were chosen to provide as much separation between groups as possible on each of the indicators. It can be seen that most

TABLE 3 Fertility rates for countries surveyed

Country and group or area surveyed	Date of survey	Population			Survey sample's ideal family size ^d
		Crude birth rate (1976) ^a	Gross reproduc- tion rate (1973) ^b	Total fertility rate ^c	
EXTREMELY HIGH FERTILITY		(47-49)	(3.300-3.600)	(6,100-7,750)	(> 6.1)
Kenya (Akamba)	1974-75	49	3.300	7,705	^e
Nigeria					
Ibo	1974	49	3.300	6,141	8.0, 8.0 ^f
Yoruba	1975				> 6 ^g
Western-Lagos	1973				7.6, 7.6 ^h
Ghana					
Rural	1963	49 ⁱ	3.300	7,002	8.0 ^j
Sisala	1975				7.5 ^k
Bangladesh (Barkait)	ca. 1976	47	3.520	6,581	6.4, 7.0 ^l
VERY HIGH FERTILITY		(41-45)			(4.6-6.1)
Iran (Shiraz)	ca. 1976	45	3.350	7,661	^m
Sierra Leone	1969	45	2.900	5,262	6.1
Colombia	1968-69	45 ⁿ	2.870	3,967	4.6 ^o
Mexico	1968-69	44 ^p	3.150	6,565	6.0 ^u
Peru	1968-69	41 ^{n, q}	2.830	5,803	5.2 ^o
HIGH FERTILITY		(35-41)	(2.200-3.100)	(5,050-6,050)	(3.3-4.0)
Philippines	1975	41 ^q	3.100	5,505	3.5, 3.7
Turkey	1975	39	2.840	6,034	2.6, 2.9
Malaysia (West)	1978	39	2.216 ^r	5,052 ^r	4.0, 3.8
Indonesia (Java)	1975	38	2.700	5,939	4.0, 3.9
Thailand	1976	36	3.100	5,864	3.3, 3.4
India	ca. 1976	35	2.800	5,761	^s
Costa Rica	1968-69	35 ^p	1.880	3,913	4.8 ^o

MODERATE FERTILITY		(20-29)	(1.350-1.950)	(3,100-4,550)	(2.5-3.1)
Republic of Korea	1976	29	1.940	4,516	2.5, 2.5
Chile (Santiago)	1973	28 ^t	1.800	3,584	5.9, 4.9 ^u
Taiwan	1976	23	^s	3,211	3.0, 2.9
Singapore	1976-77	20	1.357	3,100	3.1, 3.1
LOW FERTILITY		(10-19)	(0.750-1.250)	(2,000-2,950)	(2.1-3.3)
Japan	1972-73	19 ^v	1.040	2,069	2.9, 3.3
Australia (Sydney)	1977	18	1.214	2,950	2.9, 3.0
Netherlands	1975	14	0.931	2,584	2.4 ^w
United States	1975	13	0.924	2,385 ^x	2.6, 2.5
Belgium	1975-76	13	0.965	2,244	2.1 ^w
West Germany (Bavaria)	1976	10	0.750	2,013	2.2 ^w

a Source: 1976 World Population Data Sheet of the Population Reference Bureau, Inc.

b Source: United Nations, *Demographic Yearbook* 1975.

c Source: Palmore (1978:16-37). Rates are for most recent census year.

d Unless otherwise indicated, the first figure is for females, the second for males.

e Forty percent of the women surveyed in Kenya said a woman should produce as many children as possible. In addition, 59 percent thought number of children should be up to God, 18 percent would follow the dictates of others, and only 23 percent thought they should decide for themselves.

f Responses greater than 12 and responses coded as "Up to God" were scored as 12. If the latter responses were excluded, the means would drop a little over one child, to 6.7 and 6.9. Responses coded as "As many as one can support" were considered ambiguous and were excluded.

g Seventy percent of the Yoruba men regarded six children as too small a family.

h Responses greater than 12 and responses coded as "Up to God" were scored as 12. If the latter responses were excluded, the means would drop to 5.7 and 6.0.

i For 1960, closer to the date of the first survey, the U.N. *Demographic Yearbook* gives a similar crude birth rate, between 47 and 52.

j For households. Responses greater than 12 and responses coded as "What God wills" or "As many as possible" were scored as 12. (If the latter two types of responses were excluded, the mean would drop about half a child to 7.4). Without truncation of the distribution at 12, and counting the results of further probing of those who did not cite a specific number, Caldwell reported a much higher mean of 13.3.

TABLE 3 (*continued*)

- k For males. The author does not make clear whether this is from the same survey or from another survey of the Sisala he conducted.
- l Responses greater than 7 were scored as 7; responses coded as "Up to God" were scored as 12. If the latter responses were excluded, the means drop by about one child to 5.3 and 5.8.
- m From 74 to 77 percent of the Shiraz sample saw no advantages in a large family.
- n For 1966–70, from the U.N. *Demographic Yearbook*.
- o Only for the currently mated women in the sample.
- p Average for 1968 and 1969, from the U.N. *Demographic Yearbook*.
- q Whether Peru and the Philippines should be grouped together is difficult to decide. They were put in separate groups essentially because of the considerable difference in ideal family size.
- r Congruent with the sample, these rates are for West Malaysia.
- s No information available.
- t For 1972, closer to the survey date, the U.N. *Demographic Yearbook* gives a crude birth rate of 26.3.
- u For low-income and middle-income Santiago respondents respectively.
- v For 1972, the U.N. *Demographic Yearbook* rate was 19.4.
- w For women.
- x For white population.

of the indicators were consistent in assigning a country to a particular group. The main inconsistencies in the classification appeared in the very high fertility group, where the gross reproduction rates and the total fertility rates indicated the Latin American countries should be in a lower group, but the crude rates, which corresponded more closely to the dates of the survey, led me to assign these countries to this particular group. A similar inconsistency appeared for another Latin American country, Costa Rica, which was in the high fertility group by one measure but belonged in a lower group by other measures.

Most of the samples were not nationally representative, and one should therefore investigate the correspondence between these national rates and sample rates. Measures of actual fertility for each sample would be useful, but were not uniformly available. However, most surveys did report preferences in regard to ideal family size or provided data from which these could be calculated. The last column in Table 3 presents this information. It can be seen that ideal family size preferences for these samples differentiated the groups fairly well, except for the two lowest fertility groups. Mean preferences in the extremely high fertility group always exceeded six children, and, in some calculations, went as high as 13. Preferences were in the range 4.6 to 6.1 in the very high fertility group and in the range 3.3 to 4.0 in the high fertility group. The ranges for the moderate fertility group (2.5 to 3.1) and the low fertility group (2.1 to 3.3) overlapped.

What are important to note are the four cases where sample preferences were discrepant with group assignment based on population fertility rates. The first case was Iran. Ideal family size was not reported for this sample, but it was reported that three-fourths of the respondents saw no advantages to a large family. This finding appears inconsistent with having an ideal family size of around five. In each of three other samples in this group, no more than one-fourth of the respondents said a large family had no advantages (Simmons, 1974:132). The second case was Turkey, one of the countries in the VOC project, where fertility preferences were lower than expected. That Turkey was exceptional in some ways was previously noted (Bulatao, 1979: 92). The third and fourth cases were the Latin American countries Costa Rica and Chile, where ideal family size was considerably larger than was appropriate for its group. For Costa Rica, this was probably due to the sample's underrepresenting the urban population, where rapid fertility decline has taken place. For Chile, as for Iran, the sample was quite small and highly selected. Among these four cases, only the sample for Turkey was designed to be representative. Turkey was

kept in the analysis, but the other three cases were left out, although data for these cases are included in the appendix tables. The basis for the exclusions, it should be noted, was that these three samples appeared grossly unrepresentative. The exclusions were not related to whether or not the data supported the predictions. Many of the other smaller samples were not designed to be representative either, but at least their fertility preferences were roughly in the expected range.

What were left, then, were data for 14 countries, in addition to the nine countries in the VOC project. Four of the six Set A countries had low fertility and the other two had high fertility, whereas the eight Set B countries had either very high or extremely high fertility. These countries complemented the VOC countries well, allowing further investigation of values at low fertility levels and permitting comparisons not previously possible at the extremely high fertility end.

These comparisons were complicated by one factor, the relative cultural homogeneity of each group. The extremely high fertility group was mostly sub-Saharan African, the very high fertility group mainly Latin American, the high fertility group largely Southeast Asian, the moderate fertility group mainly East Asian, and the low fertility group essentially Western. Given present-day distributions of fertility rates, it is not possible to obtain proportional representation for each cultural area in each fertility group. There were, at least, exceptions from the cultural majority in each group, such as Bangladesh in the extremely high fertility group and Japan and Australia in the low fertility group. Little can be done methodologically about the confounding between culture and fertility level in this paper, but a few additional observations about this problem are contained in the discussion section below.

The reports on the individual surveys did contain considerable detail about the cultural and societal contexts in which the value of children is embedded. These reports were so variable in coverage, content, style, and authority, however, that it was difficult to draw conclusions from them. With one exception, the reports were not comparative and did not draw conclusions from differences in the value of children across countries. The exception was the article by Simmons (1974) on the four parallel Latin American surveys. Simmons focused on the pattern of ambivalence revealed by whether women cited both advantages and disadvantages to large and to small families. He concluded that ambivalence was common and should affect the interpretation of expressed fertility preferences. Simmons paid less attention to the specific advantages and disadvantages cited. The concern in the present

paper is explicitly with specific values and disvalues compared across fertility levels.

Measures

Each survey included a question on the advantages or disadvantages of having children. These questions took several forms. In the Set A surveys, the most common forms were the advantages and the disadvantages of having children, as opposed to not having children. (These were also the questions used in the VOC surveys.) One exception, in Set A, was the Indian study, in which respondents were asked why people in general want children. The variation in the questions used in Set B was greater (see Table A1 in Appendix A). In some surveys, the questions were positively phrased (“advantages of many children”), in others negatively phrased though essentially identical (“disadvantages of few children”). Questions varied in wording (e.g., “advantages” versus “good things” versus “value”) and in question format (e.g., straight questions versus sentence completions). Because only English translations of the questions could be compared—and some of these were not given in full—it was difficult to evaluate all the variations. Positively and negatively worded questions could in some cases be contrasted; they led to some but no major differences in responses in no readily interpretable pattern.⁴ These particular variations among questions, however, appeared to be less important than the numbers of children to which the questions referred.

Each question involved a comparison, implicit if not explicit, of two numbers of children: the first, to which advantages or disadvantages were to be ascribed; and the second, against which the first number was to be assessed. In the Set A surveys, respondents were asked to evaluate some children as opposed to no children. In the Set B surveys, they were usually asked to evaluate many as against few children (or few as against many), or some equivalent, such as large as against small families. What difference did the choice of contrasts make? Evidence was available from surveys in two countries, Nigeria and Thailand, in which both types of questions had been used. Appendix B evaluates the evidence, which indicates that the two types of questions are not radically different. Rather, they may be seen as lying on a continuum in reference to the type of contrast that is drawn, with contrasts of small numbers of children at one end (say, the contrast between no children and one child) and contrasts between large numbers of chil-

4 See Tables A6, A7, B2, and B3 in the appendices.

dren at the other end (for instance, between 10 and 12 children). The extremes aside, the same basic responses are obtained across the continuum, Appendix B goes on to argue. There is, however, some bias in favor of particular values and disvalues as one moves up or down the continuum. Relative to the some versus none contrast in Set A, the many versus few contrast in Set B appears to emphasize both economic benefits and costs and to deemphasize rewarding interactions values (companionship, happiness, the marital bond) and restrictions on parents, while having less effect on other values and disvalues. This bias, though not excessive, could not be quantified, and it will be necessary therefore to keep the direction of the bias in mind when looking at the data.

A variety of coding schemes was originally used for tabulating responses to these questions. For the surveys in Set A, the coding schemes were modifications or extensions of the codes used in the first phase of the VOC project and were generally detailed. The categories used in each survey were reordered according to the V-code (for values) and the D-code (for disvalues), the extensive codes used in the second phase of the VOC project (Angeles, 1978), and collapsed into the general classes of values and disvalues shown in the Exhibit. The coding schemes used for the surveys in Set B were less detailed, usually consisting of fewer than ten categories, and somewhat variable, with various types of responses grouped that might otherwise be usefully distinguished. With Set B the same procedure was followed of translating coding categories into V-code and D-code categories and grouping these under the headings in the Exhibit. How categories were regrouped is illustrated in Table 4 for the four parallel Latin American surveys. Roughly 25 coding categories were originally used in these surveys, including such categories as the health of the mother, care of children, family income, religious reasons, and the well-being of society. One unusual feature of these categories was that they were used for both advantages and disadvantages, so that a particular code could have the opposite meaning when used for different questions. As Table 4 indicates, it was possible to fit the original coding categories under the master headings, though some ambiguities remained. For instance, the category "family harmony" was interpreted to mean harmony in the entire family, including children and possibly other relatives, and not just with the spouse, though it could have included some responses that should be coded under enhancing the marital bond. Code conversion was generally a fairly straightforward process, though there were a few other cases like this (pointed out in the footnotes to the appendix tables) where ambiguities remained.

EXHIBIT Advantages and disadvantages of having children, derived from content analysis of responses to open-ended questions

ADVANTAGES	DISADVANTAGES
Instrumental assistance	Financial costs
Help in housework	Cost of education
Help in old age	Other financial costs
Financial, practical help	Childrearing demands
Family name, line	More work
Religious, social obligations	Emotional strain
Adult status, social norms	Health, pregnancy
Rewarding interactions	Discipline
Companionship, love	Child's sickness
Happiness	Worry over child's future
Play, fun, distraction	Other childrearing problems
Marital bond	Restrictions on parents
Psychological appreciation	Tied down
Living through children	Can't work
Achievement, power	Costs to social relationships
Character, responsibility	Marital strains
Incentive to succeed	Overpopulation
Fulfillment	Other
Other	

In the surveys in Set A, multiple responses to each question were coded and tabulated. The previous tabulations from the surveys in the VOC project also reported multiple responses, because it was felt that reporting all a respondent's answers would be more reflective of her thinking than only reporting one answer. The comparisons within Set A, therefore, utilized multiple-response percentages, i.e., percentages of those mentioning a specific value, regardless of whether this was the first, second, third, or later answer.⁵

⁵ There was one methodological problem. Regrouping categories during code conversion required combining some percentages, but multiple-response percentages for two different categories could not be simply added together, for respondents who gave answers in both categories would be erroneously counted twice. This problem was more severe for larger percentages, where the chances of overlap were greater. The solution was to reduce the percentages to single-response percentages, add them together as desired, and inflate them again to return to multiple-response percentages. The procedures for doing this are explained and justified in Appendix C. Where the raw data were available, as for Japan, these procedures were not needed. In the special case of Malaysia, for which only first-response percentages were available although two responses were obtained, the percentages were inflated to allow for 2.0 responses per subject for advantages and 1.6 responses for disadvantages, comparable to the response rate in other countries.

TABLE 4 Reordering of codes used in surveys in Colombia, Mexico, Peru, and Costa Rica for advantages and disadvantages of children

New categories	Old categories
ADVANTAGES OF CHILDREN	
Household, practical help	Children help their parents Socialization of children Care of children
Financial help	Family income Family welfare Economic motives
Family name, prestige	Family prestige Family in general
Religious, social obligations	Religious reasons Duty, traditional reasons Moral reasons Cultural reasons Society's well-being
Companionship, love	Pleasure of having children Family harmony
Other	All other categories
DISADVANTAGES OF CHILDREN	
Cost of education	Education of children Education in general
Other financial costs	Family income Family welfare Savings, inheritance Economic motives
Health, pregnancy	Health of mother Health of father Health in general
Sickness of children	Health of children
Other childrearing problems	Socialization of children Care of children
Tied down	Mother's free time
Can't work	Mother's job Mother's profession
Marital strains	Family harmony
Other	All other categories

The majority of the surveys in Set B, on the other hand, reported only a single response to each question, and the percentages were therefore lower than the percentages that would have been obtained if multiple responses had been coded and tabulated. Although single-response percentages could be compared among themselves, direct comparisons with multiple-response data were not possible. To permit such comparisons, a procedure was developed for inferring single-response from multiple-response percentages. This procedure involved taking folded logs or logits of the percentages and reducing each number by some constant so that the corresponding percentages totaled 100. The procedure, described in Appendix C, yielded rough though sufficiently accurate estimates. I converted all the multiple-response percentages from Set A surveys, therefore, by this procedure to single-response percentages before comparing them with Set B data.⁶

Given these various qualifications regarding the measures of value and disvalue salience as well as the limitations of some of the samples, one might question the worth of examining these data at all. The Set A data, it should be noted, required fewer reservations and were generally closely comparable to the VOC data. The Set B data admittedly suffered from various deficiencies. The recoding and adjustments discussed did allow some comparisons, however. These comparisons cannot provide definitive proof of the transition in the value of children, but they can at least indicate whether it may be worth attempting to collect new data. If despite the qualifications these comparisons still confirm the previous findings about the transition in the value of children, this confirmation should suggest that these findings are "robust," insensitive to variations in the research approaches, methods, and perspectives that guide data collection. If the previous findings are not confirmed, however, methodological differences cannot be ruled out as an explanation.

RESULTS

Comparisons among the values and disvalues attached to children in different countries will now be made. Although all the comparisons

6 There was another difference between the two sets. In Set A, such responses as "There are no advantages" were included in the tabulations under the "other" category. In Set B these responses as well as the "don't know" response were left out (so that the remaining categories totaled 100 percent). There was much greater variance in the frequency of these responses in Set B, partly because of the variation in the forms of the questions used. In comparing Sets A and B, the "other" category was left out for Set A.

will be cross-sectional, changes in values over time are being inferred from them, and I will sometimes describe them as if they were longitudinal.

Vanishing economic roles for children

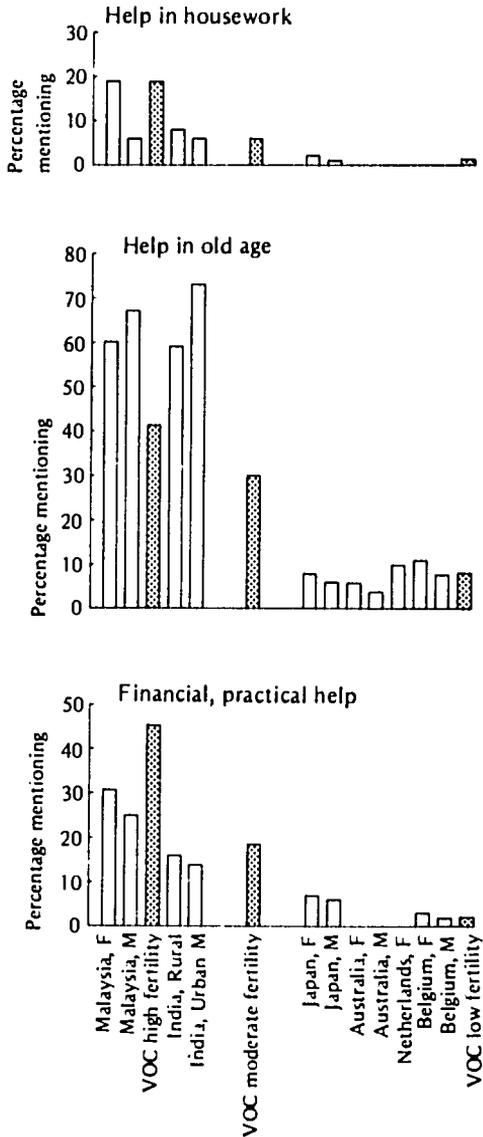
If a reduction in the economic roles that children play is an essential part of the fertility transition, it should be reflected in less mention of economic values attached to children at lower fertility levels. Figures 1 and 2 present the data on this point. (Specific percentages are given in Appendix A.)

Figure 1 indicates through bar graphs the salience of each of the three economic value categories—help in housework, help in old age, and financial and practical help. Separate bars represent the women and the men in each Set A country (Malaysia, India, Japan, Australia, the Netherlands, and Belgium). Included in the figure are shaded bars indicating the mean salience of each value in each of the three groups of countries (high fertility, moderate fertility, and low fertility) in the VOC project. The shaded bars show what the previous finding using only the VOC countries was: that each economic value declined at lower fertility levels. The Set A data reinforced this finding. In Malaysia and India, which were grouped with the high fertility countries, the value of help in old age was extremely salient, more salient than in any other country. The other two economic values were generally less salient in Malaysia and India than in the VOC high fertility countries, though still clearly more salient than in the Set A low fertility countries. In these low fertility countries, the salience of help in housework fell in the range of rates for West Germany and the United States (i.e., between 0 and 3 percent). The salience of help in old age was also correspondingly low, nowhere exceeding 11 percent. And the range in these countries for financial and practical help was 0 to 7 percent, whereas the minimum in the VOC countries outside the low fertility group was 11 percent.

Earlier I summarized the relation between value salience and fertility across the VOC countries by using correlations between salience and 1976 crude birth rates (Bulatao, 1979:90–91). For the present study I recalculated correlations with the addition of the Set A countries, to see what difference they made.⁷ (Table 5 reports coefficients

⁷ Because these coefficients were previously calculated for females and males separately, it was necessary to make some decision regarding the Indian respondents, who were not divided into female and male but into urban and rural. The urban sample, being all male, was included among the other male samples. The rural sample was then arbitrarily included among the female samples, even though it was both female and male.

FIGURE 1 Salience of economic values for Set A countries by sex and for groups of VOC countries



NOTE: Percentages for all the bar graphs were derived from Tables A2 and A3 in Appendix A and from Bulatao (1979). Multiple responses were assumed.

TABLE 5 Association of values with fertility rates across countries
(Correlation coefficients)

Values	Value of Children project countries and Set A countries combined				All countries	
	Correlation with crude birth rate		Change in correlation from adding Set A countries		Correlation with crude birth rate	Correlation with ideal family size
	Female	Male	Female	Male		
Instrumental assistance						
Help in housework	.77	.69	+04	-.01	.72	.49
Help in old age	.83	.77	+08	+07		
Financial, practical help	.85	.80	-.02	-.04		
Family name, line	.39	.35	+32	+39	.62	.79
Religious, social obligations	.46	.49	-.10	+09		
Adult status, social norms	-.37	-.07	+23	+22	.22	.29
Rewarding interactions						
Companionship, love	-.77	-.85	+04	+05	-.76	-.72
Happiness	-.18	-.13	+01	-.07		
Play, fun, distraction	-.19	-.51	+04	+02		
Marital bond	-.83	-.88	-.01	-.04	-.89	-.72
Psychological appreciation						
Living through children	-.43	-.58	-.06	-.21	-.84	-.66
Achievement, power	-.61	-.56	-.16	-.07		
Character, responsibility	-.62	-.67	+07	-.31		
Incentive to succeed	-.28	-.47	-.52	-.47		
Fulfillment	-.85	-.71	-.03	-.03		

NOTE: The value indices correlated with fertility rates are the percentages of respondents mentioning each value.

for all the values, Table 6 for all the disvalues.) I have already noted that these coefficients should be treated with caution, because, for values of low salience, relatively slight differences in percentages can produce large coefficients. This qualification does not apply to the economic values, which were relatively high in salience across countries. As Table 5 indicates, adding the Set A countries produced very little change in the coefficients for the three economic values, which remained at or above 0.69. The additional data were therefore quite consistent with the previous pattern.

In Figure 2 percentages for all three economic values are added together and data are reported for Set B, Set A, and the VOC countries combined, with the subgroups for each survey (usually female and male) treated as separate cases. Figure 2 is a box-and-whisker plot (Tukey, 1977:39–41). The distribution of value salience in each group of countries, from the extremely high fertility group to the low fertility group, is represented by a box that encloses the middle 50 percent of the distribution. The line through the box is the median of the distribution. The whiskers protruding from each end of the box extend as far as the maximum and minimum values of the distribution. For extremely high fertility countries, for instance, the box stretches from 28 to 54 percent, within which the middle half of cases in this group fall. The median is 37.5. And the whiskers extend from 15, the lowest percentage in the group, to 64, the highest percentage. As earlier noted, these data are single-response percentages, lower than the multiple-response percentages shown in Figure 1.

What Figure 2 adds to Figure 1 are the Set B data, for extremely high fertility countries (Kenya, Nigeria, Ghana, Bangladesh) and for very high fertility countries (Sierra Leone, Colombia, Mexico, Peru). It is to these two groups, therefore, that attention should be directed. The very high fertility countries reinforced the pattern of declining economic values. Salience was at 69 to 83 percent in these countries, well above salience in any other group. Economic values did not reach this level of salience in the extremely high fertility group, though they still were more salient than in moderate and low fertility countries. The data indicated a broad decline in the salience of economic values from higher to lower fertility levels. Also suggested was a possible early rise in economic values between extremely high and very high fertility levels. Given the very wide range for salience in the extremely high fertility countries, this early rise may be questionable. Differences in question type should be kept in mind in interpreting this diagram, for they appear to affect economic values (see Appendix B). An adjust-

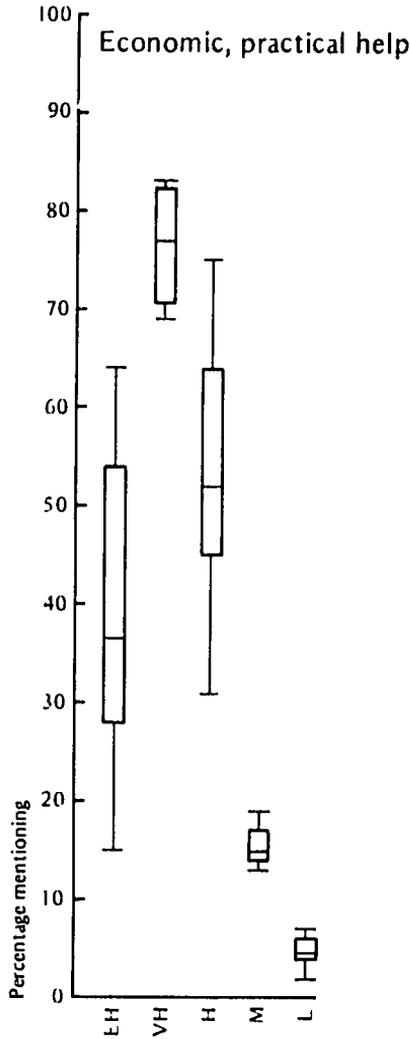
TABLE 6 Association of disvalues with fertility rates across countries
(Correlation coefficients)

Disvalues	Value of Children project countries and Set A countries combined				All countries	
	Correlation with crude birth rate		Change in correlation from adding Set A countries		Correlation with crude birth rate	Correlation with ideal family size
	Female	Male	Female	Male		
Financial costs						
Cost of education	.86	.88	+07	+08	.62	.57
Other financial costs	.36	.19	+20	+35		
Childrearing demands						
More work	.06	-.06	+03	-.01	-.44	-.20
Emotional strain	-.40	-.48	+06	+11		
Health, pregnancy	.63	.58	+02	+16	.23 ^a	.02 ^a
Discipline	.57	.57	+06	+20		
Child's sickness	.40	.28	-.15	-.21		
Worry over child's future	.25	.13	+07	+14		
Other childrearing problems	.13	.33	-.10	-.18		
Restrictions on parents						
Tied down	-.87	-.83	+01	-.07	-.85	-.62
Can't work	-.58	-.18	+13	-.52		
Costs to social relationships						
Marital strains	-.39	-.49	+11	-.05	-.53	-.46
Overpopulation	-.17	-.31	+32	+29	-.28	-.23

NOTE: The disvalue indices correlated with fertility rates are the percentages of respondents mentioning each disvalue.

a Includes all disvalues under "childrearing demands" except emotional strain.

FIGURE 2 Salience of economic, practical help at different fertility levels: all countries, single-response percentages



NOTE: In these box-and-whisker plots, the long box encloses the middle 50 percent of the distribution, the line through the box represents the median, and the broken lines or whiskers extend as far as the maximum and minimum values. Percentages for all the box-and-whisker plots were derived from Table A8 in Appendix A and were based on a single answer per respondent.

ment of as much as 10 percent downward in salience for each of the extremely high and very high fertility countries would not, however, greatly affect the interpretations.

I computed correlations between the salience of these grouped values in each sample and crude birth rate, as well as mean ideal family size, treating females and males as separate cases. (Tables 5 and 6 also contain these coefficients.) The correlation of economic values with crude birth rate was substantial and comparable to the previous correlations, at 0.72. The correlation with ideal family size was smaller, as was true for many of the other values, and only moderate.

The data considered here support the idea that vanishing economic roles for children is a factor in the fertility transition. They suggest the possibility, however, that some slight increase in the salience of these values may take place very early in the transition before the substantial declines later on. Because the evidence for this slight increase is not firm, it may be inappropriate to speculate about reasons.

Rising aspirations

In the previous paper I argued that, as modernization proceeds, the rise in the aspirations people have for their lives should be reflected in a variety of values and disvalues attached to children. Disvalues relating to the restrictions children impose on parents should rise in salience as parents' new aspirations for themselves compete with child-bearing. Values involving psychological appreciation of children (for self-fulfillment, to satisfy achievement needs, for vicarious satisfactions, etc.) should become more salient, reflecting these new aspirations. Concern about financial costs as well as childrearing demands (more work, problems with disciplining children, worry about their future, etc.) should increase as parents aspire to give their children more or to make them more successful. These values and disvalues are diverse. But changes in each of them can be seen as resulting from the same psychological factor, the broadening range of wants, needs, and expectations that people hold for themselves and for their families. The link between rising aspirations for oneself and rising aspirations for one's children has been previously noted. For instance, Cassen (1976:790) saw both resulting from more education: parents "may acquire social or economic aspirations with which children would interfere; they may acquire aspirations for their children . . . which cannot be satisfied for more than a limited number of offspring." Changes in the salience of restrictions on parents and psychological appreciation values were confirmed with the VOC data, but the effects

on financial costs and childrearing demands were not. Each of these value and disvalue changes will now be considered.

Restrictions on Parents

New desires generated by modernization should compete with traditional childrearing activities, making restrictions on parents more salient. I have divided these restrictions into two types, work restrictions and all other restrictions (or being tied down generally). As the shaded bars in Figure 3 indicate, I found for the VOC countries that being tied down (the considerably more common category) rose dramatically in salience, but work restrictions hardly changed. The Set A countries confirmed this pattern. India is not considered here because no information on disvalues was available. In Malaysia, the salience of being tied down was only 9 to 13 percent. In Japan, Australia, the Netherlands, and Belgium, the salience of this disvalue ranged from 37 to 55 percent, well above that in Malaysia and also above the maximum of 30 percent among VOC countries outside the low fertility group. In each of these four low fertility countries, being tied down was the single most salient disvalue. The salience of work restrictions, on the other hand, again showed no trend.

The correlations for these two disvalues confirmed the pattern (see Table 6). Being tied down was strongly correlated with crude birth rate, at about -0.85 , and the addition of the Set A countries hardly changed the coefficients. The correlations for work restrictions, on the other hand, changed erratically: the formerly high negative correlation for women became less negative, and the formerly small positive correlation for men became slightly negative.

The Set B countries are added to the VOC and Set A countries in the first panel of Figure 4, where work restrictions and other restrictions are combined. Again the pattern was unmistakable: a sharp rise in the salience of restrictions, especially at lower fertility levels. The data for extremely high and very high fertility countries fit perfectly into the pattern. The pattern would not be disturbed even if some upward adjustment based on question format was applied to most Set B countries.

Psychological Appreciation

From childrearing, as from other activities, people seek new satisfactions as a result of modernization. The psychological appreciation values reflect these new satisfactions. A slight upward trend in these values was previously found with the VOC countries at lower fertility.

FIGURE 3 Salience of restrictions on parents for Set A countries by sex and for groups of VOC countries

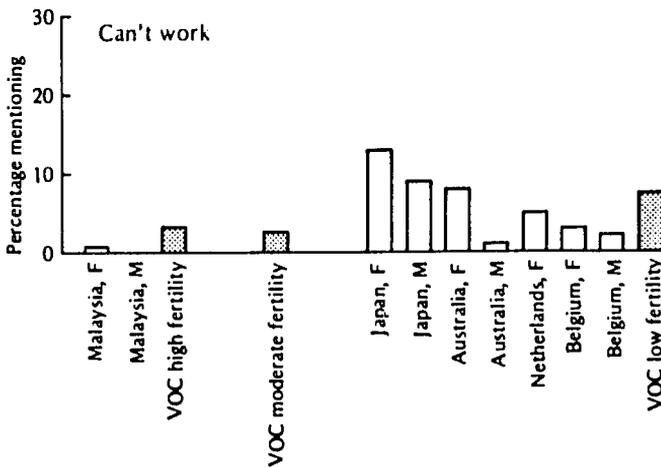
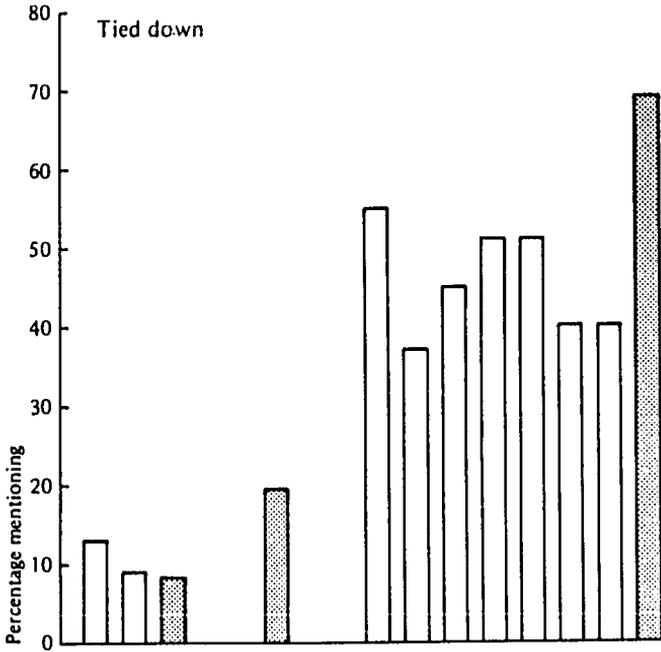
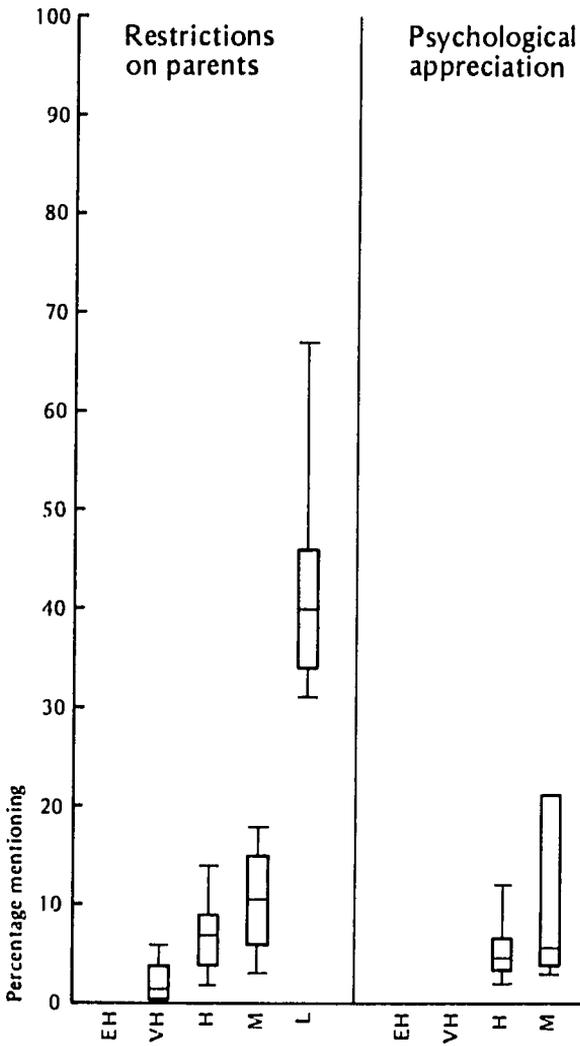


FIGURE 4 Salience of restrictions on parents and psychological appreciation at different fertility levels: all countries, single-response percentages



The shaded bars in Figure 5 show that this trend was clearest for self-fulfillment through having children and for satisfying achievement and power needs through children, and less clear for the other three psychological appreciation values. The Set A data were generally confirmatory. In the VOC countries outside the low fertility group, the maximum salience for fulfillment was 8 percent. In the Set A high fertility countries, salience stayed below this maximum (with the exception of the Indian urban sample, at 15 percent). In the Set A low fertility countries, the minimum salience for fulfillment was 10 percent and the maximum was 34 percent. For the value of achievement and power, similarly, the Set A high fertility countries showed low salience and the Set A low fertility countries showed high salience. For the other three values, the Set A data seemed to indicate a slightly stronger upward trend than previously obtained. Correlations with crude birth rate (Table 5) confirmed that the trend across countries in fulfillment was the strongest and was little changed by the Set A data, that the trend in achievement and power was moderately strong and was also little changed, and that the other values showed a stronger trend, particularly for men, with the additional data.

In adding Set B data, I collapsed all five value categories into one (Figure 4, second panel). None of these values, however, was even mentioned in any of the extremely high and very high fertility countries, so that the data performance were confirmatory.

Financial Costs

Aspirations for one's children should rise together with aspirations for oneself, and should be reflected in greater concern about the financial costs of childrearing. The finding for the VOC countries, however, was that these costs did not rise in salience at lower fertility levels. The salience of educational costs, in fact, appeared to fall, whereas other financial costs—much more salient in the aggregate than educational costs—were essentially stable in salience (shaded bars in Figure 6). This finding was reinforced, for the VOC countries, with a separate question on the perceived financial burden of particular numbers of children. The Set A data were consistent with this finding. The salience of educational costs was as high as 11 percent in Malaysia but was zero for most Set A low fertility countries. Other costs, on the other hand, were variable in salience with no real trend. The strong positive correlations for the cost of education with crude birth rate were increased marginally by the Set A data; for other perceived financial costs the correlations became more positive but remained small (Table 6).

FIGURE 5 Salience of psychological appreciation values for Set A countries by sex and for groups of VOC countries

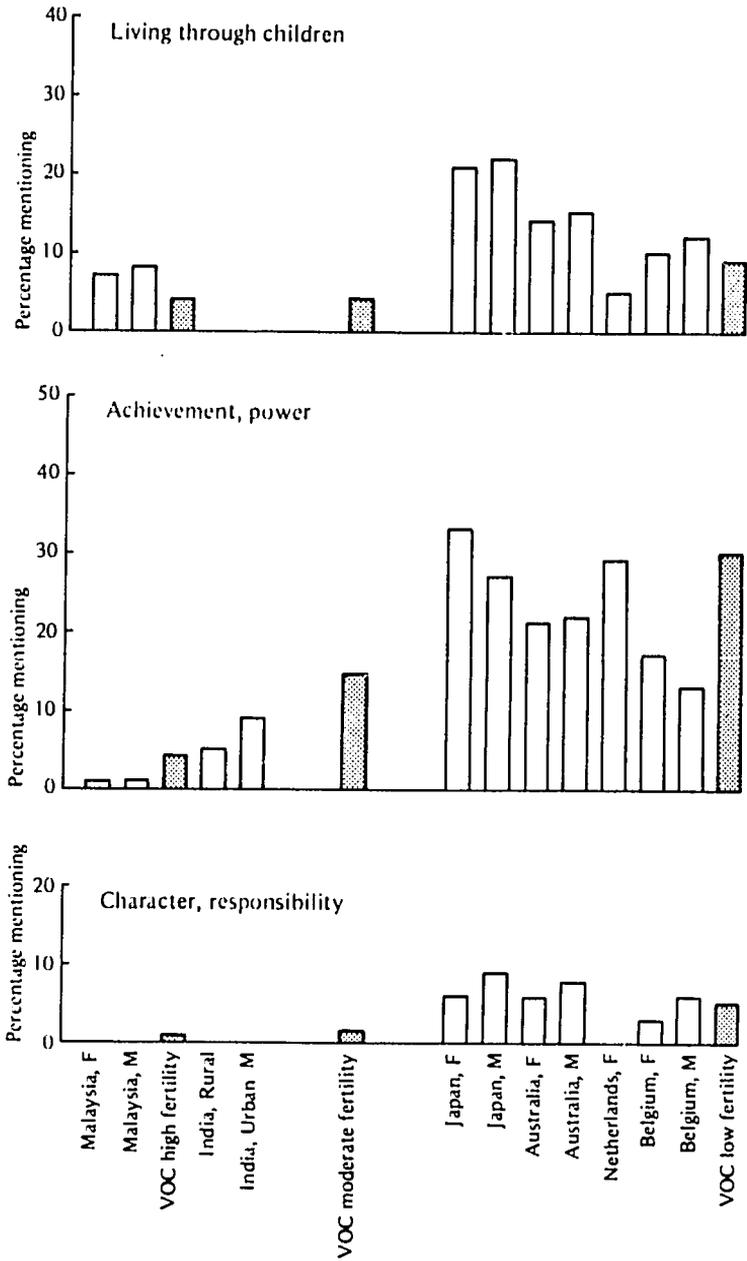


FIGURE 5 (continued)

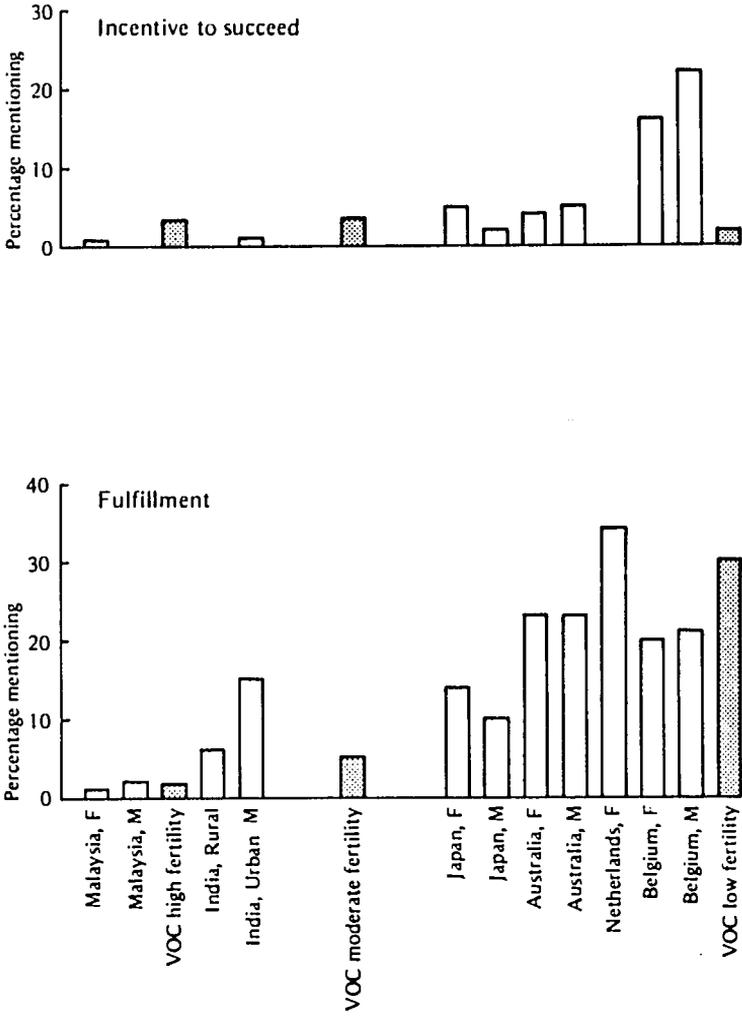
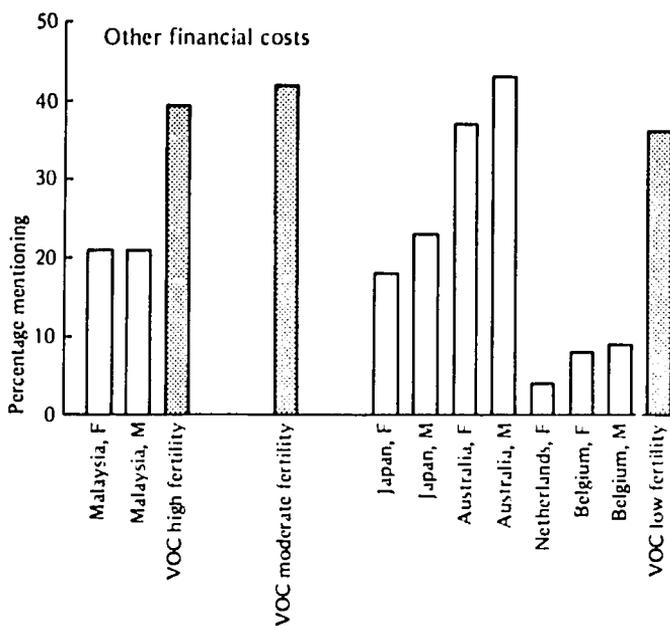
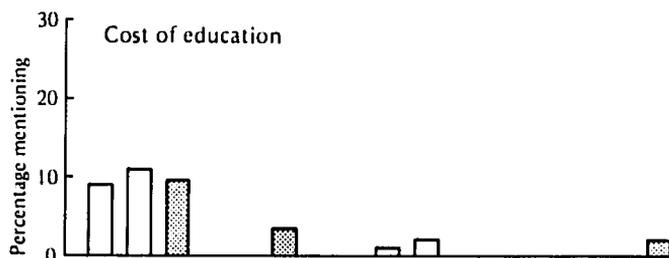


FIGURE 6 Salience of financial costs for Set A countries by sex and for groups of VOC countries



In the Set B countries, costs appeared very salient (Figure 7, first panel). In the extremely high fertility countries, salience was between 51 and 96 percent (of single responses) in every country except one. In the very high fertility countries, the salience of costs ranged from 57 to 81 percent. In the other three groups combined, the salience of costs ranged from 4 to 59 percent. As should be expected from Figure 7, a moderately strong correlation of 0.65 with crude birth rate was obtained for all countries combined. There was more of an indication with Set A and Set B data than with VOC data alone that the salience of general financial costs, and not just educational costs, actually declines rather than rising as fertility falls. However, the Set B data may have overemphasized these costs because of the form of question. In addition, other measures of perceived costs could not be investigated. The basic conclusion, however, required no qualifications: parents may indeed spend more money on their children as they have fewer of them, but the economic burden does not increase in salience among the disadvantages of having them.

Childrearing Demands

As with financial costs, childrearing demands should rise in salience as parents' investment in children rises to meet new aspirational levels. However, the previous finding with VOC data was that childrearing demands generally did not rise at lower fertility levels. The shaded bars in Figure 8 show that concerns about discipline and children's sickness were indeed found to decline slightly, emotional strain due to children to increase at moderate fertility levels, and the other disvalues to remain largely unchanged. The Set A data did support some decline for discipline but not for child's sickness, which was lower in salience in Malaysia than in the low fertility countries. For emotional strain, salience in the low fertility Set A countries was roughly in the range of salience in the United States and West Germany, i.e., above salience in high fertility countries but below salience in moderate fertility countries. In each of the low fertility Set A countries emotional strain was also the most salient of all the childrearing demands. The correlation coefficients in Table 6 confirm the somewhat muddled picture and indicate that the Set A data did not greatly change any of the coefficients, except for children's sickness (for which the Set A data weakened the previously observed trend).

In adding Set B data, I separated emotional strain from the other childrearing demands, which were all added together (Figure 7, second and third panels). The variability in the extremely high fertility coun-

FIGURE 7 Salience of financial costs and childrearing demands at different fertility levels: all countries, single-response percentages

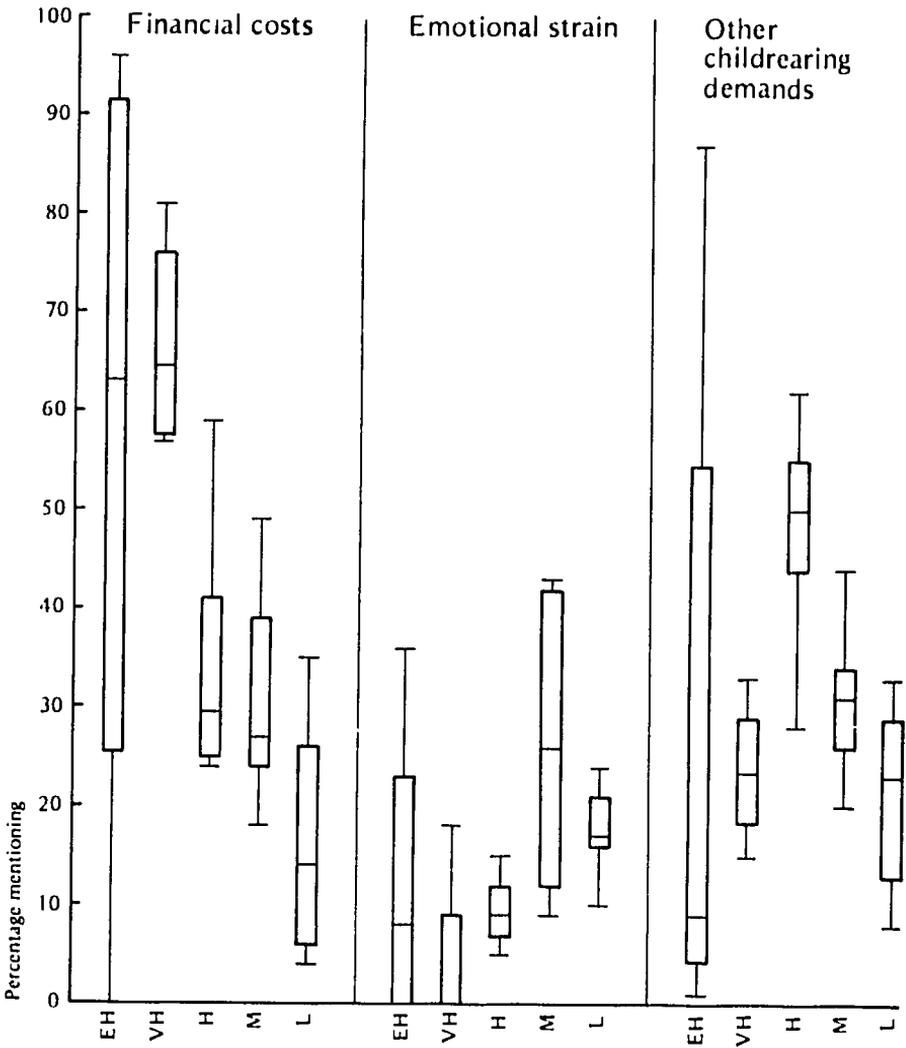


FIGURE 8 Salience of childrearing demands for Set A countries by sex and for groups of VOC countries

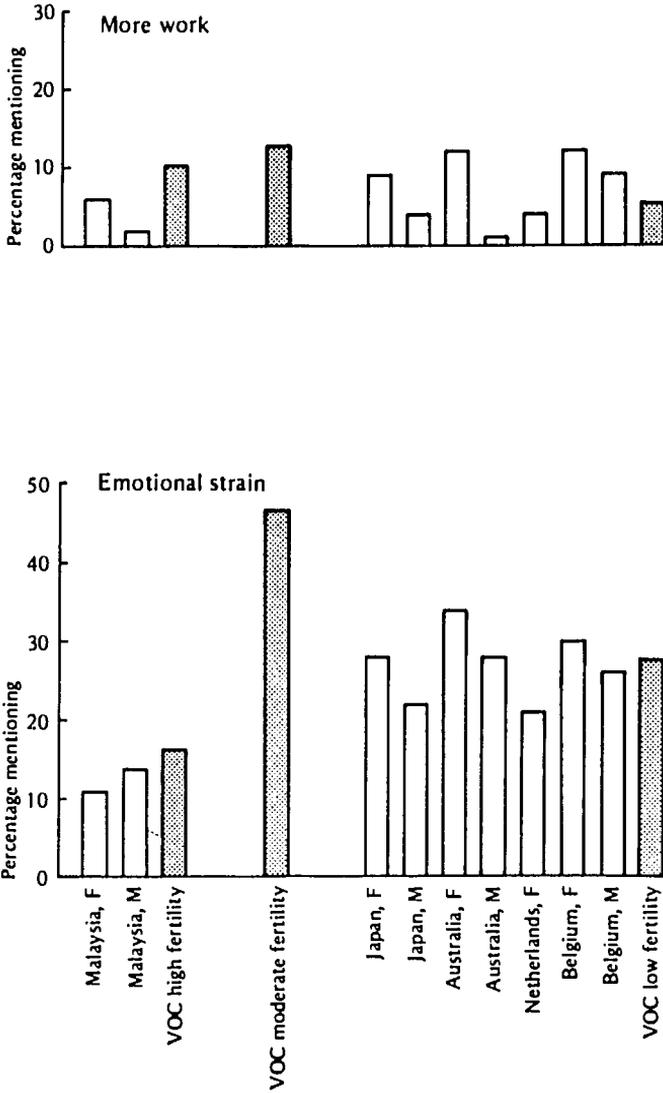


FIGURE 8 (continued)

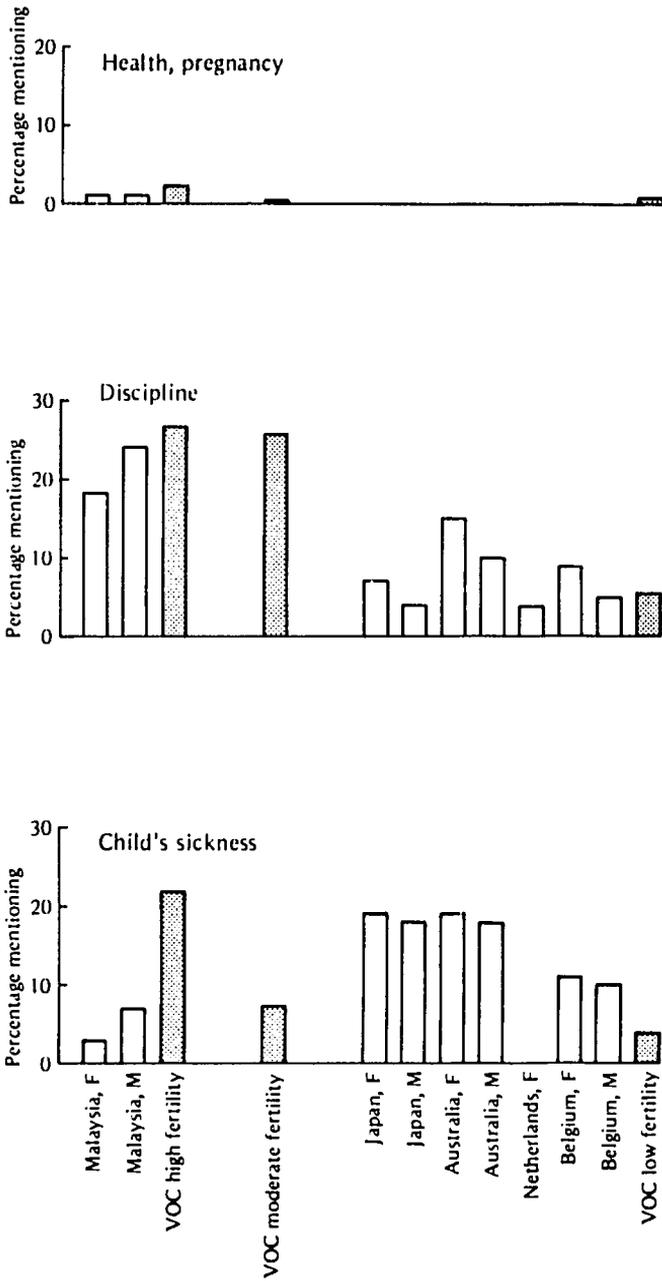
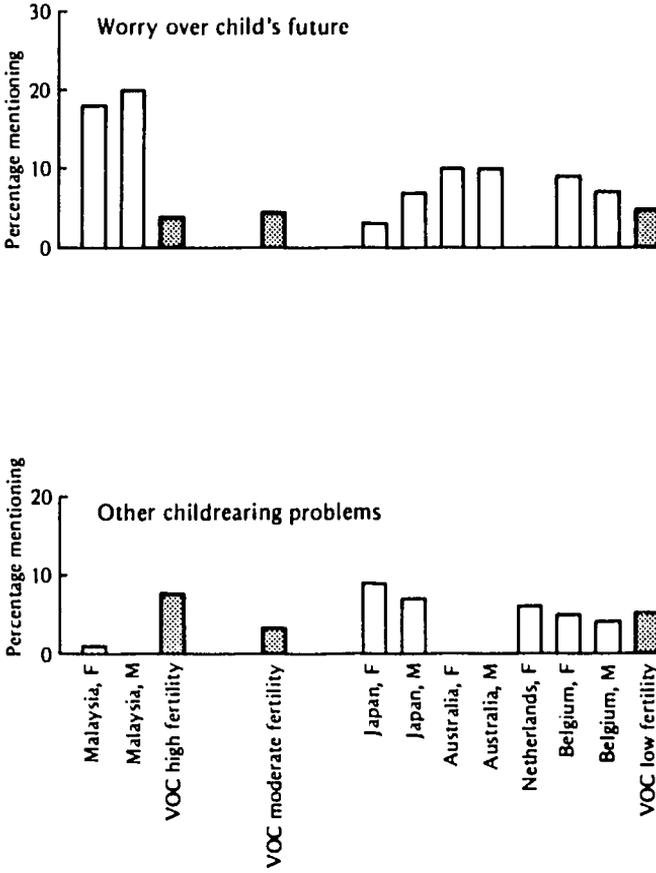


FIGURE 8 (continued)



tries was considerable and did not help to support any trend. In the very high fertility countries variability was less and childrearing demands were not highly salient. The resulting correlations for all countries were negative but only moderate for emotional strain and slightly positive for other childrearing demands.

For the different sets of values and disvalues that should have increased in salience because of rising aspirations, the additional data considered here confirmed the previous findings for the VOC countries: two sets rose in salience and two did not. Restrictions on parents and psychological appreciation values rose, financial costs and childrearing demands did not. Costs, in fact, appeared to decline. The previous interpretation for the contradictory findings was that rising aspirations were basically of two types—aspirations for oneself and aspirations for one's children. Values and disvalues attached to children confirm a rise in the former as a factor in fertility decline. If there is a rise in the latter, it is not disproportionate to rising income levels and does not imply any greater childrearing burden.

Emergence of the conjugal family

As with the rising aspirations factor, the shift from the extended household to the conjugal family as modernization progresses was hypothesized to affect several sets of values and disvalues. It was predicted that, as the conjugal family assumed full responsibility for childrearing, financial costs and childrearing demands would rise in salience. Unable to distribute costs among a wide circle of relatives, the conjugal family should experience the demands on its wealth as well as on its efforts and energy as heavier burdens. Elsewhere I have shown (Bulatao, 1979:52–67) that the VOC data contradicted these predictions. The data just considered also showed that costs and childrearing demands do not become more salient with lower fertility. Other predictions can be made, however. In contrast to the extended family, the conjugal family, turned in upon itself, should be more concerned about the quality of intimate interpersonal relations between the spouses, between parent and child, and among the children. It was predicted, therefore, that rewarding interactions within the family as well as marital strains, as values and disvalues attached to children, would become more salient as families grew increasingly conjugal.

Rewarding Interactions

Four values that children bring to parents are included here: companionship and love; happiness; play, fun, and distraction; and enhancement of the marital bond. The shaded bars in Figure 9 indicate the

FIGURE 9 Salience of rewarding interaction values and marital strains for Set A countries by sex and for groups of VOC countries

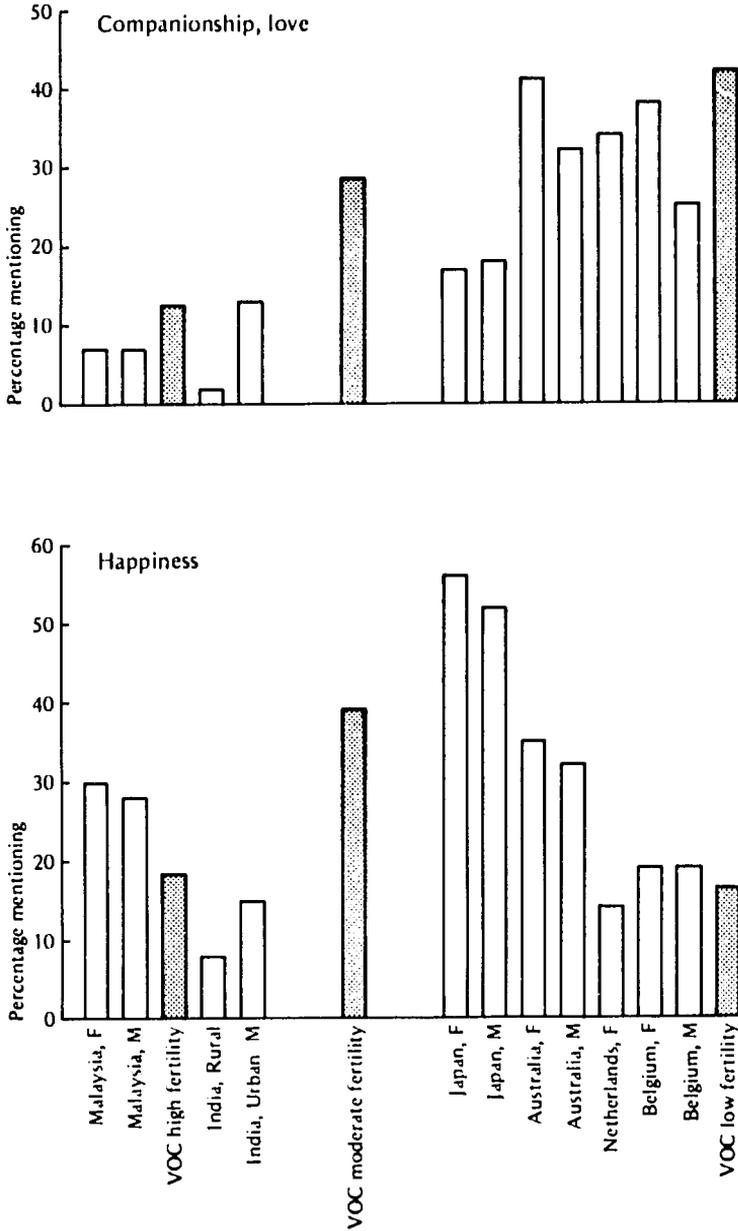
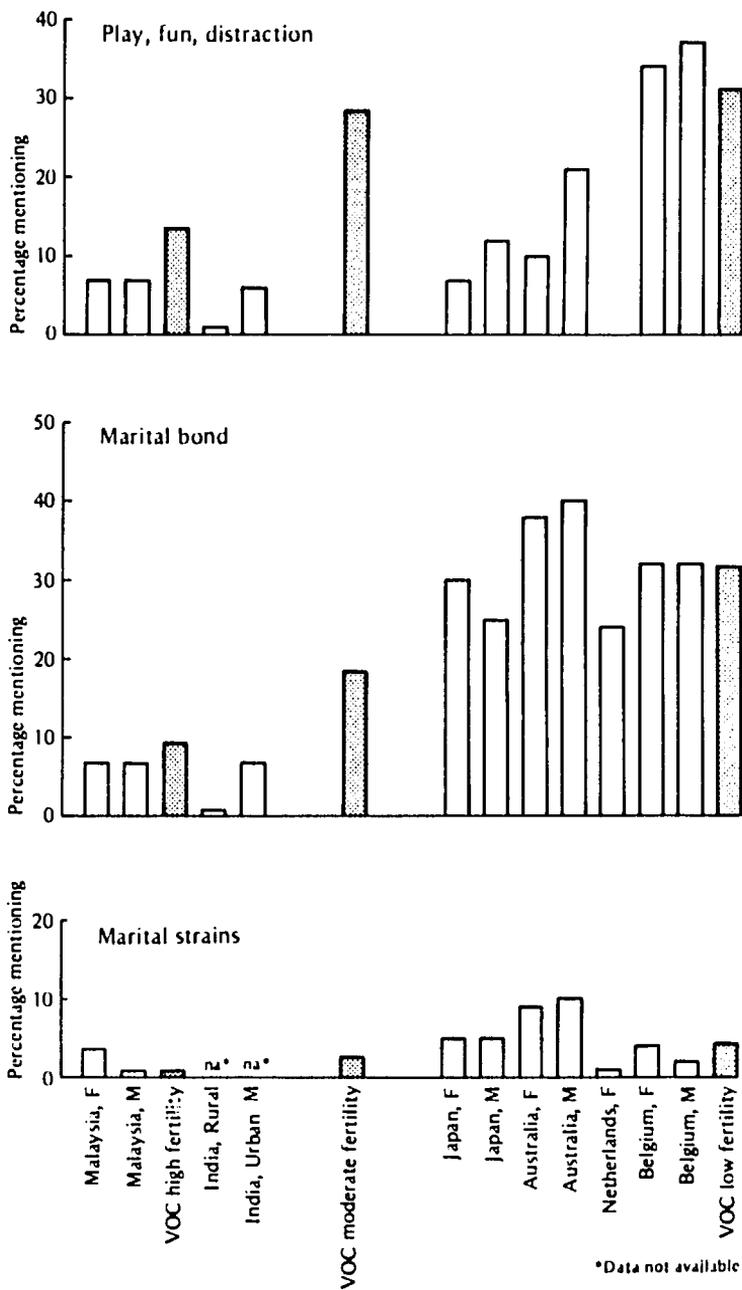


FIGURE 9 (continued)



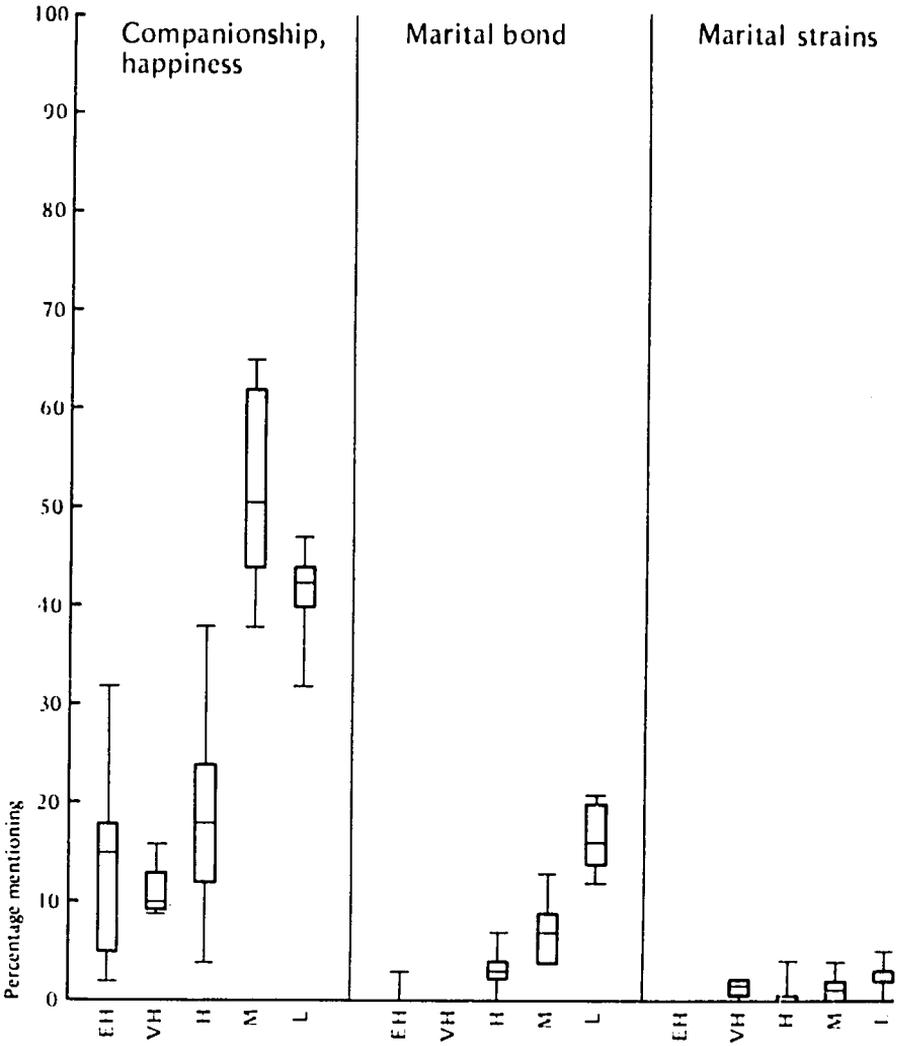
trends across the VOC countries: upward for companionship and love and for the marital bond; marginally upward for play, fun, and distraction; and unclear for happiness. The Set A data provided support for the trend in companionship and love. This value was low in salience in Malaysia and India, as expected, and higher in salience in Australia, the Netherlands, and Belgium. But its salience in Japan was not quite as high as expected. Support was clearer for the trend in the marital bond. For Malaysia and India, salience was low at 1 to 7 percent. The Set A low fertility countries, on the other hand, had the same mean (32 percent) as the VOC low fertility countries, and salience never fell below 24 percent. Support was lacking for the trend in play, fun, and distraction, which was not coded for the Netherlands and was low in salience in Japan. As with the VOC data, problems in distinguishing this value and the value of happiness may be responsible for these results. One may note, nevertheless, that for happiness and play combined the percentages for Malaysia and India were generally below the percentages for the other Set A countries. The correlations (Table 5) substantiate the findings that companionship and the marital bond were the two rewarding interactions values that clearly increased in salience. In both cases, the correlations stayed essentially the same as they were for the VOC countries at around -0.80 .

In the first panel of Figure 10, companionship and love; happiness; and play, fun, and distraction are all combined. The Set B data for extremely high and very high fertility countries supported an upward trend in these combined values, which were lower in salience in these two groups of countries. An upward adjustment due to question format could conceivably have brought these groups to the level of the high fertility countries, though probably no higher. The second panel of Figure 10 shows the salience of the marital bond. Again this value was low in salience in the Set B countries: it was mentioned in only one extremely high fertility country (by 3 percent of the female Akamba) and not mentioned at all in the very high fertility countries. As a result, the correlations across all countries with crude birth rate (Table 5) were substantial, and the correlations with ideal family size were only slightly lower.

Marital Strains

If, in the conjugal family, children are more often evaluated for their impact on personal relationships than they are in the extended or joint family, some of these evaluations will probably be negative.

FIGURE 10 Salience of rewarding interactions values and marital strains at different fertility levels: all countries, single-response percentages



Some people will perceive children as contributing to marital strains rather than reinforcing the marital bond. The disvalue of marital strains was therefore also predicted to rise in salience. It was not, overall, a prominent disvalue. In the VOC countries, its salience never exceeded 7 percent. A slight upward trend was nevertheless observed (Figure 9, last panel). The data for the Set A countries were not inconsistent. The correlations with crude birth rate (Table 6) were slight to moderate. With the Set B countries (Figure 10, third panel), a slight upward trend also appeared. Possibly because of its low salience, however, the patterns for marital strains were not as strongly supportive of the conjugal family factor as the patterns for rewarding interactions values.

Weakening cultural props for high fertility

Cultural props for high fertility are reflected in the links in people's minds between having children and carrying on the family name or enhancing family prestige, fulfilling religious and social obligations, attaining adult status, confirming one's femininity or masculinity, and complying with social expectations. These values attached to children, collectively labelled social benefits, are conferred by society and should be distinguished from the primary-group benefits that come from children providing or reinforcing rewarding interactions within the family. If weakening cultural props contribute to declining fertility, these values should decline in salience as fertility falls. We also reasoned that, if cultural props are indeed effective, the increasing emphasis in some societies on the burdens of overpopulation should be reflected among the disvalues of children. This would be true if the emphasis on overpopulation was not merely a government emphasis but had gained popular acceptance.

Social Benefits

Contrary to prediction, no evidence for a decline in the salience of the family name and family line or religious and social obligations was found with the VOC data. As the shaded bars in Figure 11 indicate, the third social benefit category, adult status and social norms, in fact showed a tendency to increase in salience. The Set A data suggested that there might in fact be some decline, though largely because of a single extreme case, the case of India. The family name and line were exceptionally salient in India, very clearly more salient than in any other country. Religious and social obligations were also mentioned by more respondents in India than anywhere else (with one exception:

husbands in Turkey). And the salience scores for adult status and social norms in India were in the upper range of such scores. Add to this the finding that the family name and religious and social obligations had zero salience in several of the low fertility countries, and Figure 11 seems to show a downward trend in Set A for these values. The correlations (Table 5) only hinted at such a trend, however. With the addition of Set A data, the correlations for the family name did become more positive, but still were only moderate and nonsignificant. The correlations for religious and social obligations were unchanged and about at the same moderate level, and the correlations for adult status and social norms moved from negative closer to zero.

The Set B data seem to bear this out. In the first panel of Figure 12, the family name and family prestige are shown to be highly salient in the extremely high fertility countries but hardly salient at all in the very high fertility countries. A curvilinear trend is a possibility, but cultural variability appears a more likely explanation. The family name may fall in salience at the lowest fertility levels, but at all higher levels the considerable unexplained variance is probably related to cultural factors rather than to development. The second panel of Figure 12, which combines adult status and social norms with religious and social obligations, also shows erratic movements in salience and considerable overlap between groups. The correlation of family name and prestige with crude birth rate was 0.62 (Table 5), but this was smaller in the absolute than the correlation for any other value group except religious and social obligations.

Overpopulation

This last disvalue might be considered a cultural prop for low fertility. It was so low in salience, however, that detecting any trend was difficult (Figures 11 and 12). Overpopulation was mentioned by 1 percent of Malaysian females and Japanese females and by no one else in the Set A or Set B countries. The correlations with crude birth rate were slight.

Mortality reduction

As a factor involved in fertility decline, mortality reduction has complex effects, not all of which appear in value-of-children data. One effect should appear: given higher infant and child mortality, the values attached to having more children should include security against mortality. But this response was not given to the question contrasting some and no children. To the question contrasting many and few chil-

FIGURE 11 Salience of social benefits and overpopulation for Set A countries by sex and for groups of VOC countries

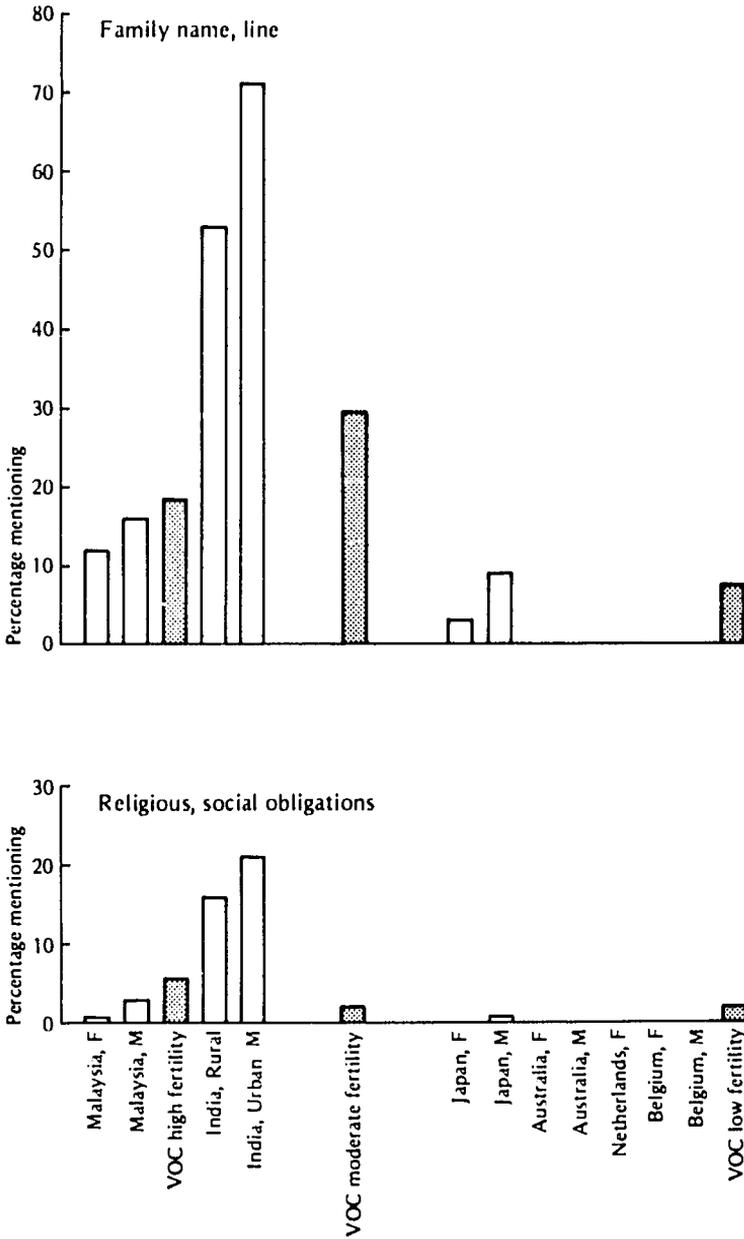


FIGURE 11 (continued)

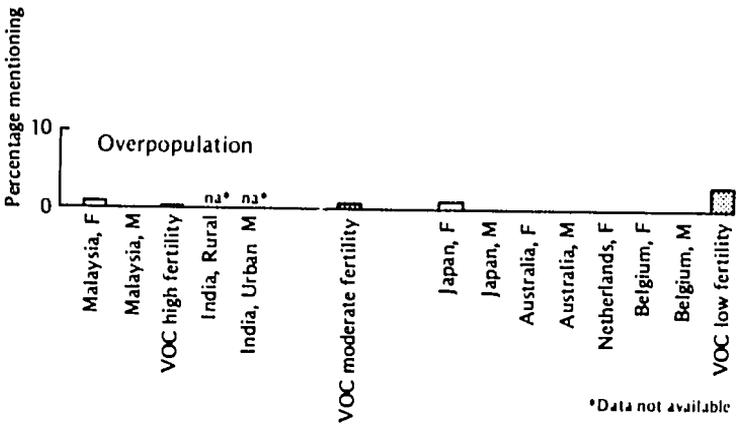
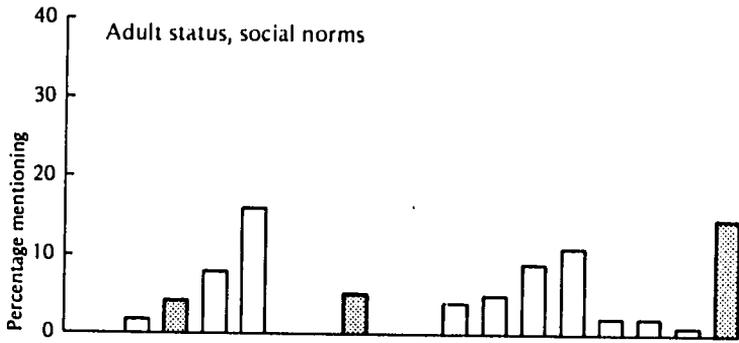
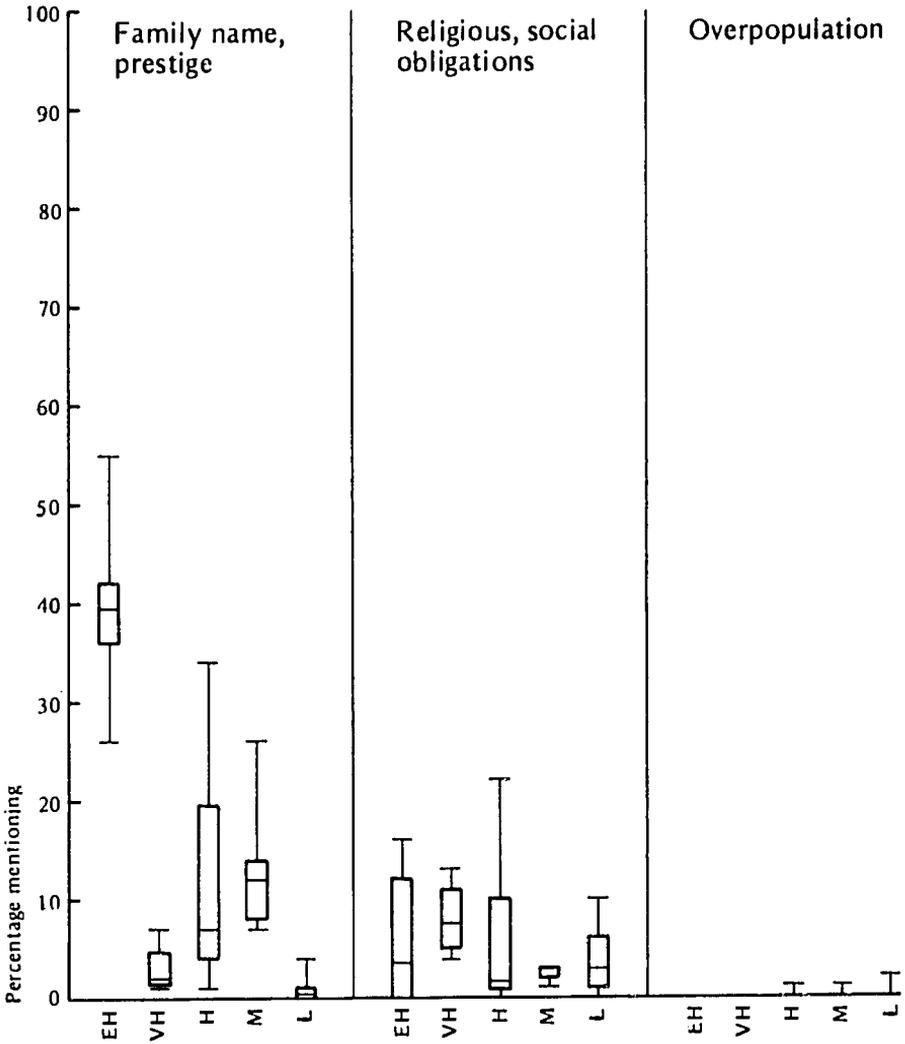


FIGURE 12 Salience of social benefits and overpopulation at different fertility levels: all countries, single-response percentages



dren, it was generally not given either. An exception was the Thai survey discussed in Appendix B (Table B2), in which some respondents did mention the lack of security against mortality as a disadvantage of a small family. In one Nigerian sample (Table B1), increasing survival chances was mentioned only when the question involved the contrast between 10 and 6 children, and not when many and few or any and no children were contrasted. Previously I noted that concern about mortality risks did appear as a disvalue attached to an only child (Bulatao, 1979:87). The value of security against mortality, therefore, seems to appear at both ends of the continuum, when very small or very large numbers of children are being contrasted. Such contrasts were not used in enough of the surveys being considered here for any trends to be assessed.

Some evidence for the mortality reduction factor was previously adduced from the decline in the salience of the disvalue of child's sickness. The Set A data did not support this decline (Figure 8) and reduced the correlations of child's sickness with crude birth rate.

DISCUSSION

The data considered in this paper, despite their diverse sources, largely reinforce previous findings about the transition in the value of children. Most of the value and disvalue differences previously found among the nine VOC countries and summarized in Table 2 were confirmed with an additional 14 countries covering a broader range of fertility levels and culture areas.

The essential conclusions embodied in Table 2 were that economic benefits from children decline in salience during the fertility transition; that rising aspirations lead to heightened concern about restrictions on parents and greater interest in psychological appreciation values in childrearing; that perceived financial costs and childrearing demands do not vary systematically across fertility levels; that rewarding interactions values increase in salience, reflecting the growing prevalence of the conjugal family; and that values involving cultural props for high fertility show no decline. In broad outline, these conclusions were reinforced.

Some reservations regarding specific value changes shown in Table 2 must be made, however. The first two involve possible nonlinearities, and the latter two involve possible trends where no trend was previously detected. The first reservation involves economic benefits from children, which appeared not to decline but possibly to rise slightly

between extremely high and very high fertility levels. Subsequent declines below these levels were clearly supported nevertheless. The second reservation involves the pacing of changes in rewarding interactions values, which were negatively related to fertility. Table 2 indicates a smaller rise in salience for companionship and love, the most prominent of these values, from high to moderate fertility levels and a sharper rise from moderate to low fertility levels. The current data reversed this pattern, indicating a sharper rise earlier in the transition and a leveling off or even some decline later on.

A third reservation pertains to economic costs. The previous conclusion that these costs do not rise in salience was indeed unambiguously supported. Whereas only educational costs were previously observed to actually decline in salience, however, it appears possible, from the current data, that the salience of other financial costs also declines. The final reservation relates to social benefit values, which also showed a possible trend not previously evident. The family name appeared to decline slightly in salience, although its salience was quite variable and cultural differences should not be ruled out as an explanation. Consistent with this possible trend was disconfirmation of the previously observed rise in adult status and social norms.

These conclusions were based on open-ended questions on advantages and disadvantages of having children. It is notable that the coding schemes used for comparing value and disvalue responses across surveys were generally applicable and did allow conclusions to be drawn. Only one important ambiguity in the coding schemes emerged, in the coding of some rewarding interactions values relating to happiness and to play, fun, and distraction, though there were other minor ambiguities attributable to the less differentiated codes used in some surveys. The observations in Table 2 were based not only on the advantages and disadvantages questions but also on other measures, including structured questions, obtained for the VOC countries. The divergences of the current data from these patterns have been stated as reservations, therefore, rather than firm conclusions, and comparisons involving other measures are desirable.

Variations in values and disvalues have been portrayed in this paper as resulting from the modernization or development process and in turn affecting fertility levels. Could the variations have resulted instead from distinctive cultural patterns and practices in different societies? The possibility cannot be ruled out for particular values and disvalues, though it appears unlikely that all the variations would be explained

by cultural patterns unrelated to development.⁸ Culture and development should probably be seen as competing explanations for particular variations in values, as complementary explanations for other variations. That is, some portion of the variance in values may be jointly explained by culture and by development, other portions separately explained by each of these two factors.

Another possibility is that cultural factors may interact with development stage, producing distinctive value trends in different cultures which are concealed beneath the observed patterns. To test this possibility, one would need either longitudinal data or data on societies that one could safely consider culturally similar. Lacking longitudinal data and lacking any dependable criteria for cultural similarity (one may doubt whether cultures are ever sufficiently similar), one is hard put to test this hypothesis. In fact, I simply rule out the possibility *a priori*, by assuming that societies go through the same basic transition. When the requisite data become available, this assumption can be reconsidered.

How much variance and which specific value differences are explained by cultural factors unrelated to development is important to the argument in this paper. The idea of a transition in the value of children becomes untenable if culture and not development is the major explanation. Culture is unlikely, however, to be the main explanation for variations in the value of children, because this would imply that the observed differences between societies are relatively permanent. It is possible to suggest particular cultural elements that affect specific values. For instance, where there are no family names, children to carry on the family name should not be a value. Where religions do not preach personal immortality, the extension of the self through one's children should be a more important value. A complete theory integrating all such individual insights is lacking, however, as

8 An important distinction is being made here between culture in general and cultural elements that are orthogonal to development. Development is equivalent to modifying specific cultural elements, and in this sense cultural variability is the complete explanation for variations in values. If development means, among other things, a change in family patterns, this change may be considered a cultural change and culture may therefore be said to be at the root of the resulting value changes. In contrasting the effects of culture and development, however, I am using "culture" more narrowly to embrace only elements for which change is not equivalent to development. The distinction can be tricky. The degree of religiousness or secularism in a society, for instance, should probably be considered development-related and therefore excluded from the ambit of the term culture as used here. But which specific religions are prominent in a society would not be excluded.

are adequate measures of the variability of the relevant cultural elements across societies. It is not possible, therefore, to evaluate fully the impact of cultural factors. Nevertheless, one may argue that, whatever the impact of culture, it is improbable that culture negates the influence of development on values.

CONCLUSION

The conclusions of this analysis may be greatly simplified to bring out their basic coherence. These data indicated that the value-of-children transition takes place somewhat in the following fashion. Initially, the productive capacity of children declines, possibly because of a change in economic structure that reduces children's jobs or possibly because of the development of social prohibitions—legal or otherwise, explicit or implicit, as compulsory education would be—against children working. Whether prohibitions are the original cause or not, norms against child labor eventually become widely accepted. At the same time, or possibly somewhat earlier, children's survival chances improve, and parents more readily make psychological investments in them.

A new image of the child spreads, in which the child is more than just a productive agent but less than an adult, requiring special care and treatment. Interaction with the child, and within the conjugal family generally, is perceived as more pleasurable and becomes more valued. These primary-group values do not sufficiently offset the burdens on parents. With children freed from labor and from contributing to their families while young, parents increasingly are benefactors rather than beneficiaries. The balance between parents and children is upset, and, to restore equilibrium, a contrary trend develops. Parents seek other, largely psychological, satisfactions from raising their children. Higher educational levels support the search for diverse gratifications. Increasingly also parents seek to escape from children, to enjoy personally more of the satisfactions that an expanding economy makes possible.

The early stages of the value-of-children transition, then, involve the liberation of children from premature death and from toil and also involve their being awarded a special, protected status. The later stages of the transition involve the liberation of parents from children, or at least from too many children, and their claiming personal fulfillment as a right.

Throughout this process, short-term trends in the costs of children and fashionable opinions regarding the social importance of having children continue to operate, depressing fertility temporarily at some

points and raising it at others. Other cultural differences in the values and disvalues attached to children unrelated to transition stage also continue to operate.

Where, in this process, other fertility-related factors fit has not been determined. Contraceptive availability and delayed marriage play a role in the fertility transition that cannot be teased out from value-of-children data. Other types of data are necessary for examining the effects of these two factors.

Additional data, particularly longitudinal data, would be useful to provide a missing dimension in the evidence. What have been interpreted throughout this paper as changes in values are in fact cross-sectional differences, from which trends are being inferred. Longitudinal data may be very difficult to produce, but historical studies that examine changing family structures and children's rights (e.g., Plumb, 1972; Shorter, 1975; Takanishi, 1978) might serve a similar purpose.

The question of what development factors cause specific changes in values and disvalues of children has not been dealt with here. Much therefore remains to be learned about these changes, but it is already obvious that the process is complex. Beyond the economic transformations that accompany development, the value-of-children transition involves changes in childrearing ideology, in the nature of the family, in people's self-images and expectations, and in many other aspects of the involved and interdependent process of modernization.

APPENDIX A: DATA ON VALUES AND DISVALUES ATTACHED TO CHILDREN

The appendix tables that follow present the basic data for this paper. Table A1 provides information on each of the surveys, which are listed in the order in which they appear in Table 3 (i.e., from extremely high to low fertility). Tables A2 and A3 give multiple-response percentages for values and disvalues for the Set A countries, those countries with surveys closely resembling the surveys in the Value of Children project. Tables A4 and A5 present percentages for the Set B countries, except for four Latin American countries. These data are either single-response or multiple-response percentages, depending on the survey. Tables A6 and A7 cover the remaining four Latin American surveys; each table includes responses to two parallel questions. Table A8 covers all the countries combined, including the VOC countries, and gives single-response percentages for 12 broad categories of values and disvalues. The samples excluded from the analysis, for Iran, Costa Rica, and Chile, are included in these tables.

TABLE A1 Surveys on the advantages and disadvantages of having children

AKAMBA, KENYA

Question: "Are there disadvantages in having no children?"
 Tabulation:^a Single response
 Sample: 282 married men and 374 married women aged 20 and above of the Akamba from four locations in the Machakos District in the Eastern Province, interviewed between September 1974 and April 1975
 Source: Kabwegyere (1977:209).

IBO, NIGERIA

Question: "What is good in having many children?"
 "What is good in having few children?"
 Tabulation: Single response to each question
 Sample: 624 male and 654 female ever-married Ibos from 19 villages of Arochukwu Division and eight wards of urban Umuahia in Imo State, interviewed in July and August 1974
 Sources: Okore (1975:54, 1977).

YORUBA, NIGERIA

Question: Disadvantages of having a large number of children
 Tabulation: Single response
 Sample: 202 Yoruba men 17 years of age and above from three villages in the Ekiti Division and six villages in the Ibadan Division of the former Western State, interviewed from December 1974 to June 1975
 Source: Orubuloye (1977:387).

TABLE A1 (continued)

WESTERN AND LAGOS STATES, NIGERIA	
Questions:	"The best thing about having many children is . . . ?" "What would be the disadvantages of having ten instead of six?" "What would be the advantages of having ten instead of six?" ^b "What are the bad things about having no children at all?" ^b
Tabulation:	Single responses
Sample:	1,499 Yoruba females and 1,497 Yoruba males 17 years or older chosen in four-stage sampling to represent the Western State and Lagos State, interviewed in June and July 1973
Source:	Australian National University (1974:47, 48, 50, 106-7).
RURAL GHANA	
Questions:	"What are the good things about having a lot of children?" "What are the bad things about having a lot of children?"
Tabulation:	Multiple responses
Sample:	709 households from 28 rural localities scattered throughout the country, interviewed in mid-1963. Respondents were households in that the head of household being interviewed was urged to consult with his wives and other relatives.
Source:	Caldwell (1976:226).
SISALA, GHANA	
Question:	"Why do you value children in Sisala-land?"
Tabulation:	Single response
Sample:	235 male and female adults from the Sisala, partilineal horticulturalists of Northern Ghana, interviewed in summer 1975
Source:	Mendonso (1977:242).
BARKAIT, BANGLADESH	
Questions:	"What is good about having many children?" "What is good about having fewer children?"
Tabulation:	Single response to each question
Sample:	51 males and 51 females from the village of Barkait in Chandina Thani of Comilla District, interviewed between 1974 and 1976. (Data for 190 other respondents had not been tabulated.)
Source:	Barkat-e-Khuda (1977:695).
SHIRAZ, IRAN	
Questions:	Advantages of large and small families. (Disadvantages of large and small families were also obtained but not used here.)
Tabulation:	Multiple responses
Sample:	61 factory workers and 46 small shopkeepers from the city of Shiraz, interviewed some time between 1974 and 1977
Source:	Mehryar, Tolnay, and Jamshidi (1977:431-32).

TABLE A1 (continued)

SIERRA LEONE

Questions:	"What is the best thing about having many children?" "What is the worst thing about many children?"
Tabulation:	Single response to each question
Sample:	5,952 women aged 15 to 49, either currently married or single but with children, representative of 92 percent of all urban women and 96 percent of all rural women, interviewed in 1969
Sources:	Dow (1971a, 1971b) and unpublished tabulations obtained from the Roper Center.

COLOMBIA

Questions:	Advantages of a large family, disadvantages of a large family, advantages of a small family, and disadvantages of a small family ^c
Tabulation:	Single response to each question
Sample:	2,737 women aged 15 to 49 living in rural areas or small urban areas (up to 20,000 population) interviewed by the Centro Latinoamericano de Demografía between 1968 and 1969
Sources:	Simmons (1974) and personal communication.

MEXICO

Questions:	Advantages of a large family, disadvantages of a large family, advantages of a small family, and disadvantages of a small family ^c
Tabulation:	Single response to each question
Sample:	3,000 women aged 15 to 49 living in rural areas or small urban areas (up to 20,000 population) interviewed by the Centro Latinoamericano de Demografía between 1968 and 1969
Sources:	Simmons (1974) and personal communication.

PERU

Questions:	Advantages of a large family, disadvantages of a large family, advantages of a small family, and disadvantages of a small family ^c
Tabulation:	Single response to each question
Sample:	2,607 women aged 15 to 49 living in rural areas or small urban areas (up to 20,000 population) interviewed by the Centro Latinoamericano de Demografía between 1968 and 1969
Sources:	Simmons (1974) and personal communication.

WEST MALAYSIA

Questions:	"We want to ask you about the advantages and disadvantages of having children. First, what would <i>you</i> think are some of the advantages or good things about having children, compared with not having children at all? Of the advantages you have just mentioned, which advantage do you feel is the more important to you personally?" "Good, what would you think are some of the disadvantages, difficulties, or bad things about having children, compared with not having children?"
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TABLE A1 (continued)

	Of the disadvantages you have just mentioned, which disadvantage do you feel is the more important to you personally?"
Tabulation:	Single response to each question, most important choice
Sample:	About 260 currently married women with at least one child and all of their spouses, 57 percent from rubber and oil palm plantations in Johore state and the rest from urban Kuala Lumpur, interviewed in 1978
Source:	Kee Poo-kong, personal communication.
THAILAND^d	
Questions:	Advantages of a large family, disadvantages of a large family, advantages of a small family, disadvantages of a small family
Tabulation:	Multiple responses
Sample:	2,960 husbands of women under age 50 included in the Survey of Fertility in Thailand conducted by the Institute of Population Studies, Chulalongkorn University, and the National Statistical Office in 1975 as part of the World Fertility Survey. (More husbands were interviewed, but only those who could be matched with their wives were included in the relevant tabulations.)
Source:	Arnold and Pejaranonda (1977:7, 15).
INDIA	
Question:	Why people in general want children
Tabulation:	Multiple responses
Sample:	Urban: 4,000 male industrial workers from four industries in Ahmedabad and Bombay in Western India and six industries in Jamshedpur and Ranchi in Eastern India, interviewed around 1976; rural: 784 male and 613 female ever-married villagers from six states, interviewed around 1976
Source:	Khan (1977).
COSTA RICA	
Questions:	Advantages of a large family, disadvantages of a large family, advantages of a small family, and disadvantages of a small family ^c
Tabulation:	Single response to each question
Sample:	2,080 women aged 15 to 49 living in rural areas or small urban areas (up to 20,000 population) interviewed by the Centro Latinoamericano de Demografia between 1968 and 1969
Sources:	Simmons (1974) and personal communication.
SANTIAGO, CHILE	
Questions:	"Now we would like to know if you see any advantages (or good things) to having a <i>large</i> family? What are these good things?" (disadvantages also coded from this question)
Tabulation:	Multiple responses
Sample:	60 married women and 75 married men from one low-income and one middle-income housing project in Santiago, interviewed in 1973
Source:	Turner (1974).

TABLE A1 (continued)

JAPAN

- Questions:** "I would like to know what you think are some of the good things or advantages about having children, *compared with not having children at all*. These might include the pleasures and benefits you get from having children now and those that you expect in the future. What would you say are some of the good things or advantages about having children, compared with not having children?"
- "Now I would like to know about some of the difficulties or disadvantages connected with having children, *compared with not having children at all*. These might include, for instance, various problems or stresses related to raising children, or things that you cannot do or have to give up because you have children. What would you say are some of the difficulties or disadvantages connected with having children, compared with not having children?"
- Tabulation:** Multiple responses
- Sample:** 136 wives and 134 husbands from metropolitan Tokyo and 75 wives and 67 husbands from three agricultural prefectures, interviewed in December 1972 and January 1973
- Sources:** Iritani (1979) and unpublished tabulations.

AUSTRALIA

- Questions:** Advantages and disadvantages of having children
- Tabulation:** Multiple responses
- Sample:** 365 young married women and 352 young married men in Sydney of Australian, Greek, and Italian birth interviewed in 1977
- Sources:** Callan (1979) and personal communication.

NETHERLANDS

- Questions:** "Then I want to ask you more about children. Having children has advantages and disadvantages, good sides as well as bad sides. What would you say are the good sides of having children, when you compare it with not having children at all?"
- "Even though one is very fond of children, there are, accompanying this, bad sides of having children. What would you say are the bad sides or disadvantages of having children, when you compare it with not having children at all?"
- Tabulation:** Multiple responses
- Sample:** 4,522 currently married women whose marriage took place between 1963 and 1973, interviewed in the Netherlands Survey on Fertility and Parenthood Motivation in 1975
- Source:** Niphuis-Nell (1976:313, 319).

DUTCH-SPEAKING BELGIUM

- Questions:** Advantages and disadvantages of "having children, as compared with not having children at all"
- Tabulation:** Multiple responses

TABLE A1 (continued)

Sample:	4,877 Dutch-speaking women between 16 and 44 years old and 690 husbands of the women aged 25 to 29, interviewed between July 1975 and May 1976
Sources:	Deven (1977a, 1977b).

NOTE: Surveys for higher-fertility countries are listed first, then surveys for lower-fertility countries. The surveys in the Value of Children project are not included here (except for Japan). For details of the first-phase surveys, see Arnold et al. (1975) and, for the second-phase surveys, see Bulatao (1979).

- a To these open-ended questions, some surveys elicited single answers and others elicited several answers. In the latter case, what the researchers reported may, however, have been only a single response, usually the first response. The method of tabulation obviously affects percentages, as is discussed in Appendix C.
- b These questions were not used in the main tabulations but only in Appendix B.
- c Data for all four questions are reported below, but only data for the first two questions were used in the comparisons.
- d Data from this survey were used in Appendix B but not in the main comparisons. The Thai data in the main comparative tables come from the VOC survey.

TABLE A2 Advantages of having children in Malaysia, India, Japan, Australia, the Netherlands, and Belgium
(Percentage mentioning each value^a)

Advantages	Malaysia		India		Japan		Australia		Nether-lands (female)	Belgium	
	Female	Male	Female	Urban male	Female	Male	Female	Male		Female	Male
Instrumental assistance											
Help in housework	19	6	8	6	2	1	0	0	0	0	0
Help in old age	60	67	59	73	8	6	6	4	10	11	8
Financial, practical help	31	25	16	14	7	6	0	0	0	3	2
Family name, line	12	16	53	71	3	9	0	0	0	0	0
Religious, social obligations	1	3	16	21	0	1	0	0	0	0	0
Adult status, social norms	0	2	8	16	4	5	9	11	2	2	1
Rewarding interactions											
Companionship, love	7	7	2	13	17	18	41	32	34	38	25
Happiness	30	28	8	15	56	52	35	32	14	19	19
Play, fun, distraction	7	7	1	6	7	12	10	21	0	34	37
Marital bond	7	7	1	7	30	25	38	40	24	32	32
Psychological appreciation											
Living through children	7	8	0	0	21	22	14	15	5	10	12
Achievement, power	1	1	5	9	33	27	21	22	29	17	13
Character, responsibility	0	0	0	0	6	9	6	8	0	3	6
Incentive to succeed	1	0	0	1	5	2	4	5	0	16	22
Fulfillment	1	2	6	15	14	10	23	23	34	20	21
Other	16	21	2	1	3	7	0	0	9	6	2
(Number of respondents)	(262)	(272)	(1,397)	(3,385)	(211)	(201)	(365)	(352)	(4,522)	(4,722)	(690)

a These percentages have been combined and adjusted by procedures explained in the Measures section and in Appendix C.

TABLE A3 Disadvantages of having children in Malaysia, Japan, Australia, the Netherlands, and Belgium
(Percentage mentioning each disvalue^a)

Disadvantages	Malaysia		Japan		Australia		Nether-lands (female)	Belgium	
	Female	Male	Female	Male	Female	Male		Female	Male
Financial costs									
Cost of education	9	11	1	2	0	0	0	0	0
Other financial costs	21	21	18	23	37	43	4	8	9
Childrearing demands									
More work	6	2	9	4	12	1	4	12	9
Emotional strain	11	14	28	22	34	28	21	30	26
Health, pregnancy	1	1	0	0	0	0	0	0	0
Discipline	18	24	7	4	15	10	4	9	5
Child's sickness	3	7	19	18	19	18	0	11	10
Worry over child's future	18	20	3	7	10	10	0	9	7
Other childrearing problems	1	0	9	7	0	0	6	5	4
Restrictions on parents									
Tied down	13	9	55	37	45	51	51	40	40
Can't work	1	0	13	9	8	1	5	3	2
Costs to social relationships									
Marital strains	4	1	5	5	9	10	1	4	2
Overpopulation	1	0	1	0	0	0	0	0	0
Other	53	50	16	23	5	8	31	23	28
(Number of respondents)	(262)	(272)	(211)	(201)	(365)	(352)	(4,522)	(4,702)	(689)

a These percentages have been combined and adjusted by procedures explained in the Measures section and in Appendix C.

TABLE A4 Advantages of having children in Kenya, Nigeria, Ghana,
(Percentage mentioning each class of advantages^a)

Advantages	Kenya (Akamba)		Nigeria (Ibo)		Nigeria (Western-Lagos)	
	Female	Male	Female	Male	Female	Male
Instrumental assistance						
Financial, household help	4	0	19	15	18	19
Help in old age	17	15	15	13	20	18
Family name, heir	41	55	13	15	24	22
Family prestige			24	27	17 ^d	21 ^d
Religious, social obligations			13	12	2	2
Rewarding interactions						
Companionship, love	0	14				
Happiness	32	16	16	18	15 ^f	15 ^f
Marital bond	3	0				
Psychological appreciation						
Fulfillment						
Other	3				3	3
No advantages			7	8	36	37
Don't know, no answer			4	4	7	5
(Number of respondents)	(374)	(282)	(654)	(624)	(1,499)	(1,497)

a Percentages are based on total respondents minus those answering "no advantages" or "don't know," except for the "no advantages" and "don't know" rows, which are based on total respondents. Either single responses (one per respondent) or multiple responses (one or more per respondent) were tabulated as indicated in Table A1. A blank cell indicates this category was not used in the particular survey.

b Includes aid to society.

c Includes support in distress or sickness.

Bangladesh, Iran, Sierra Leone, and Chile

Ghana (Rural)	Ghana (Sisala)	Bangladesh (Barkalt)		Iran (Shiraz)		Sierra Leone	Chile (Santiago)	
		Female	Male	Work- ers	Shop- keepers		Low income	Middle income
49	62 ^b	36	22	14	33	19	30	0
31 ^c		18 ^c	19 ^c			50		
	21	24	30	0	8	7		
34	15	3	8					
7		12	16	0	17	13		
7				36	8	4	40 ^e	63 ^e
	2	6	5			6		
							22	40
				64 ^h	33 ^h		15 ^g	12 ^g
11		29	22	77	74	6	35	21
	2	6	6			4	11	4
(709)	(235)	(51)	(51)	(61)	(46)	(5,952)	(88)	(47)

d "Social advantages."

e Includes "moral help" and socioemotional development of children.

f "Large families are a good thing."

g Includes continuity of name.

h Advantages depend on "ability of parents."

TABLE A5 Disadvantages of having children in Nigeria, Ghana,
(Percentage mentioning each class of disadvantages^a)

Disadvantages	Nigeria (Ibo)		Nigeria (Yoruba)		Nigeria (Western-Lagos)	
	Female	Male	Rural	Urban	Female	Male
Financial costs						
Cost of education	51	53	74	32	30	31
Other financial costs			15	50	64	65
Childrearing demands						
More work						
Emotional strain	8	10				
Health, pregnancy	3	2			5	5
Discipline			4	9		
Child's sickness						
Insufficient care	39	35				
Restrictions on parents						
Tied down						
Costs to social relationships						
Other			6 ^e	10 ^e		
No disadvantages	1	2	3	21	11	15
Don't know, no answer	9	8			9	8
(Number of respondents)	(654)	(624)	(100)	(102)	(1,499)	(1,497)

a Percentages are based on total respondents minus those answering "no disadvantages" or "don't know," except for the "no disadvantages" and "don't know" rows, which are based on total respondents. Either multiple or single responses are tabulated as indicated in Table A1. A blank cell indicates this category was not used in the particular survey.

b Includes insufficient care.

Bangladesh, Iran, Sierra Leone, and Chile

Ghana (Rural)	Bangladesh (Barkait)		Iran (Shiraz)		Sierra Leone	Chile (Santiago)	
	Female	Male	Workers	Shop- keepers		Low income	Middle income
11			86	30 ^b		74	86
57			79 ^c	70 ^c	58		
40	6	20					
1	13	33	73	28	18	17 ^d	68 ^d
					9		
					13		
			8				
	81	47	27			20	27
			27				
					1		
			20	7	4	54	74
					7	11	4
(709)	(51)	(51)	(61)	(46)	(5,952)	(88)	(47)

c Includes "everything is easier," which the original investigators paired with "food, clothing, and housing easier to provide."

d Includes physical strain.

e "Unspecific."

TABLE A6 Advantages of a large family and disadvantages of a small family in Colombia, Mexico, Peru, and Costa Rica, 1968–69
(Percentage mentioning each value^a)

Values	Advantages of a large family (values provided to parents)				Disadvantages of a small family (values foregone by parents)			
	Colombia	Mexico	Peru	Costa Rica	Colombia	Mexico	Peru	Costa Rica
Housework, practical help	61	41	63	61	77	65	82	66
Financial help	21	31	20	21	5	7	7	6
Family name, prestige	2	2	1	1	2	2	1	1
Religious, social obligations	4	9	6	4	4	5	3	11
Companionship, love	10	16	9	10	10	16	7	7
Other	2	2	1	4	2	3	1	8
No advantages	15	16	12	19	47	48	35	49
No answer	4	7	11	6	13	16	29	12
(Number of respondents)	(2,737)	(3,000)	(2,606)	(2,080)	(2,737)	(3,000)	(2,607)	(2,080)

a Percentages calculated excluding "no advantages" and "no answer." Percentages for "no advantages" and "no answer" based on total respondents.

TABLE A7 Disadvantages of a large family and advantages of a small family in Colombia, Mexico, Peru, and Costa Rica, 1968–69
(Percentage mentioning each disvalue^a)

Disvalues	Disadvantages of a large family (disvalues incurred by parents)				Advantages of a small family (disvalues avoided by parents)			
	Colombia	Mexico	Peru	Costa Rica	Colombia	Mexico	Peru	Costa Rica
Cost of education	12	5	12	5	11	10	24	11
Other financial costs	59	52	69	61	53	49	53	47
Health, pregnancy	6	7	2	7	2	4	1	2
Child's sickness	1	0	1	2	0	0	0	1
Other childrearing problems	18	26	12	21	24	21	12	32
Tied down	2	6	1	1	5	9	4	2
Can't work	0	0	0	0	0	0	1	1
Marital strains	1	2	2	1	2	4	4	2
Other	2	2	1	2	2	3	2	2
No disadvantages	8	12	20	9	2	2	5	2
No answer	5	7	18	5	4	6	17	3
(Number of respondents)	(2,734)	(3,000)	(2,605)	(2,080)	(2,737)	(3,000)	(2,606)	(2,080)

^a Percentages calculated excluding "no disadvantages" and "no answer." Percentages for "no disadvantages" and "no answer" based on total respondents.

TABLE A8 Advantages and disadvantages of children in all samples,
(Single-response percentages^a)

Fertility level and sample	Advantages				
	Economic, practical help	Family name, prestige	Religious, social obligations	Com- panionship, happiness	Marital bond
EXTREMELY HIGH FERTILITY					
Kenya (Akamba)					
Female	21	41	0	32	3
Male	15	55	0	30	0
Nigeria (Ibo)					
Female	34	37	13	16	0
Male	28	42	12	18	0
Nigeria (Yoruba)					
Rural	u	u	u	u	u
Urban	u	u	u	u	u
Nigeria (Western-Lagos)					
Female	38	41	2	15	0
Male	37	43	2	15	0
Ghana (Rural)	64	26	5	5	0
Ghana (Sisala)	62	36	0	2	0
Bangladesh (Barkait)					
Female	54	27	12	6	0
Male	41	38	16	5	0
VERY HIGH FERTILITY					
Iran ^b (Shiraz)					
Workers	35	0	0	65	0
Shopkeepers	47	13	27	13	0
Sierra Leone	69	7	13	10	0
Colombia	82	2	4	10	0
Mexico	72	2	9	16	0
Peru	83	1	6	9	0
HIGH FERTILITY					
Philippines					
Female	53	1	1	38	3
Male	51	3	0	38	4
Turkey					
Female	42	5	12	26	7
Male	31	9	22	20	6
Malaysia					
Female	65	5	0	22	3
Male	63	7	2	20	3
Indonesia					
Female	62	15	1	17	2
Male	51	24	1	12	4

by fertility level

Psycho- logical appreciation	Disadvantages					
	Financial costs	Emotional strain	Other childrearing demands	Restric- tions on parents	Marital strains	Over- population
0	u	u	u	u	u	u
0	u	u	u	u	u	u
0	51	8	42	0	0	0
0	53	10	37	0	0	0
u	89	0	4	0	0	0
u	82	0	9	0	0	0
0	94	0	5	0	0	0
0	96	0	5	0	0	0
0	63	36	1	0	0	0
0	u	u	u	u	u	u
0	0	13	87	0	0	0
0	0	33	67	0	0	0
0	69	22	5	4	0	0
0	80	20	0	0	0	0
0	58	18	22	0	0	0
0	71	0	25	2	1	0
0	57	0	33	6	2	0
0	81	0	15	1	2	0
4	25	15	55	4	1	0
4	25	12	59	4	0	0
8	32	12	48	7	1	0
12	59	5	28	7	1	0
3	29	10	44	13	4	1
5	30	12	50	8	1	0
3	24	7	62	7	0	0
7	41	7	50	2	0	0

TABLE A8 (continued)

Fertility level and sample	Advantages				
	Economic, practical help	Family name, prestige	Religious, social obligations	Com- panionship, happiness	Marital bond
HIGH FERTILITY					
<i>(continued)</i>					
Thailand					
Female	75	3	1	16	3
Male	69	10	2	12	3
India					
Rural	48	32	11	4	0
Urban	41	34	9	8	2
Costa Rica	82	1	4	10	0
MODERATE FERTILITY					
South Korea					
Female	19	7	2	44	7
Male	16	12	3	38	9
Chile (Santiago)					
Low income	28	0	0	38	20
Middle income	0	0	0	57	34
Taiwan					
Female	14	14	2	62	4
Male	17	26	3	47	4
Singapore					
Female	14	8	1	65	7
Male	13	12	2	54	13
LOW FERTILITY					
Japan					
Female	7	1	2	42	14
Male	6	4	2	44	12
Australia					
Female	2	0	4	44	20
Male	2	0	5	40	20
Netherlands (female)	6	0	1	32	16
United States					
Female	4	1	7	47	15
Male	4	4	6	40	21
Belgium					
Female	6	0	1	47	16
Male	5	0	0	42	17
West-Germany (Bavaria) (female)	4	1	10	43	13

u—unavailable.

a Each respondent is assumed to have given only one response. See the Measures section and Appendix C for an explanation of how percentages were adjusted. Percentages were calculated excluding "no advantage," "no disadvantage," "don't know," and, in the Set A and VOC countries, "other."

Psycho- logical appreciation	Disadvantages					
	Financial costs	Emotional strain	Other childrearing demands	Restric- tions on parents	Marital strains	Over- population
3	29	7	50	14	0	0
4	41	8	42	9	0	0
5	u	u	u	u	u	u
6	u	u	u	u	u	u
0	66	0	30	1	1	0
21	24	12	44	18	2	0
21	39	9	33	14	4	1
14	69	14	17	0	0	0
9	59	33	8	0	0	0
4	18	42	34	6	0	0
3	28	43	26	3	0	0
5	26	29	29	15	1	0
6	49	23	20	7	1	0
34	10	16	26	45	3	0
32	18	16	29	34	3	0
30	20	18	27	31	4	0
33	26	16	20	33	5	0
45	4	21	13	61	1	0
26	27	10	13	46	3	1
25	35	10	10	41	2	2
30	6	24	33	35	3	0
36	7	23	29	39	2	0
29	5	20	8	67	0	0

^b In this case only among the Set B countries, the very frequent "other" response was also excluded in calculating percentages.

APPENDIX B: OPEN-ENDED QUESTIONS ON THE VALUE OF CHILDREN—THE CONTINUUM OF CONTRASTS

Open-ended questions about what people value in having children and about the disvalues they perceive in the process are asked in a variety of ways. Some researchers ask about the advantages or disadvantages of having children as opposed to not having children, others about why people prefer many to few children or vice versa, still others about reasons for wanting children or not wanting, say, an only child. In this appendix I argue that each question implies a contrast between different numbers of children. Then I argue that these contrasts fall along a continuum defined by the number of children being contrasted. Finally I examine some data to determine how responses vary across the continuum. The conclusion is that responses do vary, but not radically. Some answers are more emphasized as one moves up the continuum, others more emphasized as one moves down, but generally the same types of responses are expected throughout the continuum.

In some of these questions the contrast is clearly stated. In others it is left implicit. Asked about the advantages of a particular situation, a respondent is implicitly required to contrast it with some other, less advantaged situation. Consider a question about the advantages of “many children.” Even if no specific alternative were given, most people would read into the question an implicit contrast between many and few children. If instead someone cited the advantages of having many as opposed to “very many” children, this answer would not be appropriate. Although grammatically correct, it would violate the common understanding of the question.

The contrasts, whether explicit or implicit, in different questions might be seen as points on a continuum, where contrasts are drawn between progressively larger or smaller numbers of children. The idea of such a continuum may be illustrated with data from the survey of Western and Lagos States in Nigeria, part of the Changing African Family project. At different points in the interview three separate questions were asked:

- What would be the advantages of having ten instead of six?
- The best thing about having many children is
- What are the bad things about having no children at all?

Despite the differences in format—the third question in effect involves two negative ideas—the most important distinction among these questions is the specific contrast being drawn. In the first question, the contrast is explicitly between ten and six children. In the second question, the implicit contrast is between many and few children. In the third question the contrast is between having any children, or at least one child, and having no children. If the idea of a continuum of contrasts is valid, responses should vary in systematic fashion across these questions.

The researchers in the Nigerian study used different coding categories for each question, so that results had to be converted to the uniform coding scheme

discussed above. There were differences in responses, and, consistent with the continuum idea, the question contrasting many and few children was intermediate between the other two (Table B1). Contrasting any with no children, only 1 percent said there were no advantages; contrasting many with few children, 36 to 37 percent said there were no advantages; and contrasting ten with six children, 49 to 55 percent said there were no advantages. For those citing advantages, each question elicited the same basic five or six values, though the response distributions

TABLE B1 Responses to three questions on the advantages of children in a survey of Western and Lagos States, Nigeria, 1973
(Percentage mentioning each value)

Values	Advantages of 10 versus 6 children		Advantages of many versus few children		Advantages of any versus no children	
	Female	Male	Female	Male	Female	Male
Instrumental assistance						
Financial, household help	24	26	18	19	0	0
Help in old age	24	18	20	18	16	15
Family name, heir			24	22	36	42
Family prestige	10	19	17 ^a	21 ^a	7	9
Religious, social obligations			2	2	11	8
Survival chances	24	20				
Rewarding interactions						
Companionship, love	3 ^b	4 ^b				
Happiness	10 ^c	10 ^c	15 ^c	15 ^c	28	24
Psychological appreciation						
Other	5	3	3	3	1	2
No advantages	55	49	36	37	1	1
Don't know, no answer	9	6	7	5	3	1
(Number of respondents)	(1,499)	(1,497)	(1,499)	(1,497)	(1,499)	(1,497)

NOTE: The three questions are, in order: "What would be the advantages of having ten instead of six?" "The best thing about having many children is . . ." and "What are the bad things about having no children at all?" For the third question, the disadvantages of having no children are considered equivalent to the advantages of having any children and coded accordingly. Percentages are calculated excluding "no advantages" and "don't know." For these two responses only, percentages are based on the total sample.

a "Social advantages."

b "Social gains (pleasure, etc.)."

c "Large families are a good thing."

SOURCE: Australian National University (1974).

varied. Economic help was least mentioned in the any versus none comparison and most mentioned in the ten versus six comparison. Continuing the family name or family line through children, on the other hand, was least mentioned in the ten versus six comparison and most mentioned in the any versus none comparison. Religious and social obligations to have children also got more mentions in the any versus none comparison. The happiness children bring appeared to be mentioned slightly more in the any versus none comparison. For each of these values, the many versus few comparison produced results intermediate between the other two comparisons. The ten versus six comparison elicited one value not obtained with the other questions, the value of increasing survival chances with more children.

These results might be taken as indicative of the changing salience of values across the continuum. The some versus none contrast presumably falls between the many versus few and the at-least-one versus none contrasts. As opposed to the many versus few contrast, the some versus none contrast should therefore produce somewhat fewer responses relating to economic values and slightly more responses relating to family and religious values and to happiness. These differences should be smaller than the differences between the many versus few and the at-least-one versus none contrasts shown in Table B1.

Data from two Thai surveys helped confirm this assumption. Unlike the Nigerian data, these data were from two different samples, although both were designed to be nationally representative. It can be seen in Table B2 that the large family versus small family contrast, equivalent to the many children versus few children contrast, elicited more mentions of economic values than the some versus none contrast. This was the largest difference. It also elicited somewhat fewer responses relating to children providing companionship and happiness and enhancing the marital bond. Differences in regard to family and religious values were slight. It should be noted as well that the large family versus small family contrast elicited responses relating to security against mortality, whereas the some versus none contrast did not.

In addition the Thai data allowed some comparisons of the salience of disvalues. Table B3 shows that the many versus few contrast produced more responses regarding financial costs of children and slightly fewer regarding restrictions on parents due to children. Responses concerning childrearing demands also may be slightly fewer, though differences in coding made comparisons more difficult. Overall, nevertheless, the same set of disvalues was elicited by both contrasts.

It appears that, relative to the some versus none contrast, the many versus few contrast emphasizes both economic benefits and costs and deemphasizes rewarding interactions values (companionship, happiness, the marital bond) and restrictions on parents, while having less effect on other values and disvalues. This finding is consistent with the general idea that children of different parities have different marginal implications for utilities and costs. The appropriateness of particular contrasts is probably related to fertility levels: contrasts between

TABLE B2 Values attached to children elicited by different questions in Thai surveys
(Percentage mentioning each value^a)

Values	Advantages of a large family (values provided) (husbands)		Disadvantages of a small family (values foregone) (husbands)		Advantages of having children (values provided)	
	Unad-justed	Ad-justed ^b	Unad-justed	Ad-justed ^b	Wives	Hus-bands
Instrumental assistance						
Help in housework	16	20	7	13	9	7
Help in old age	45	52	30	46	27	28
Financial, practical help	48	55	18	30	54	51
Family name, line	3	4	11	19	4	13
Religious, social obligations					2	4
Adult status, social norms					0	1
Security against mortality			11	19		
Rewarding interactions						
Companionship, love			5	9	12	5
Happiness	5	6			8	9
Play, fun, distraction					2	2
Marital bond					4	6
Psychological appreciation						
Living through children					2	2
Achievement, power					1	1
Character, responsibility					1	2
Incentive to succeed					1	2
Fulfillment					0	1
Other					4	3
No advantages	22		35			
Don't know	2		5			
(Number of respondents)	(2,960)		(2,950)		(2,234)	(1,176)

a Multiple responses were tabulated for each question.

b The adjustment was a flog reduction or expansion (see Appendix C) to make the response rates for the columns similar to that for the sixth column.

SOURCES: First and third columns, Survey of Fertility in Thailand, 1975 (Arnold and Pejaranonda, 1977). Fifth and sixth columns, Value of Children project, 1976.

large numbers of children should be more useful in high-fertility settings, contrasts between small numbers more relevant in low-fertility settings.

The Nigerian and Thai data do not indicate radical changes in the salience of

TABLE B3 Disvalues attached to children elicited by different questions in Thai surveys
(Percentage mentioning each disvalue^a)

Disvalues	Disadvantages of a large family (disvalues incurred) (husbands)		Advantages of a small family (disvalues avoided) (husbands)		Disadvantages of having children (disvalues incurred)	
	Unad-justed	Ad-justed ^b	Unad-justed	Ad-justed ^b	Wives	Husbands
Financial costs						
Cost of education	30	11	37	17	3	4
Other financial costs	69	40	61	34	17	25
Childrearing demands						
More work					3	3
Emotional strain					5	6
Health, pregnancy					3	1
Discipline	5	2	3	1	7	8
Child's sickness					6	4
Worry over child's future					1	1
Other childrearing problems	34	14	33	14	14	11
Insufficient care	5	2	6	2		
Restrictions on parents						
Tied down					6	3
Can't work	1	0	3	1	6	3
Costs to social relationship						
Marital strains					0	0
Overpopulation					0	0
Other					42	42
No disadvantages	4		5			
Don't know	2		2			
(Number of respondents)	(2,955)		(2,958)		(2,236)	(1,163)

a Multiple responses were tabulated for each question.

b The adjustment was a flog reduction (see Appendix C) to make the response rates for these columns similar to that for the sixth column.

SOURCES: First and third columns, Survey of Fertility in Thailand, 1975 (Arnold and Pejaranonda, 1977). Fifth and sixth columns, Value of Children project, 1976.

different values due to varying the contrast from some versus none to many versus few children, but they do indicate some changes in percentages. Quantifying these changes is not possible with these data.

APPENDIX C: ESTIMATING SINGLE-RESPONSE FROM MULTIPLE-RESPONSE PERCENTAGES USING FOLDED LOGS

Open-ended survey questions often elicit more than one answer from a given respondent. There is no standard practice for dealing with such multiple responses. Some researchers code all responses and tabulate them together; others bother only with the first response; still others code patterns of responses, such as "a and b" or "b and c" or "a and b and c." Each practice has its advantages and drawbacks.

The procedure described in this appendix involves converting data treated in one fashion so that it is comparable with data treated in another fashion. Multiple-response percentages are based on numbers of respondents giving particular responses, whether as first, second, third, or later answers. When summed, these percentages should exceed 100 percent. Single-response percentages, on the other hand, are based on numbers of respondents giving a particular answer as their first (and sometimes only coded) answer. These percentages should add up exactly to 100 percent. The procedure here described concerns estimating percentages of one type from the other.

The data on advantages and disadvantages of having children from the Value of Children (VOC) project (nine countries, separate data for wives and husbands in all but one country) will be utilized, because both multiple-response and single-response percentages could be calculated from them. Within each country-sex group, the correlation was calculated across value categories between multiple-response and single-response percentages. These correlations were consistently high. The median correlation was 0.97, and almost all the correlations were above 0.95. It appears likely, therefore, that some simple conversion should give estimates of one set of percentages from the other.

The most obvious conversion would be to multiply each single-response percentage by the mean number of responses given. The problem with this method is that it tends to overestimate the larger percentages and underestimate the smaller ones. Some procedure is desirable that does not increase all percentages proportionally.

It was simpler to estimate single-response from multiple-response percentages than vice versa, as will be explained below. Following Tukey's (1977:498-502) suggestion, I first converted each multiple-response percentage p_m to a folded log (or flog or logit), defined as

$$\text{flog}(p_m) = \frac{1}{2} \log_e \frac{p_m}{100 - p_m} .$$

To each flog a constant was added, and the number was converted back to a percentage. Zeros were left as zeros and not converted. The constant was chosen so that the resultant estimates of the single-response percentages would total 100 percent. The estimates, therefore, were given by:

$$\hat{p}_s = \frac{p_m e^{2x}}{1 - p_m + p_m e^{2x}} ,$$

where x was the constant and was negative.

This procedure (which might be labeled the flog reduction) proved to be quite accurate. The differences between the estimates and the actual single-response percentages were calculated, and the standard deviations of these measures of error are reported in Table C1. Most of the standard deviations were under 3.0. In fact, 69 percent of the estimates were less than one percentage point away from the actual values. The errors also proved to be uncorrelated with the estimates. When all the estimates for advantages for wives were combined, the correlation between these estimates and their errors was -0.05 . Similarly, the correlations for advantages-husbands, disadvantages-wives, and disadvantages-husbands were 0.03 , 0.21 , and -0.03 respectively. Neither larger nor smaller estimates appeared to be biased upward or downward. The errors did show a tendency to increase in absolute size as the estimates increased, although for estimates in the range of 40 to 49 the median absolute error was only slightly above 2.5. It is possible that the errors decrease in absolute size as the estimates pass 50 percent and approach 100 percent, but this could not be verified since only one estimate exceeded 50 percent.

The reverse procedure, estimating multiple-response percentages from single-response percentages (the flog expansion), is equally feasible and should also be quite accurate. But it requires making some assumption about the number of answers the average respondent is likely to give. Going from multiple-response to single-response percentages, on the other hand, one can safely assume that each respondent gives exactly one answer.

Why does the procedure work? The distribution of first answers and later answers must be different. One reason for this may be that specific responses are not repeated, or at least not recorded or coded more than once for each respondent. In that case the most popular responses would be increasingly less likely to be given as later answers, as the probability that they had already been given in-

TABLE C1 Standard deviations of errors of estimates, by country, type of question, and sex

Country	Advantages		Disadvantages	
	Wives	Husbands	Wives	Husbands
Philippines	2.24	2.25	2.45	2.98
Turkey	1.05	1.99	1.88	2.33
Indonesia	1.20	.88	1.90	.86
Thailand	.44	.65	1.15	1.12
South Korea	1.46	1.88	1.87	2.30
Taiwan	1.62	1.39	1.94	2.82
Singapore	2.03	1.65	3.22	4.18
United States	1.66	2.21	3.01	2.49
West Germany	1.39	u	2.53	u

u—unavailable.

creased. It can be shown, however, that this explanation cannot fully account for the observed decline in the percentages giving the more popular responses as later answers. A complementary explanation might be that more popular answers are more likely to take precedence over less popular answers and to be given first.

Whatever the explanation, it appears not to be due to cultural peculiarities, because similar accuracy in the estimates was obtained for data from nine different countries. Whether the procedure would apply to other questions on other topics was not determined. Presumably if the same mechanisms that produced these multiple-response patterns are at work, the procedure should be equally applicable.

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