# FAMILY SIZE AND ECONOMIC WELFARE IN A DEVELOPING ECONOMY

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Discussions of the relationship between population growth and economic development usually assume, either explicitly or implicitly, that couples with fewer children to support will be better off financially. Improvement in economic welfare is itself one of the goals of development. In addition, the increased availability of income could stimulate new patterns of economic behavior, some of which may be favorable to the development effort. While these problems are recognized as important, little empirical work at the micro-level has been done on them for developing countries. As a small contribution to such analysis, this paper examines how income and other measures of economic behavior are related to family size in Taiwan.

Presumably, couples with fewer rather than more children, assuming equal family incomes, should have more economic options, e.g., for increases in per capita consumption or for more savings. Of course, couples with smaller families could choose to enjoy increased leisure, working only enough to maintain their customary levels. Such a pattern seems unlikely in Taiwan; most Taiwanese couples are interested in working hard and improving their living standards.

The present paper will consider whether, associated with varying numbers of children, there are differences in:

- (1) income, initially looking at total family income, but more importantly, examining per capita or per consumption unit income
- (2) use of available income for modern consumption--durables and recreation-and for savings
- (3) economic attitudes

The data come from a 1969 island-wide survey of 2300 husbands with wives in the childbearing years (18-24). A previous survey in 1966 had collected extensive demographic data from the wife; in this survey a substantial number of economic questions were included. The present analysis is limited to the 1323 couples who have been married at least ten years, since more recently married couples are less likely to have completed their families and may not have had their children long enough to feel the full effect on the family budget.

The analysis of the relationship of actual income levels to family size is further restricted to couples who live in nuclear units-husband, wife and unmarried children; two-thirds of the couples married 10 years or longer fall in this category. It is more difficult to estimate the effective income of couples who share joint living arrangements since (1) an assumption must be made about how total family income is shared--what proportion is available for this particular couple and their children, and (2) the data for joint families are less precise with regard to age and sex composition. A few nuclear families included unmarried children who earned incomes which they did not pool with the family; these cases were excluded from the analysis.

Small families are better off, even in terms of total income. While the two intermediate income categories are not ordered, the smallest families do have the highest incomes and the largest families have the lowest incomes, (See Table 1, Col 1). This ordering reflects the higher education of husbands with small families; once education is controlled by Multiple Classification Analysis (MCA) [1], there is no consistent relationship between income and family size (Col. 2). Income per capita probably is a better measure of well being and, with this measure, the larger the family, the less resources they have available for each family member. This relationship is monotonic and persists, only slightly lessened, when an adjustment is made for husband's education.

An even more relevant measure of family welfare may be income per consumption unit, which recognizes basic differences in consumption needs between adults and children. Weights were assigned to the children in each family, based on their age and the relative caloric needs of different age groups.1/ The income of the smallest families, on a per consumption unit basis, is more than double the income of the largest families, with three and four child families intermediate. Having three instead of four children is only slightly more advantageous in terms of income per consumption unit; the initially lower total income of three-child families offsets their lesser burden of support. Adjusting for husband's education does not appreciably alter the relationship (See Table 1, Columns 5 and 6).

Thus, couples with fewer children in Taiwan are better off than others, both in terms of per capita income and income per consumption unit. Over the full range of family size, the differences in well-being associated with parity are considerable, but there is no appreciable advantage in having three instead of four children. The more favorable per capita income position of small families should make possible additional options with regard to expenditures and saving and could affect economic attitudes; these in turn could have an impact on the development effort.

We look next at economic behavior--are there differences with regard to consumption and saving patterns that are associated with family size? Our analysis is restricted to several kinds of modern consumption, particularly consumer durables and recreation expenditures.<sup>2</sup>/ Of course, it is possible that the additional income per consumption unit might be expended to increase traditional expenditures for food and clothing. Such expenditures, insofar as they improve health standards, also may be beneficial to development - as an investment in human capital. However, it seems more likely that additional income would be expended on modern goods and services; such items, being new and highly valued, have high marginal utility. Expenditures on modern consumption can have a direct impact on development. In the first place, the use of modern durables can exert a modernizing influence; for example, a radio or television set brings listeners in contact with a broader world while a motorcycle increases mobility. Modern recreation expands the horizons of participants by providing enjoyable contacts outside of the immediate family group. On the production side, the demand for modern durables requires the development of technical skills and the creation of new marketing channels. Saving differentials associated with family size can provide resources for investment.

Small families do rank higher than larger families on consumption of modern durables and use of modern recreational facilities. They also are more likely to have saved 3/ (see unadjusted deviations in Table 2). These relationships are as expected; couples with fewer children to support devote more of their income to new forms of consumption or to savings. The relationships shown are for nuclear families, since only in these families does the interviewed respondent, together with his wife and children, unequivocally comprise both the income and the consumption unit. However, in unpublished tabulations these relationships also were found to hold for all couples married ten years or more, including those in joint or stem families.

The higher consumption and savings patterns of low parity families reflect, to some extent, their higher education and somewhat higher family incomes, since education and income are highly correlated with consumption and saving. However, after an adjustment is made for the effect of family income and education, using MCA, meaningful relationships remain between family size and both modern consumption and saving, although the magnitude of the relationships is diminished. The per capita income advantage which smaller families enjoy does affect their saving and modern consumption (Cols. 2, 4 and 6 of Table 2).

Although family size influences modern consumption and saving, its effect is modest, particularly when compared to the effect of total family income. This is not surprising since the variations in purchasing power stemming from family size differences are much less than those attributable to differences in family income. Seventy-five percent of the families married ten years had either 3, 4, or 5 children; 87 percent were in the 3-6 child range. Supporting six children instead of three (the largest variation possible for most couples) would, at most, cut consumption possibilities in half. The range in total income, on the other hand, is far greater.

Husband's education, after adjusting for the effects of income, has a stronger net relationship than does family size to consumption of modern durables and to recreation expenditures. Education serves to bring individuals in contact with the modern sector and influences their tastes. These differences in tastes could be expected to influence purchases of new kinds of goods and services more than the variations in purchasing power associated with family size differences. Both education and family size show a similar, fairly sizeable, relationship to saving behavior.

Our rather arbitrary assignment of consumption weights to Taiwanese children may be an improper generalization of Western experience and may overstate their marginal cost to the family. The marginal cost of an additional child is probably less in Taiwan than in Western countries; more food is home produced, supplemental child care is probably performed by relatives and lesser expenditures are made on lessons and recreation. Perhaps the marginal cost is small and the situation is as expressed in a Chinese proverb--"an additional baby requires only an extra pair of chopsticks." Τf so, the effective income advantage of small families would be lessened and this might account for the moderate sized differences in consumption and saving attributable to family size.

Even though the differences in modern consumption and saving associated with family size are not large, they are not inconsequential. For example, the adjusted consumption and savings measures for couples with three children are 12 to 30 percent higher than those for couples with five or more children; couples with two or less children rank even higher. In addition, the patterns of these relationships are consistent and monotonic.

We next look at economic attitudes; are there attitudinal differences associated with family size? The attitudinal measures used are: consumption aspirations 4/, perceptions of income change (both past and future), college expectations for sons, and two measures of expectations of support and assistance from children. Of course, cross-sectional studies can not establish lines of causality. Achieved family size may be one result of a couple's prior assessment of the net economic value of children or their desire for a higher standard of living. At the same time, an individual's attitudes reflect his experiences and achievements and it may well be that success in limiting family size, with its attendant improvement in family welfare, would affect a couple's expectations and aspirations. Economic attitudes can have an impact on development. For example, studies of consumer behavior have shown a positive relationship between the level of optimism and aspirations [3]; aspirations, in turn should stimulate greater work effort. Contrariwise,

couples who expect help from their children might feel less pressed to earn and save during their productive years.

We have restricted this part of the analysis, which deals with attitudes, to couples who have at least three children. There is reason to believe that for couples with fewer children, family size is less likely to reflect their basic attitudinal patterns. Most couples in Taiwan want at least three children, with the result that smaller families usually reflect fecundity impairments or late marriages, rather than choice. For example, 65 percent of the couples with less than three children had fewer than their ideal number of children; this compares to less than 20 percent for all nuclear families. Many of these couples do have physical impairments which limit child-bearing; 39 percent cited specific reasons for subfecundity and the actual level of subfecundity, including cases with no specific cause, is undoubtedly much higher. On the other hand, these families were included in the analysis of actual consumption patterns, inasmuch as consumption possibilities depend on achieved family size, irregardless of whether the couple wanted more than this specific number.

One pair of attitudinal indices measures the husband's and wife's perception of the usefulness of children--that is, the potential benefits to be derived from them. For the wife, this combines her expectations of living with her married sons and of being supported by them in her old age. For the husband, the measure includes, not only these two indications of traditional reliance on children but several other specific benefits.<sup>5</sup>/ Our data (Cols. 5-8 of Table 3) show that there is a positive relationship between family size and either the husband's or wife's expectations of the usefulness of children. The relationship is modest but regular, and it persists after adjusting for income and education. It seems reasonable that couples who expect to reap considerable benefits from their children might be motivated to have a large family. Of course, since this is a cross section study, we do not know whether they had many children because they foresaw their usefulness, or whether this reflects only an unplanned for reality--that couples with many children can more realistically expect help.

We also have some measures of aspirations for improvement in living standards - for modern consumption and for better education for children. Such aspirations are one measure of the opportunity cost of children, since they represent possible alternative uses of income as a result of limiting family size. Columns 1-4 of Table 3 show that aspirations, both for modern consumption and for education, are negatively related to family size. Couples with moderate sized families--3 or 4 children--express higher educational aspirations than do couples with 5 or more children. However, the difference is not large (a net difference of about 8 percentage points) and there is no appreciable difference in educational aspirations associated with having 3 instead of 4 children. There also is evidence that the educational aspirations of fathers with few children may be more reality oriented than is true for husbands with larger families. Only 40 percent of all fathers who expressed college plans had some idea of the costs involved; the smaller the family, the more likely it was that the father had some concrete notion about the costs of his educational ambitions. Family size is similarly, but less strongly, related to aspirations for modern consumption; large families do have lower consumption aspirations, but the magnitude of the differential is very modest. A high evaluation of the opportunity costs of children could motivate couples to have fewer children. An alternate possibility is that couples who had small families for other reasons might, as a result, feel they could aspire to a higher standard of living.

A third set of indices measures perceptions about the family's current financial situation (See Table 3 cols. 9-12). Couples with small families are more likely than others to feel their financial situation has improved in the last five years. Despite an increase in real income of 25 percent during the past 5 years, most families in Taiwan did not recognize any improvement in their current financial situation. The optimism of small families could reflect either their relatively better per capita income situation or the confidence gained by success in limiting family size. On the other hand, the fewer children a couple has, the less likely the husband is to feel his future income situation will improve. This may accurately reflect the situation of Taiwan parents for whom children are still the most likely source of old age support. Their present financial situation may be strained because of the expense of raising children, but these same children may be their source of support in the future. There is some evidence for this, in that thirty percent of the husbands who expected to be better off 5 years hence, cited help from children as the basis for this expectation.

In sum we have found that there are income differentials associated with family size in Taiwan. Family size is inversely related to economic welfare; couples with few children are better off than those with more children to support, in that they have more income available per family member, either on a per capita or per consumption unit basis. Family size is also related to differences in economic behavior and attitudes in ways which seem favorable to development, but the magnitude of these relationships is modest. Couples with small families are more likely to save and somewhat more likely than others to enjoy modern consumption. As expected, differentials in family size are associated with attitudinal differences; couples who expect financial support from children are likely to have large families, but attitudes measuring the opportunity cost of children-consumption and educational aspirations--show only weak associations to family size. It may

well be that the costs and benefits of children in Taiwan are such that they diminish the welfare differential associated with having fewer children.

### Footnotes

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1) Income per consumption unit was obtained by dividing family income by the weighted sum of family members, weights being assigned on the basis of the U.S. Department of Agriculture need standards. [(For example, adults are assigned a weight of one, while children under four are weighted .3.) Only the age of the youngest and oldest child in each family were readily available, but they provided a rough estimate of the age composition of the children and an appropriate average weight was applied. Thus, income per consumption unit for each family = total family income ÷ (number of children x average weight) + 2 (for the parents)].

 Modern durables include the following: electric fan, sewing machine, bicycle, motorcycle, rice cooker, clock, radio, record player, television, air conditioner, refrigerator, gas burner, camera and washing machine. Modern recreation expenditures include travel, meals in restaurants and movie attendance.
The measure of savings was the respondent's

statement as to whether or not he had accumulated savings since marriage. 4) Consumption aspirations included interest in obtaining more durables, improving housing and enjoying more modern recreation. For details on index construction, see D. Freedman [2]. Perceptions of income change included statements about whether they were better off relative to five years hence. One measure of expectation of support from children was the proportion of wives with traditional attitudes about support from and living with children in old age. The father's measure was a more elaborate index based on many statements made by the father about possible assistance from his children. For a more detailed description of the father's index see E. Mueller [4]. The index measure included statements about 5) help from children around the house or in farm or business and whether he expected to share in the children's earnings, even before retirement.

### References

- [1] Andrews, F., Morgan, J., and Sonquist, J., <u>Multiple Classification Analysis</u> Ann Arbor, Survey Research Center.
- [2] Freedman, Deborah S., "Consumption Aspirations as Economic Incentives in a Developing Economy" Human Behavior in Economic Affairs (Essays for George Katona) North Holland Press, 1972.
- [3] Katona G., Strumpel B., and Zahn E., Aspirations and Affluence, Comparative Studies in the United States and Western Europe, McGraw-Hill, 1971.
- [4] Mueller, Eva, "Economic Motives for Family Limitation." To appear in <u>Population Studies</u>.

#### Table 1

Income	of	Nuc	clear	Far	nil:	ies	Ъy	Si	ze	of	Family
	(Wor	aen	marr	ied	10	yea	ars	or	mc	ore)	)

Size of	Number of	Mea Total I (NT \$	n ncome 000)	Income Capi (NT \$	e per ta 5000)	Income per Consumption Unit (NT \$000)		
Family	Families	Unadjusted	Adjusted <sup>a</sup>	Unadjusted	Adjusted <sup>a</sup>	Unadjusted	Adjusted <sup>a</sup>	
		(1)	(2)	(3)	(4)	(5)	(6)	
0-2 children	46	34.3	30.4	8.6 <sup>b</sup>	7.6	9.78	8.99	
3 children	164	28.5	26.0	5.7	5.2	6.96	6.45	
4 children	243	31.6	30.9	5.3	5.1	6.63	6.49	
5 or more children	351	26.1	28.2	3.4 <sup>b</sup>	3.7	4.42	4.87	
Total	805	28.7						

<sup>a</sup>Adjusted for husband's education

<sup>b</sup>The average size of families with 0-2 children is almost four persons while that for families with five or more children is 7.6 persons.

## Table 2

## Various Economic Behavior Measures for Nuclear Families, Married 10 years or More, By Size of Family, Education of the Husband, and Family Income

·	Number	Ownership of Modern Objects		Consum of Ser	ption vices	Percentage	
	of	GM =	5.7	GM =	2.0	GM = 44%	
	Coup <b>les</b>	<b>Unadjus</b> ted	Adjusted <sup>1</sup>	Unadjuste	d Adjusted <sup>1</sup>	Unadjusted Adjuste	
Size of Family		(1)	(2)	(3)	(4)	(5)	(6)
0-2	46	6.0	5.6	2.3	2.1	50	48
3	164	5.7	5.4	2.0	1.8	45	41
4	243	5.3	5.2	1.6	1.5	42	40
5+	352	4.5	4.8	1.3	1.4	29	31
Family Income <sup>2</sup>							
Under \$12,000 per year	170	2.9	3.3	.6	.9	9	14
12,000-23,999	257	3.8	4.1	1.0	1.2	24	26
24,000-35,999	185	6.0	5.9	2.0	1.9	49	48
36,000-47,999	89	7.1	6.7	2.0	1.7	61	56
48,000-71,999	62	8.1	7.3	3.2	2.7	73	65
72,000 and over	42	9.0	8.2	4.0	3.4	79	71
Husband's Education							
Less than Primary graduate	193	3.4	4.4	.6	1.0	17	30
Primary Graduate	399	4.6	4.8	1.3	1.4	33	35
Junior High	96	6.6	5.8	2.6	2.3	59	49
High School graduate or more	117	8.2	6.6	3.2	2.5	68	48
Total	805						

 $^{1}\mbox{Adjusted}$  for income, education, and family size

 $^{2}40$  NT\$ = 1 \$ U.S.

## Table 3

## Selected Economic Attitudes for Nuclear Families, Married at Least Ten Years, by Family Size

				Consum	otion	Percenta; Educat	ge With ional	Expecta	tions of h	lp from children	
			Number	Aspira	tions	Expectations		Father's Measure		Mother's Measure	
			of	GM =	2.0	GM =	63%	GM = 6.0		GM = 50%	
Size	of	Family	Cases	Unadjusted	Adjusted <sup>1</sup>	Unadjusted	Adjusted <sup>1</sup>	Unadjusted	Adjusted <sup>1</sup>	Unadjusted	Adjusted <sup>1</sup>
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	3		164	2.2	2.2	70	66	5.5	5.7	42	45
	4		243	2.1	2.0	68	67	5.8	5.9	49	50
	5+		351	1.9	1.9	55	58	6.3	6.2	56	53
Tot	:al		758								
				Percen	tage	Perce	ntage				
			,	Better	off	Bette	r off				
			Number	5 yea	rs ago	5 years from now				-	
			of	GM =	21%	GM = 21%		1			
Size	of	Family	Cases	Unadjuste	d Adjusted	<sup>1</sup> Unadjuste	d Adjusted	T			
				(9)	(10)	(11)	(12)				
	3		164	29	28	18	17				
	4		243	19	20	21	20				
	5+		351	17	18	22	24				
Tot	:a1		758								

 $^{1}\!\operatorname{Adjusted}$  for family income and husband's education