

THE EMPLOYMENT OF WIVES ROLE INCOMPATIBILITY AND FERTILITY

A Study Among Lower- and Middle-Class
Residents of San Juan, Puerto Rico

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It is fairly well established that in industrialized societies a negative relationship exists between female employment and fertility¹ and that this relation is produced primarily by differential contraceptive behavior rather than by the self-selection of subfecund and involuntarily sterile women into the labor force.² On the other hand, the evidence of a negative relationship between female employment and fertility in the less developed countries is not convincing. Although a negative aggregative relationship exists between employment rates and fertility—both internationally and among the various political subdivisions in Latin American countries³—and survey data from Latin America indicate that nonworking wives report about 0.5 more children than working wives,⁴ studies conducted in Lima, Peru,⁵ Turkey,⁶ India⁷ and Mexico⁸ reveal no statistically significant differences in fertility behavior by employment status of wife.

One explanation of this discrepancy may lie in the nature of female employment and the conditions surrounding it in the developed as compared with the less-developed areas. In the early stages of development, participation in gainful employment outside the home by females tends to be limited and domestic help is readily and cheaply available. At the same time, most of the wives who work tend to be relatively uneducated women of lower-class families

who work because they must to provide family income. These factors, combined with the probable presence of relatives to serve as parental surrogates while the mother works, could very well account for the absence of a negative relationship between female employment and fertility in underdeveloped areas. As industrialization occurs, a number of changes in the nature of the female labor force also takes place. The home is no longer the locus of economic activity and a shift occurs from unpaid to paid employment. A greater proportion of the labor force consists of married women who are better educated than their nonworking counterparts and who work away from home. At the same time, agricultural and domestic workers decline as a proportion of the female labor force.⁹

The implications of these changes for differential fertility by labor force status become apparent when the results obtained by Jaffe and Azumi and other demographers are considered. Jaffe and Azumi report that the fertility of women employed within the home in Puerto Rico and Japan is very similar to that of nonworking women, but that women working outside the home have markedly lower fertility.¹⁰ Although Stycos' data for Lima, Peru, reveal no clear-cut relationship between fertility and employment status *per se*, women classified in professional and technical categories average 14 per cent fewer births and office workers 43 per cent fewer births than housewives.¹¹ The latter finding suggests that differential fertility may vary according to employment category in developing areas, and that this differential occurs only among the highly educated women who occupy professional and secretarial positions. Of course, these constitute such a small proportion of the labor force that employment status as such appears unrelated to fertility.

The net result of these patterns is to make joint occupancy of the roles of mother and worker less difficult in the underdeveloped countries than in the industrialized countries. Indeed, the importance of incompatibility of the roles of mother and worker as a factor explaining the relationship between female employment and fertility has been recognized by several demographers. Collver and Langlois describe high fertility as costly in an industrial setting because the cost of children is measured not only in the amount of expenditure

FIGURE 1. HYPOTHETICAL RELATION OF FERTILITY TO FEMALE EMPLOYMENT UNDER VARYING SOCIETAL CONDITIONS

		MOTHER - WORKER ROLES	
		Compatible	Incompatible
BIRTH CONTROL TECHNOLOGY	Available	No relation	Mutual causation
	Not Available	No relation	Fertility influences employment

necessary for them, but also in the amount of time the mother loses from work.¹² Another demographer echoes the same theme that “the social cost of introducing one or more (additional) children will be high in a setting where the locus of roles is centered outside the home and low among groups where they are centered in the home.”¹³ Blake also notes that foregoing employment frequently will be experienced as a cost of having children.¹⁴

The crucial factor, then, is the extent to which any incompatibility between joint occupancy of the roles of mother and worker is present. Stycos and Weller have incorporated this distinction into a paradigm of the relationship between female employment and fertility.¹⁵ This is presented in Figure 1. When the roles of mother and worker are compatible, no relationship should exist between labor force status and fertility. In situations where these two roles are relatively incompatible, one should find a negative relationship; but the nature of this relation should be dependent upon the presence or absence of an effective and culturally acceptable birth control technology. Where such a technology is absent, the relation should be dependent upon self-selection of subfecund and sterile

women into the labor force. When such a technology is present, female employment and fertility should exercise mutual causation.

This paper attempts to partially evaluate the adequacy of this schema by using survey data collected in Puerto Rico. The specific hypothesis investigated is: the greater the incompatibility between the roles of mother and worker, the greater the differential fertility behavior of workers and women not in the labor force.

STUDY SETTING

Puerto Rico represents an interesting opportunity for study. Demographically, Puerto Rico has experienced a phenomenal transition. The birth rate (corrected for underregistration) has fallen from an average of 44.8 births per 1,000 population in the 1940-1949 decade to 33.6 in 1960.¹⁶ Although some of this decrease is due to the effects of outmigration on the age structure of the population, even the age-sex adjusted birth rates for 1950 and 1960 indicate a decrease in fertility.¹⁷ Women still have more children than they desire despite the general availability of modern contraceptive technology and the widespread practice of sterilization.¹⁸

The changes that have occurred in the pattern of female labor force participation are impressive in magnitude. Although female labor force participation rates have declined since 1930, this has been attributable to a large-scale withdrawal of females not only from agriculture, but also from the other traditional forms of female employment—home needlework and domestic service. In 1935, only one-third of the Puerto Rican female labor force was engaged in “non-traditional” employment, but by 1960, over 80 per cent were so employed¹⁹ (Table 1). In terms of occupational structure, the female labor force in Puerto Rico in 1960 was closest to the 1940 composition in the United States when compared with all other decennial censuses since 1900 (Table 2). Little differentiation is seen in labor force status by marital status; and age-specific participation rates suggest that the Puerto Rican females typically work until they marry and become pregnant with their first child, whereupon they tend to withdraw permanently from the labor force

TABLE 1. INDUSTRIAL COMPOSITION OF FEMALE LABOR FORCE OF PUERTO RICO

	<i>Agriculture</i> %	<i>Home Needlework</i> %	<i>Private Household</i> %	<i>Other</i> %
1935*	7.3	35.8	22.7	34.2
1940**	4.7	34.9	28.2	32.2
1950†	2.5	23.4	19.0	55.1
1960††	1.8	3.8	13.3	81.1

* Puerto Rico Reconstruction Administration, CENSUS OF PUERTO RICO: 1935, POPULATION AND AGRICULTURE, Chapter 2, Occupations and Employment Status, Table 41.

** United States Bureau of Census, U.S. CENSUS OF POPULATION: 1940, PUERTO RICO, Bulletin No. 3, *Occupations and Other Characteristics by Age*, Table 19.

† ———, U.S. CENSUS OF POPULATION: 1950, Vol. II, CHARACTERISTICS OF THE POPULATION, Part 53, Puerto Rico, Tables 67 and 69. The occupational category "Dressmakers and seamstresses, except factory" has been used to approximate home industries. In the census data, this category is understated by approximately 25,000 employed females who were omitted from the labor force and the data have been adjusted to correct for this omission. As a result of errors in enumeration, the data for "Operatives (n.e.c.)" in the several apparel manufacturing industries include about 20,000 employed females who should have been included in the category "Dressmakers and seamstresses, except factory." This misclassification has not been corrected, and the total effect is to understate employment in home needlework and overstate employment in other sectors.

†† ———, U.S. CENSUS OF POPULATION: 1960, Vol. I, CHARACTERISTICS OF THE POPULATION, Part 53, Puerto Rico, Tables 103 and 106.

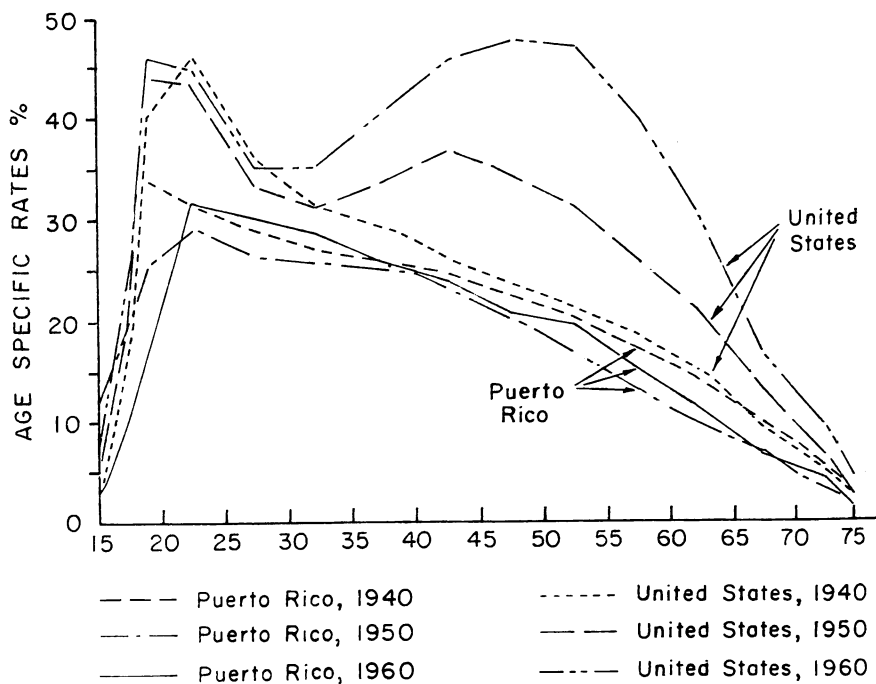
TABLE 2. OCCUPATIONAL COMPOSITION OF FEMALE LABOR FORCE

	<i>Puerto Rico</i> 1960* %	1900 %	1910 %	1920 %	1930 %	1940 %	1950 %	1960 %
Professional technical and managerial	19.7	15.3	15.4	17.0	18.5	17.1	17.2	18.3
Clerical	16.9	4.0	9.2	18.6	20.8	21.4	27.4	30.0
Sales	4.8	4.3	5.1	6.2	6.8	7.3	8.6	7.2
Craftsmen	1.5	1.4	1.4	1.2	1.0	1.1	1.5	0.9
Operatives	29.4	23.8	22.9	20.2	17.4	19.5	19.9	16.1
Private household	13.7	28.7	24.0	15.7	17.8	18.1	8.8	9.8
Service, except private household	12.2	6.7	8.4	8.1	9.7	11.3	12.6	15.4
Farm laborers	1.4	13.1	12.0	10.3	5.9	2.7	2.9	2.0
Laborers, except farm	0.4	2.6	1.4	2.3	1.5	1.1	0.8	0.3
Indices of dissimilarity		28.9	22.2	15.9	15.6	13.4	16.6	19.3

* United States Bureau of Census, U.S. CENSUS OF POPULATION: 1960, Vol. I, CHARACTERISTICS OF THE POPULATION, Part 53, Puerto Rico, Table 103.

** The United States data are taken from Nye, F. I. and Hoffman, L. W. (Editors), THE EMPLOYED MOTHER IN AMERICA, Chicago, Rand McNally, 1963, p. 10.

FIGURE 2. FEMALE LABOR FORCE PARTICIPATION RATES BY AGE FOR PUERTO RICO AND THE UNITED STATES, 1940-1960



and raise their family. This same pattern is suggested by 1940 census data from the United States. Census materials gathered in the United States since that date, however, suggest the emergence of a new life-cycle pattern of employment and fertility. Whether married or not, nearly all young women work after they leave school and continue to work until shortly before their first pregnancy. They then withdraw from the labor force and reenter it only after their children reach school age. The age-specific rates for 1940-1960 for Puerto Rico and the United States are presented in Figure 2.

Thus the overall view is one of increasing incompatibility between the roles of mother and worker. Compatibility is greatest when employment is centered in or around the home or when parental substitutes are readily and cheaply available. The employment of females inside the home and in domestic service has been decreasing

steadily. Hence not only are more women working away from home, but fewer domestic servants are available to care for their children and to perform other domestic duties. The occupational structure is not unlike that of the United States in 1940. Therefore, recognizing that locus of work, occupation and the cost and availability of domestic help represent only a few dimensions of role incompatibility, the inclination of the author is to place Puerto Rico in the right-hand column of the paradigm and to predict a negative relationship between female employment and fertility. This expectation is realized.²⁰

The Stycos-Weller paradigm suggests that when role incompatibility is present the causal direction of the negative relationship between female employment and fertility will depend upon the presence or absence of modern birth control technology. Where that is absent, the relationship will tend to be produced by the self-selection of subfecund and involuntarily sterile women into the labor force. When this technology is present, employment will affect fertility as will some slight amount of self-selection. A question remaining, then, is whether such a contraceptive technology is present in Puerto Rico. The answer is an unequivocal "yes;"²¹ accordingly Puerto Rico should be placed in the upper right cell of the paradigm—"mutual causation." This hypothesized causal relation also finds empirical support.²² Hence, consideration of Puerto Rico as a whole provides support for the Stycos-Weller paradigm of the relationship between female employment and fertility.

Role incompatibility, however, is also a variable *within* societies. If it is truly an explanatory factor, then within a given society the greater the amount of incompatibility between the roles of mother and worker the greater should be the differential fertility between workers and women not in the labor force.

SOURCE OF DATA AND METHODOLOGY

In the summer of 1966, the author participated in an interdisciplinary survey research project in San Juan, in which employment and fertility histories were gathered as well as some information

about the conditions surrounding the employment of wives. These data will be used to assess partially the major hypothesis. Items on which data were gathered include labor force status, occupation, child-care arrangements of working mothers and normative orientation of the respondent toward the employment of mothers away from home.

A sample of household was drawn from four types of neighborhoods—middle class, lower class, lower class slum and public housing. Seven areas of San Juan were selected by the project designers to satisfy the housing type requirements of the design, and systematic sampling of households was performed within each area. Three basic waves of interviewing were made. The first consisted of 1,022 female mates of the head of household (or the female head of household in cases of no male head of household). The analyses used in this paper are based upon data collected from the 577 currently mated women aged 15 to 49 included in this first wave.²³ Of these 577 respondents, 132 (23 per cent) reported they had been employed for pay for a period of six or more months during the 12-month period preceding the interview. The remaining 445 respondents reported they had not been employed regularly.

In assessing representativeness, it must be recognized that this sample was not intended to be generalizable to the metropolitan population of San Juan. Instead, the sample was designed specifically to achieve maximum differences with regard to the effect of specific types of housing on the behavior and attitudes of residents. The portion of the sample used in this paper can be regarded as representative of currently mated women between the ages of 15 and 49 who are resident in the middle- and lower-class types of neighborhoods. Extreme care must be taken in generalizing beyond that universe. When selected characteristics of the sample are compared with data from the 1960 census—using San Juan *municipio* as the basis of comparison—the differences that exist are in the expected direction, given the special features of the sample.²⁴

Considering the pattern of child care among those who do work, it can be seen in Table 3 that the predominant pattern of care is by the grandparents or other relatives. Also, older children frequently

TABLE 3. CHILD-CARE PROVISION OF WORKING MOTHERS

Spouse	2.9%
Older children	20.0
Grandparents, other relatives	33.3
Neighbor	7.6
Nursemaid, domestic servant	1.9
Nursery or school	10.4
Other arrangement	12.3
No young children (under 14)	11.4
Total	100.0
Number of cases	105
Other*	27

* Respondents improperly classified as "not working."

care for the younger children. The greater the social and financial costs of obtaining parental surrogates for younger children while the wife is employed, the less the compatibility between the roles of mother and worker. As these costs tend to be minimal when care is by relatives, the respondents have been operationally defined as being in a situation where joint holding of the roles of mother and worker entails difficulties if their young children—if any—are not cared for by relatives.

The worker's occupation should also be relevant, particularly if the wife is a white-collar worker. It is felt that white-collar workers experience more difficulty than do other workers in interrupting employment to bear children, as the employer has invested a considerable amount of on-the-job training in the employee and she is likely to be more essential to the smooth functioning of the business, in contrast to the domestic servant or unskilled worker. She is also more likely to be contributing substantially to family income and may be less willing to forego this income to bear children. Accordingly, a second operational definition of a situation making relatively difficult the concurrent occupancy of the roles of mother and worker is white-collar employment. The occupational characteristics of the respondents are shown in Table 4.

The normative structure of the larger society also should be important. If the woman is occupying a role (worker) that has not been legitimated (for her, or for women in general), she may be

TABLE 4. OCCUPATIONAL CHARACTERISTICS OF SAMPLE

Professional, semiprofessional	17%
Administrative, official, supervisory	1
Owner of large farm	14
Secretarial and sales personnel	8
Self-employed	2
Skilled workers	28
Semiskilled workers	5
Public and protective services	6
Domestic and maintenance workers	20
Total	100
Number of cases	132

White-collar employment has been defined as "Professional . . ." "Administrative . . ." "Secretarial . . ." and "Self-employed." All other types of employment are considered non-white-collar employment.

TABLE 5. NORMATIVE ORIENTATION TOWARD EMPLOYMENT OF WOMEN AWAY FROM HOME, BY LABOR FORCE STATUS

	<i>All Women %</i>	<i>Non- workers %</i>	<i>Workers %</i>
Agree with women working away from home	85.4	84.5	88.6
Agree with married women with no children working away from home	88.4	86.5	94.7
Agree with married women with children working away from home	46.6	41.8	62.9
Number of cases	577	445	132

subjected to pressures to withdraw from that role. Likewise, if a woman is occupying a role (or a combination of roles) that she feels is improper for a woman to occupy, she may be viewed as being in a state of normative role conflict. About 85 per cent of the respondents felt it is all right for a woman to work away from home. Less than half, however, felt that a married woman with children should work away from home. Although women currently in the labor force possess a more favorable orientation toward being both a worker and a mother, the proportion approving is still less than two-thirds (Table 5). Therefore, a third operational definition of role incompatibility is a woman's being in the labor force although

she does not feel it is all right for a woman to work outside the home if she is married and has children.

Finally, recognizing that these characteristics are not necessarily independent, it seems desirable on a methodological as well as a theoretical level to assess the extent and effect of the joint occurrence of one or more factors. Thus, another operational definition of incompatibility between the roles of mother and worker refers to the number of different aspects of her working situation that are associated with incompatibility. Operationally, the greater the number of such aspects, the greater the incompatibility between the roles of mother and worker. Using three measures or characteristics, as is the case here, yields four possibilities. A woman may be classified as being in a relatively incompatible situation in none, one, two or three of the circumstances for which data are available. The frequency distribution for these is presented in Table 6.

Less than one-third of the workers are exposed to more than one dimension of role incompatibility as operationally defined in this paper. Although each type of role incompatibility makes an approximately equal contribution numerically within the respondents having an index score of "1," among those having a score of "2" over 50 per cent are white-collar workers whose children are not cared for by relatives.²⁵

To control for the factor of self-selection of involuntarily sterile and subfecund women into the labor force, the following analyses

TABLE 6. FREQUENCY DISTRIBUTIONS OF THE NUMBER OF TYPES OF ROLE INCOMPATIBILITY

<i>Worker is exposed to</i>	<i>N</i>	<i>%</i>
No types	29	28
1 type	47	45
2 types	25	24
3 types	4	4
Total cases	105	100%
Other*	27	

* Includes 27 respondents erroneously reported as "not in labor force" when asked about child care patterns (see Table 3).

are limited to the 471 women included in the sample who are classified as fecund or who have been sterilized for contraceptive reasons.²⁶ Of these, 107 (23 per cent) are in the labor force.

RESULTS

Dichotomizing on each measure of role incompatibility except the cumulative index, the results of the analysis are shown in Table 7. In general, the expectations are realized. In most cases either the fertility of women not in the labor force and that of women in relatively compatible situations is similar, or the fertility of workers in a relatively compatible situation is intermediate to the levels of fertility prevailing in the other two groups.²⁷

In Appendix Table 1, a high score on the index of role incompatibility is associated with high education and high income, suggesting that role incompatibility may be related positively with socioeconomic status. However, the author feels the data used in this study are not entirely appropriate for drawing this conclusion. Almost all the respondents in the highest category of role incompatibility are white-collar workers. As family income by definition includes the wife's earnings,²⁸ it is to be expected that the family income of these white-collar workers will be higher than the family income of other women. The relation between high education and white-collar employment is obvious. Actually, the author feels that two aspects of role compatibility—ease of child-care arrangements and likelihood of feeling it is all right for a mother to work—increase as income and education increase. Hence the relation between socioeconomic status and role incompatibility is rather complex, and the author does not wish to generalize from the present data.

SUMMARY AND CONCLUSIONS

Research in industrialized countries indicates a negative association between female employment and fertility, whereas evidence from the less-developed areas of the world is not conclusive. One explanation of this discrepancy that has been advanced is that the

TABLE 7. FERTILITY CHARACTERISTICS BY RELATIVE COMPATIBILITY BETWEEN THE ROLES OF MOTHER AND WORKER

	<i>National Labor Force</i>	<i>Non-White Collar</i>	<i>Occupation</i>		<i>Ratio to National Labor Force</i>
			<i>White Collar</i>	<i>White Collar</i>	
Children ever born	3.7	3.4		2.6**	.70
Children ever born per 1,000 months married	24	20		17	.71
Number of cases	364	63		44	
<i>Child-care Patterns</i>					
	<i>National Labor Force</i>	<i>Relatives</i>	<i>Ratio to National Labor Force</i>		<i>Ratio to National Labor Force</i>
			<i>Other</i>	<i>Other</i>	
Children ever born	3.7	3.6		3.0**	.81
Children ever born per 1,000 months married	24	23		18	.75
Number of cases*	364	46		31	
<i>Attitude toward Working Mothers</i>					
	<i>National Labor Force</i>	<i>Agrees</i>	<i>Ratio to National Labor Force</i>		<i>Ratio to National Labor Force</i>
			<i>Disagrees</i>	<i>Disagrees</i>	
Children ever born	3.7	3.2**		2.9**	.78
Children ever born per 1,000 months married	24	19		17	.71
Number of cases	364	69		38	
<i>Index of Role Incompatibility</i>					
	<i>National Labor Force</i>	<i>Ratio to National Labor Force</i>	<i>Ratio to National Labor Force</i>		<i>Ratio to National Labor Force</i>
			<i>1</i>	<i>2-3</i>	
Children ever born	3.7	.98	3.8	1.03	.72
Children ever born per 1,000 months married	24	.96	23	.96	.71
Number of cases*	364	17	36	24	

* Excludes 30 persons who are improperly classified as not working or who reported having no younger children.

** Statistically significant at .05 level using one-tailed *z*-tests. Statistical significance has not been computed for children ever born/1,000 months married because it was computed for each group as $\frac{\sum CEB}{\sum Months Married}$ 1,000 and hence does not have a variance.

nature of female employment and the conditions surrounding it in less-developed countries are such that the joint roles of mother and worker do not involve a great deal of role conflict.

This paper represents an attempt to assess the effect of role incompatibility on the relationship between fertility and the employment of wives. Specifically, the hypothesis tested is: the greater the incompatibility between the roles of mother and worker, the greater the differential fertility behavior of workers and women not in the labor force. Measures of relative role incompatibility used are occupation, child-care patterns and normative orientation toward the employment of mothers away from home. The hypothesis receives general support.

This represents only a partial assessment of the degree of incompatibility between the roles of mother and worker in Puerto Rico. A more complete analysis would involve an assessment of marital dissatisfaction as a result of the wife's employment, the policy of the wife's employer regarding maternity leaves, the proportionate contribution of the wife's income to total family income, the pattern of family decision making,²⁹ and the cost, availability and perceived adequacy of child-care provisions for working mothers. The attitude of the husband toward the employment of the wife also seems important, as well as the reasons underlying the wife's employment. As these data were not gathered in the survey due to a variety of structural features, such as the length of the interview and its multidisciplinary nature, assessment of the conditions surrounding the employment of women in San Juan and their effect upon fertility can only be provisional.

The possibility that female employment may cause lower fertility has led to enthusiasm by some demographers to programs designed to increase levels of female labor force participation in less-developed societies. Thus, Blake has written that "employment is a means of introducing into women's lives the subjective awareness of opportunity costs involved in childbearing—an awareness that traditional feminine roles and activities are well designed to circumvent."³⁰

Methodologically, cross-sectional data such as those used in this paper cannot provide an answer to the question of the extent to

which increases in female labor force participation will result in decreases in fertility. However, on the basis of some of the findings presented in this paper, it may be appropriate to speculate about some of the possible directions desirable in any programs that are designed to decrease fertility by increasing female employment.

One point that should be made is that female employment *per se* is not associated with lower fertility. As white-collar employment is strongly related to a later age at marriage as well as lower fertility, normative barriers against the employment of women in professional and other white-collar employment should be undermined by governmental policy whenever possible. Although the employment of women outside the home as well as that of married women should be encouraged, the provision of employment for young, unmarried females upon graduation may lead to an increase in the age at marriage. In addition to retarding population growth by increasing the span of time between generations, this measure should also encourage females to remain in school rather than become drop-outs, thereby affecting fertility independently.

Perhaps the entry of women into domestic services should be discouraged. Minimum wage provisions might prove helpful in this respect. Not only would this motivate women who desire work to seek more modern employment with fixed hours and more binding obligations, but it would also make it more expensive to provide for the care of children of working mothers in this manner. If the major goal is to lower fertility, the wholesale establishment of on-the-job facilities for the care of children seems self defeating, as does the establishment of neighborhood child-care facilities by the state.

These are only speculations about some features that might prove instrumental in lowering fertility through a program to raise levels of female employment. Accordingly, additional research is needed on their effectiveness and any dysfunctional aspects that might arise.

APPENDIX TABLE I. CHARACTERISTICS OF WORKERS AND NONWORKERS—NORMALLY FECUND WOMEN

	<i>Years of Schooling</i>			<i>Child-Care Arrangements</i>	
	<i>0-5</i>	<i>6-8</i>	<i>9+</i>	<i>Relatives</i>	<i>Other</i>
Nonworkers					
Age at marriage	18.6	18.2	19.9	19.7	20.0
Present age	33.9	32.1	29.3	33.4	34.2
Number of months married	169	162	112	155	166
Family income (monthly)	\$220	\$255	\$295	\$362	\$346
Years of schooling	2.7	7.0	10.8	9.2	9.0
Attitude Toward Working Mothers					
	<i>Years of Schooling</i>			<i>Disagrees</i>	
	<i>0-5</i>	<i>6-8</i>	<i>9+</i>	<i>All</i>	<i>Other</i>
Labor Force					
Age at marriage	18.1	19.3	21.1	20.1	19.5
Present age	37.5	34.9	33.4	34.5	34.2
Number of months married	220	178	146	166	166
Family income (monthly)	\$247	\$284	\$428	\$362	\$355
Years of schooling	3.1	6.9	11.9	9.1	8.8
Score on Index of Role Incompatibility					
	<i>White Collar</i>			<i>Other Worker</i>	
	<i>0</i>	<i>1</i>	<i>2-3</i>	<i>0</i>	<i>1</i>
Occupation					
Age at marriage	21.5	19.2	18.5	19.3	21.9
Present age	34.2	34.7	33.3	33.7	33.9
Number of months married	151	176	154	167	149
Family income (monthly)	\$465	\$293	\$291	\$329	\$422
Years of schooling	11.7	7.4	7.5	8.2	11.3

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⁵ Stycos, J. M., *Female Employment and Fertility in Lima, Peru*, *Milbank Memorial Fund Quarterly*, 43, 42-54, January, 1965.

⁶ Stycos, J. M. and Weller, R. H., *Female Working Roles and Fertility*, *Demography*, 4, 210-217, 1967.

⁷ Dandekar, K., *DEMOGRAPHIC SURVEY OF SIX RURAL COMMUNITIES*, Poona, Gokhale Institute of Politics and Economics, 1959; Driver, E. D., *DIFFERENTIAL FERTILITY IN CENTRAL INDIA*, Princeton, Princeton University Press, 1963; Sovani, N. K. and Dandekar, K., *FERTILITY SURVEY OF NASIK, KOLABA AND SATARA (NORTH) DISTRICTS*, Poona, Gokhale Institute of Politics and Economics, 1955; Dandekar, V. M. and Dandekar, K., *SURVEY OF FERTILITY AND MORTALITY IN POONA DISTRICT*, Poona, Gokhale Institute of Politics and Eco-

nomics, 1953 report a negative relation between female employment and fertility. A similar finding is reported in United Nations, *THE MYSORE POPULATION STUDY*, New York, United Nations, 1961.

⁸ Zarate, A. O., Differential Fertility in Monterrey, Mexico: Prelude to Transition?, *Milbank Memorial Fund Quarterly*, 45, 213-229, April, 1967. Male fertility is examined and mean live births total 4.1 to husbands whose wives are employed and 4.3 to husbands whose wives are not employed. The effects of age are not controlled. In another study using census data for 22 urban *municipios* in Mexico, Zarate reports a negative correlation between percentage of females economically active and children ever born to all women aged 20 to 24. However, as age at marriage tends to be related to participation in the labor force, the overall relation between employment and fertility may be much weaker. This is supported by the fact that when percentage females married is controlled through partial correlation, the correlation coefficient between percentage females economically active and children ever born, 20 to 24, drops from -.440 to -.132. See Zarate, A. O., Fertility in Urban Areas of Mexico: Implications for the Theory of Demographic Transition, *Demography*, 4, 367-369, 1967.

⁹ The student interested in the relationship between economic growth and female labor force participation should consult the following, which contain previously mentioned ideas: Jaffe, A. J., Trends in the Participation of Women in the Working Force, *Monthly Labor Review*, 79, 559-567, 1956; Jephcott, P., Seear, N. and Smith, J. H., *MARRIED WOMEN WORKING*, London, George Allen and Unwin, Ltd., 1962; Nye, F. I. and Hoffman, L. W. (Editors), *THE EMPLOYED MOTHER IN AMERICA*, Chicago, Rand McNally & Company, 1963; Smuts, R. W., The Female Labor Force: A Case Study in the Interpretation of Historical Statistics, *Journal of American Statistical Association*, 55, 71-79, 1960; ———, *WOMEN AND WORK IN AMERICA*, New York, Columbia University Press, 1959.

¹⁰ Jaffe, A. J. and Azumi, K., The Birth Rate and Cottage Industries in Underdeveloped Countries, *Economic Development and Cultural Change*, 9, 52-63, 1960; Jaffe, A. J., *PEOPLE, JOBS AND ECONOMIC DEVELOPMENT*, Glencoe, The Free Press, 1959; Zarate, *op. cit.*, reports a similar conclusion from data gathered in Monterrey, Mexico.

¹¹ Stycos, *op. cit.* Hungarian data reveal a similar pattern, with women in nonmanual occupations having lower fertility than women in manual and agricultural occupations. Klinger, A., Trends of Differential Fertility by Social Strata in Hungary, *INTERNATIONAL POPULATION CONFERENCE*, NEW YORK, 1961, London, UNESCO, 1963.

¹² Collver and Langlois, *op. cit.*, p. 367.

¹³ Goldberg, D., Family Role Structure and Fertility, Ph.D. dissertation, University of Michigan, 1958, unpublished.

¹⁴ Blake, J., Demographic Science and the Redirection of Population Policy, *Journal of Chronic Diseases*, 18, 1195, 1965.

¹⁵ Stycos and Weller, *op. cit.*

¹⁶ Vazquez, J., The Demographic Evolution of Puerto Rico, Ph.D. dissertation, University of Chicago, 1964, unpublished.

¹⁷ Ridley, J. C., Recent Mortality Trends in Underdeveloped Countries, in Sheps, M. C. and Ridley, J. C. (Editors), *PUBLIC HEALTH AND POPULATION CHANGE: CURRENT RESEARCH ISSUES*, Pittsburgh, University of Pittsburgh Press, 1965, p. 154.

¹⁸ Hill, R., Stycos, J. M. and Back, K. W., *THE FAMILY AND POPULATION CONTROL: A PUERTO RICAN EXPERIMENT IN SOCIAL CHANGE*, Chapel Hill, The University of North Carolina Press, 1959, pp. 71-72.

¹⁹ The pattern of female labor force in Puerto Rico is subjected to a historical treatment and compared with developments in the United States and, to a lesser extent, Jamaica, in Weller, R. H., *A Historical Analysis of Female Labor Force Participation in Puerto Rico*, *Social and Economic Studies*, in press.

²⁰ Jaffe, *op. cit.*; Vazquez, *op. cit.*, pp. 218-220; Weller, R. H., *Female Work Experience and Fertility in San Juan, Puerto Rico: A Study of Selected Lower and Middle Income Neighborhoods*, Ph.D. dissertation, Cornell University, 1967, unpublished, pp. 83, 131-134; Okraku, I., *Regional Variations in Puerto Rican Fertility Levels*, M.A. thesis, Cornell University, 1965, unpublished, uses census data for cross-sectional aggregative analysis by *municipio* and finds an increasing negative correlation in 1940, 1950 and 1960 between child-woman ratios and female labor force participation.

²¹ For a recent review of the development of family planning programs in Puerto Rico, see Nine Curt, J., *Puerto Rico*, in Berelson, *op. cit.*, pp. 227-233; and Hill, Stycos and Back, *op. cit.* A national sample conducted by the Puerto Rico Department of Health in 1967 discloses that approximately one-third of all women in the reproductive ages have been sterilized. Stycos, J. M., personal communication.

²² Jaffe, *op. cit.*, p. 188; Weller, Ph.D. dissertation, *op. cit.*, Chapters IV and V.

²³ For a more complete description of the research project, sampling method and the sample's representativeness see Weller, Ph.D. dissertation, *op. cit.*, Chapter III.

²⁴ *Ibid.*

²⁵ Among respondents having an index score of "1," 11 are white-collar workers, 12 are persons whose children are not cared for by relatives and 13 are workers who feel it is not proper for a married woman with children to work away from home. Among those respondents having an index score of "2," 12 are white-collar workers whose children are not cared for by relatives, five are white-collar workers who feel it is not proper for mothers to work away from home, and three are workers whose children are not cared for by relatives and who feel it is not proper for mothers to work away from home.

²⁶ A fecundity schema theoretically similar but operationally different from that used in the latest GAF study has been employed. A fecund woman is one who had given birth within the five years preceding the interview, or was pregnant at the time of the interview or either had practiced birth control during that interval or had not been mated continuously during that time and could give no medical reason why she could not bear additional children. Sterilized women have been included in this subsample because they are viewed as women who are using a completely effective method of birth control. The women excluded from subsequent analysis are those who either gave a medical reason why they could not have additional children or who, although living with a mate and not practicing any form of birth control, had not given birth or become pregnant in the five years preceding the interview. The fecundity parameters obtained are described in greater detail in Weller, Ph.D. dissertation, Chapter IV.

²⁷ As the measures of fertility used in Table 7 represent cumulative rather than completed fertility and hence tend to reflect variations in spacing and age at marriage, the author also analyzed the relation between role incompatibility

and expected completed family size. The same pattern was present; that is, the greater the role incompatibility the lower the expected family size.

²⁸ For a study suggesting that the role of the working wife in determining social status has been neglected by students of social stratification, *see* Day, L. H., Status Implications of the Employment of Married Women in the United States, *American Journal of Economics and Sociology*, 20, 391-398, 1961.

²⁹ For a study of the role of family decision making as an intermediate variable in the relationship between female employment and fertility, *see* Weller, R. H., The Employment of Wives, Dominance and Fertility, *Journal of Marriage and the Family*, 30, 437-442, 1968.

³⁰ Blake, *op. cit.*, p. 1195.

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