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SOME INSTITUTIONAL DETERMINANTS OF FERTILITY IN PERU

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There are several established expectations as to the demographic transition in currently developing countries which seem to be contradicted by recent evidence from Peru. In this respect it is assumed, and in some cases it can be demonstrated, that Peru's experience is similar to the majority of other Latin American countries except for Uruguay, Argentina, and Cuba. (Peru was chosen as the focus for this study because its demographic situation has received far more attention than that of any of the other "Indian" Latin American countries--and because a sample of female factory workers is available, permitting further investigation of the relationship between female employment and fertility.)

The first of these expectations is that the population explosion arises, not from an increase in birth rates, which were initially high and presumably "spontaneous," but from a decrease in death rates which could be manipulated externally and with relatively little local resistance. Growth then would occur from the resulting natural increase and would continue until the birth rate fell to the same level as the death rate.

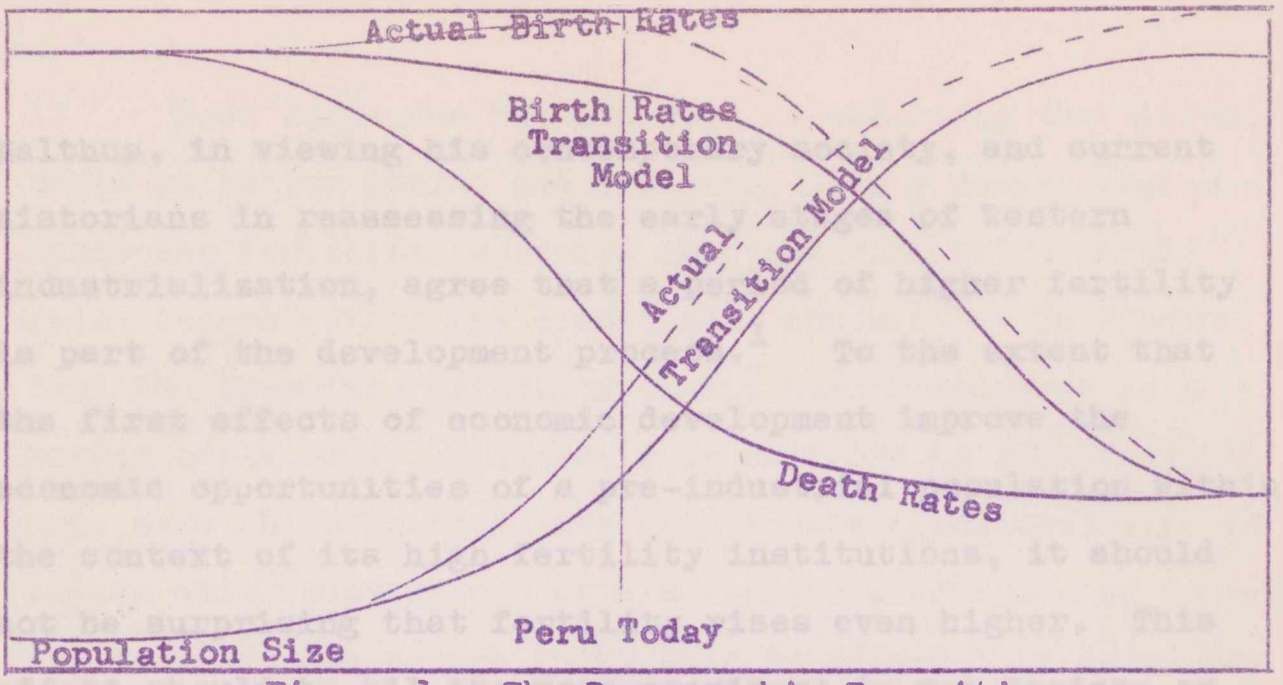

Figure 1. The Demographic Transition and Peruvian Population Growth

A detailed examination of Latin American birth rates reveals, however, that most have actually risen in recent decades rather than fallen. Collver notes that "pessimists ...will find cause for alarm in [his] report."[1] As Latin America continues to develope economically it can be assumed that this trend will be reversed--as the dotted line in Figure 1. suggests--but in the meanwhile, the transitional stage will be even more difficult than anticipated and the possibility of occasional Malthusian checks (famine, war and disease) operating in some areas seems fairly likely.

The expectation that economic development reduces fertility then refers to its presumably inevitable long-run effect, not its immediate consequences. As Heer reminds us,

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[1] O. Andrew Collver, "Birth Rates in Latin America: New Estimates of Historical Trends and Fluctuations." Research Series No. 7, Institute of International Studies, University of California, Berkeley, 1965, pp. 55-56.

Malthus, in viewing his contemporary society, and current historians in reassessing the early stages of Western industrialization, agree that a period of higher fertility is part of the development process.[1] To the extent that the first effects of economic development improve the economic opportunities of a pre-industrial population within the context of its high fertility institutions, it should not be surprising that fertility rises even higher. This effect should be all the more prominent in non-Western or marginally Western areas where industrialization is essentially an alien intrusion. Some Latin American cities, for instance, have reached sizes which far exceed the technical and administrative capacity of the local society. Up to a point and for a limited period of time, the consequences of foreign industrialization can be introduced without the corresponding local infra-structure. (Throughout this paper we will be primarily concerned with this transitional phase which differs so much from both a pre-industrial and an industrial model in ways other than being merely intermediate between the two.) After this stage, if local industrialization is to succeed, the requisite institutional infrastructure must develope, which in turn is linked to reduced fertility behavior and values.

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[1] David M. Heer, "Economic Development and Fertility," Demography, Vol. 3, No. 2, 1966, pp. 424-25.

Heer concludes his analysis by observing that investments in better health and education have a better chance of hastening fertility reduction than policies which merely raise income within the traditional context.[1] Heer notes that the immediate effect of public health measures is a higher birth rate. Then only by confronting parents with even more children than they need (while simultaneously--to relate this point to one of his earlier findings--not increasing their income enough to be able to afford this added expense) could a reduction in fertility possibly be brought about. In addition, Heer suggests that the good will built up by public health clinics apparently serves as the best basis for the subsequent diffusion of contraceptive methods.

Evidence from peasant societies of a direct relationship between landholdings and fertility is especially relevant to Latin America. Stys found that in late 19th century Poland, average completed family size varied directly with size of farm. Moreover, the higher fertility in the large farms arose from a younger age at marriage.[2] It is possible, then, that in land-scarce areas in Latin America where there are many small-holders or sharecroppers rather than wage peons, that fertility has been reduced by late or

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[1] Heer, op. cit., pp. 443-44.

[2] W. Stys, "The Influence of Economic Conditions on the Fertility of Peasant Women," Population Studies, Vol. XI, No. 2 (November 1957), pp. 136-148.

forgone marriages.[1] In the event of a land reform program, whether the division of large estates or the colonization of new areas, it is possible that, as occurred in Ireland, the age at marriage could drop, the percent married rise, and thus a considerable increase in fertility result (which, however, would make such efforts of only temporary benefit as a solution to peasant unrest--as the recent reradicalization of once "reformed" areas suggests).[2]

The reasons for this unanticipated increase in birth rates are well worth pursuing. Improved health conditions, and therefore lowered mortality, also have the effect of raising the birth rate since more women live through their fertile years, and are more fecund during this period.[3] Thus even if the percent married--or the age specific birth rates*--did not rise, an increase in female longevity would increase the annual birth rate. In fact, the percent married and age specific birth rates could even decrease somewhat and still be more than offset by a reduction in death rates. In Peru, the average life expectancy of females only recently exceeded that of the end of the fertile period.

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[1] Stycos finds that in Peru the highest fertility regions are not the predominantly Indian rural departments but rather those with a largely Spanish-speaking population. (J. Mayone Stycos, "Culture and Differential Fertility in Peru," Population Studies, March 1963, p. 262.

[2] Gerrit Huizer, "On Peasant Unrest in Latin America," Pan American Union, Washington, D.C., June 1967.

[3] Eduardo E. Arriaga, "The Effect of a Decline in Mortality on the Gross Reproduction Rate," Milbank Memorial Fund Quarterly, July 1967, Vol. XLV, No. 3, Part 1, pp. 333-34.

* $\frac{\text{Children born to women of a specific age}}{\text{All women of that age}}$

Table 1.
Life Expectancy in Peru[1]

	Male	Female
1940	34.6	38.3
1950	38.0	41.7
1961	46.9	50.8

Therefore in Peru it appears that this increased longevity has been an important factor in the increase in birth rates.

Table 2.
Trends in Average Annual Vital Rates in Peru[2]

	Natural Increase	Birth Rate	Standardized Birth Rate	Death Rate
1940-44	15.7	44.5	46.2	28.8
1945-49	20.2	44.9	46.9	24.7
1950-54	23.1	45.5	48.0	22.4
1955-59	27.6	46.2	49.0	18.6

The birth rates were age-standardized in order to determine real fertility since a larger number of children at one point in time "overloads" the denominator in the following 15 years without adding to the numerator (crude birth rates = $\frac{\text{Births}}{\text{Total Population}}$).

[1] Eduardo E. Arriaga, "New Abridged Life Tables for Peru: 1940, 1950-51 and 1961," Demography, Vol. III, No. 1, 1966.

[2] Collver, op. cit., p. 161.

When this shift in the age distribution in Peru was controlled for, the actual rise in fertility during the 40's and 50's was even greater than the crude rates revealed. However, the longevity of fertile women also increased, hence both the crude and standardized birth rates increased.[1]

In addition to trends in mortality, which transitionally increase fertility, there are other, more institutional factors in operation in all societies which should be examined.[2] Two closely interrelated ones are the age at marriage of women and the percent married. If age specific rates do not change and fertility takes place within marital unions (their legality is an open question in Latin America), then an increase in the average age at marriage will decrease the immediate birth rate as well as the long run growth of the population. This effect is especially relevant to high fertility populations such as that of Peru.[3] Again, even if marital fertility,

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[1] Roberts found that in the Caribbean birth rates rose because although the size of completed family fell, childlessness decreased even more with a resulting annual growth rate of over 3%. (G. W. Roberts, "Populations of Non-Spanish-Speaking Caribbean," in J. Mayone Stycos and Jorge Arias, Population Dilemma in Latin America, Washington, D.C.: Potomac Books, 1966, pp. 81-82.

[2] Kingsley Davis and Judith Blake, "Social Structure and Fertility," Economic Development and Cultural Change, April 1954, Vol. 4, No. 3.

[3] Norman B. Ryder, "The Conceptualization of the Transition in Fertility: Cold Spring Harbor Symposia on Quantitative Biology," Vol. XXII, 1957. Ansley J. Coale and C. Y. Tye, "The Significance of Age Patterns of Fertility in High Fertility Populations," Milbank Memorial Fund Quarterly, Oct. 1961, Vol. XXXIX, No. 4.

defined as the size of completed family, remained unchanged, population growth would be reduced by virtue of a wider spacing of generations.[1] In addition, during the shift up of the age at marriage there would be a transitional lost birth group which would never be made up. Of course, a population marrying later would probably also have smaller families and thus decelerate growth even further.

At the same time, this factor, like the others to be discussed, could operate in the opposite direction. If the age at marriage fell an extra "cohort" of children would be added on top of a speeded up reproductive velocity, i.e., a shorter length of generations. Again, while the cited studies on this variable assumed no change in completed family size, in order to measure the effect of changes in age at marriage alone, it is likely that the size of completed family would increase if the age at marriage fell.

In Peru in 1961 the mean age of mothers at the birth of their first child was 20 for both urban and rural areas. Unfortunately there is no reliable comparable data for an earlier period.* It could be assumed that with an increasing proportion of women in school for longer periods of time, the age at marriage would rise--especially as urban areas grow faster than rural. However, the under age 20 distribution of the age at the birth of the first child indicates that women bear sooner in urban

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[1] Coale and Tye, op. cit., p. 645.

*The age at first union from Stycos' sample of 1600 women interviewed in 1960-61 will be discussed later in reference to the influence of female employment and fertility.

Table 3.
Mean Number of Live Births
by
Age of Mother
at Birth of the First Child[1]

	Age Commenced Childbearing Cumulative Percentage		Mean No. of Live Births by Age of Mother at Birth of First Child	
Age	Urban	Rural	Urban	Rural
10	.02	.016	6.28	5.85
11	.04	.03	5.40	6.65
12	.18	.16	5.91	6.22
13	.54	.43	5.90	5.98
14	2.06	1.67	5.97	5.55
15	6.46	5.70	6.01	5.95
16	13.24	12.41	6.06	5.72
17	21.80	20.29	5.39	5.32
18	34.27	35.00	5.39	5.65
19	43.53	44.38	4.83	5.04
20	57.40	63.40	5.18	5.62

[1]Tables 41-43, pp. 140-145, Vol. I, Tomo II, 1961 Censo Nacional del Peru.

areas up until age 18.
(Table 3 here)

While a younger age at marriage favors a higher birth rate and higher completed family size, very young ages of reproduction can have detrimental effects on later fecundity for biological as well as social reasons. Therefore if the average age at marriage rose above these subminimal levels, a rise in fertility could occur, but at the higher ages, such as 20, at which we now find Peru, an increase should have the opposite effect.

The percent married would clearly tend to increase fertility if it rose--as it in fact has done in most Latin American countries.[1] The extensive number of consensual unions is such that one could well discount changes in this index as relevant more to changes in morality than in fertility. However, Collver found a significant relationship between changes in the marriage rate and in the birth rate in Latin America, owing to wars and business cycles.[2] This finding, then, has at least a double importance for present purposes.

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[1] Collver, op. cit., p. 51. This rise in the marriage rate is striking since the percent married is lower in urban than in rural areas and since Latin America is rapidly urbanizing. In addition, rising birth rates mean younger populations --hence, relatively fewer eligible for marriage. Also, in Peru at least, the Indian rural areas have a lower fertility and a lower percent mated than the Spanish-speaking areas--and the latter are growing at the expense of the former as mass literacy developes. (See pp. 262-3, Stycos, "Culture and Differential Fertility," op. cit.)

[2] Collver, op. cit., p. 52.

It establishes the marriage rate as a highly probable cause of fluctuations in the birth rate and it reveals that the birth rate in Latin America has already been "controlled" even if not by means of contraception. That is, the population has voluntarily undertaken an action--postponing or foregoing marriage, which had the effect of reducing the birth rate. We should then examine factors which affect the marriage rate more closely.

Collver found that the marriage rate fell: 1. during depressions--the Great Depression--and in countries during the World Wars whose exports declined; 2. when mass male emigration occurred--for reasons of employment or war. Economic booms have had the opposite effect. Peru has enjoyed one of the longest and steadiest eras of economic growth since 1940 of any Latin American country. Consequently, its increase in the percent married is yet another factor accounting for the increase in birth rates. Since such a change is intrinsically transitional (once all marriageable women are married) the more important long-run question would be the size of completed family.

Up to this point we have been discussing institutional factors operating directly on fertility. Beyond these, we should also consider several less direct influences, namely urbanization and industrial employment. Each is assumed to reduce fertility spontaneously as a society developes economically.

With respect to urbanization and fertility in Mexico, the Robinsons and Zarate found that fertility was not only not decreasing, but even increasing in the larger cities.[1] Urban fertility is still lower than rural but the gap is being narrowed primarily by increases in urban fertility. This is especially striking in Monterrey which is a highly industrialized city. In this paper we shall not attempt a comparable assessment of the rural-urban fertility differential for Peru, but rather shall limit ourselves to the issue of the fertility of female factory workers in Lima, which will, however, shed some light on the matter of residence.

The depressing effect on fertility of female employment is a well established pattern for developed nations, with the extremes found in communist countries whose inheritance laws and welfare programs appear to remove the last of the practical advantages of having children.[2] However, with reference to Peru, Puerto Rico and Turkey, studies suggest that female labor market participation does not significantly reduce the fertility of the employed female worker.[3] The essential reason for

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[1] Alvan O. Zarate, "Differential Fertility in Monterrey, Mexico," Milbank Memorial Fund Quarterly, April 1967, p. 93; and "Fertility in Urban Areas of Mexico: Implications for the Theory of the Demographic Transition," Demography, Vol. 4, No. 1, 1967, p. 365. Robinson, W. C. and E. H., "Rural-Urban Fertility Differentials in Mexico," American Sociological Review, Feb. 1960.

[2] Stanley Friedlander & Morris Silver, "A Quantitative Study of the Determinants of Fertility Behavior," Demography, Vol. 4, No. 1, 1967, pp. 38, 55.

[3] J. Mayone Stycos, "Female Employment and Fertility in Lima, Peru," Milbank Memorial Fund Quarterly, Jan. 1965; and Stycos & R. H. Weller, "Female Working Roles and Fertility," Demography, Vol. 4, No. 1, 1967, pp. 210-217; Robert O. Carleton, "Labor Force Participation: A Stimulus to Fertility in Puerto Rico," Demography, Vol. 2, 1965, pp. 233-239.

Table 4.

The Peruvian Labor Force 1940*-1961**

	Percent male in each sector		Percent of all workers in each sector		Sector	Total	
	1940	1961	1940	1961		1940	1961
Agriculture	68.5%	86.2%	62.4%	49.7%	Primary	64.4%	51.8%
Extractive	97.3	97.3	1.8	2.2			
Manufacturing	43.5	71.8	15.4	13.1	Secondary	17.2	16.6
Construction	98.0	99.0	1.9	3.3			
Commerce	67.8	72.1	4.6	9.1	Tertiary	16.8	27.2
Transportation & Communication	95.3	95.1	2.1	3.0			
Services	50.9	50.8	10.2	15.2			
Other	80.1	78.4	1.6	4.4		1.6	4.4
Total of all economically active	64.6	78.2	100	100		100	100

The Labor Force***

(The percent the economically active are of various base populations)

	1940	1961		
	Total	Total	Urban	Rural
Economically active:				
Total	39.9%	31.5%	33.0%	30.1%
Male	52.1	49.6	49.5	49.7
Female	27.9	13.6	16.7	10.8

*Dirección Nacional de Estadística, Censo Nacional de Población y Ocupación, 1940 (Lima: 1944), Vol. I, pp. 360, 606-607, 69.

**Dirección Nacional de Estadística y Censos, Sexto Censo Nacional de Población--Resultados Finales de Primera Prioridad, 1961 (Lima: 1964), p. 230, Table 11.

***Ibid., pp. 220-221, Table 10.

this finding is that most employed women are in occupations which permit, or at least do not conflict with, high fertility, i.e. agriculture, service occupations and artisan handicrafts.[1] This absence of a significant differential would presumably change with a shift in the occupational structure in the direction of low fertility occupations. Such a reduction in fertility would, however, assume that women should move into these new occupations at an even higher rate than men--if fertility reduction is to be a major goal of employment policy. In Peru, however, the percent of women has been reduced in most of the major occupational categories between 1940 and 1961 with the result that their overall labor force participation has actually declined from 27.9% in 1940 to 13.6% in 1961. (Table 4 here)

As can be seen in Table 4, these reductions have been heaviest in agriculture, manufacturing and commerce, which are those occupations with a significant number of females. Women have held their own mainly in services which combine the traditional high fertility domestic service (24.7%) and modern low fertility professional (7.0 %) services. The foreclosure of employment opportunities in the agricultural sector will presumably not have a significant effect on local fertility whereas in the city the lost opportunities are precisely in those occupations associated with the lowest fertility, as revealed in Table 5.

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[1] Abram J. Jaffee and Koya Azumi, "The Birth Rate and Cottage Industries in Underdeveloped Countries," Economic Development and Cultural Change, Vol. IX, No. 1, Oct. 1960, p. 62. Jaffee and Azumi found that in both Puerto Rico and Japan cottage industry employment reduced fertility very little below that of the non-employed.

Table 5.

1959 Lima Fertility
by Age and Occupation of Mothers[1]
(Mean birth order - Non-employed mothers = 100)

	Office Workers	Professional and Technical	Artisans and Factory Workers	Service Workers	Nonemployed
15-19	86	93	92	104	100
20-24	64	91	83	100	100
25-29	54	85	88	99	100
30-34	52	84	88	97	100
35-39	51	82	98	99	100
Age standardized mean birth order	2.00	3.01	3.13	3.47	3.51
Percent in occupational category	2	13	4	43	36

[1]Table 1, p. 43, J. Mayone Stycos, "Female Employment and Fertility in Lima, Peru," Milbank Memorial Fund Quarterly, January 1965, Vol. XLIII, No. 1.

Table 6.

Marital Status of Employed Women[1]

← %

Occupation	Single	Married	Consensual Union	Divorced	Separated	Widowed	?	↓ %
Total	58.4	22.0	7.3	.4	.1	9.9	.6	100
Professional & Technical	53.6	39.2	1.2	1.1	1.1	3.2	.6	6.7
Administrative	39.6	33.7	5.4	1.9	2.2	12.5	4.7	.7
Clerical	72.6	20.9	1.1	1.4	.9	2.9	.2	6.2
Sales	40.2	33.0	11.7	7.4	1.9	12.2	.2	9.6
Agriculture	47.8	23.9	8.6	.2	.9	18.3	.3	31.4
Mining	49.9	23.0	14.2	---	.3	11.6	1.0	.1
Transportation	37.4	40.2	9.7	2.9	1.8	6.2	1.8	.1
Artisans & Factory Workers	52.1	27.8	9.6	.5	1.3	8.4	.3	14.8
Service	79.6	8.4	6.1	.2	.9	4.3	.4	24.8
Others	73.8	10.7	3.7	.3	.6	2.9	8.0	3.3

[1]Vol. I, Tomo IV, Table 101, p. 250. Censo Nacional de Población del Perú.

The published data most relevant to the issue of female factory worker employment and fertility is that of Stycos (Table 5 above) which, however, lumps a high fertility group--artisan handicraft workers, with a presumably low fertility occupation--factory employment. (It also does not distinguish between part- and full-time employment--an important aspect since the former would conflict far less with childbearing.) It could be, then, that the fertility of artisan workers was close to that of the non-employed--as in Puerto Rico and Japan--or the two could be quite similar. This survey does, however, constitute the only body of reliable data on occupational differentials in Peruvian fertility.

The two high fertility occupations in Stycos' survey call for further examination in the light of the 1961 census (not available when his article was written) since the sample included only fertile women.

(Table 6 here)

In Table 6 it can be seen that artisans and factory workers are a highly married category whereas service workers are largely unmarried and young (taking the percent widowed as a proxy for age). A partly analyzed survey of domestic servants in Lima, carried out in 1965, indicates that this occupation is made up largely of young unmarried women who do not view it as a career and who are often forced out of it by having children since they do not enjoy the protection of the laws described below. Therefore, while those who have children may have relatively large families, they are probably a minority of all domestic service workers. Many domestic servants still "live in" in Peru but in such cases,

children are rarely welcome.

In 1959, a sample of 223 female factory workers was obtained from four of the largest textile mills in Lima (and therefore in Peru). These women constituted all of the females in these mills and 13% of their labor force. On each of them data on marital status, age, seniority, birthplace, and living children was available. The latter may not be a complete measure of live births since children who died young could have been excluded. However, since the expected pattern for employed women is low fertility, an underestimate is presumably acceptable. The fertility of this sample of Peruvian women is lower than all women (largely not employed) but it is still high even as defined --and therefore would be somewhat higher if all live births had been recorded. The employers were very concerned about being responsible only for the bona fide offspring of their own workers since their welfare obligations (as will be more fully described) were considerable, so elaborate records on this matter were the rule.

Before examining data comparing the fertility of this sample of Lima factory workers to all Peruvian women, the labor and welfare laws pertaining to female employees should be explained. In brief, these laws are seen by employers as being so expensive that, since they have been enforced, especially after 1965 in the larger urban factories and mines (at the most involving only 15% of the labor force), a deliberate policy of hiring as few women as possible

has been pursued.[1] Consequently, this sample reflects contrary pressures whose relative strength is unknown. On the one hand, employers have hired very few women recently and whenever possible discharge those of childbearing ages. On the other hand, married women have every reason to hold on to these favored jobs in the face of such extensive pro-natalist benefits. The only reason for their not having been discharged years ago is that after a worker has been employed for 90 days (in a large unionized factory) it is extremely difficult to discharge him by law and by virtue of the political influence of the urban unions.

The enforcement of labor and welfare laws has been so vigorous in this limited segment of the economy that Peru's urban blue collar workers have enjoyed a continuous relative and absolute increase in their real income since 1946.[2] At the same time, white collar workers and the mass of unskilled manual workers have suffered a relative if not absolute decline in the income from their primary occupations. (The actual income of the urban middle class is often maintained through desperate efforts at multiple job holding.)

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[1] Women in factories with over 25 workers: 1. must receive equal pay for equal work; 2. may not work over 45 hours a week--but must be paid the same weekly wages as their male counterparts who usually work 48 hours a week; 3. receive 60 days of maternity leave at 60% of full pay; 4. enjoy an hour off daily to nurse their children who must be cared for in the factories' day nurseries--which must employ qualified nurses. In addition to these benefits employers also pay for the extensive medical and pension costs which this category of worker enjoys. (Jorge Ramirez Otarola, Codificacion de la legislacion del trabajo y prevision social del Peru, 2nd ed., Lima: Editorial Antonio Lulli, 1963, pp. 105-6.)

[2] U.N. Analysis and Projection of Economic Development VI: The Industrial Development of Peru, Mexico City 1959, p. 43

Table 7.

Children by Age and Birthplace of Mother

	Mean children per mother by age					Percent childless				
	1959 Factory Sample			1961 Total Peru[1]		1959 Factory Sample			1961 Total Peru	
	Total	Lima-Born	Migrant	Urban	Rural	Total	Lima-Born	Migrant	Urban	Rural
20-24	---	*	*	2.1	2.2	80.0	75.0	83.3	51.0	35.2
25-29	1.9	1.8	2	3.2	3.5	48.1	31.2	72.7	26.6	14.7
30-34	2.7	2.8	2	4.3	4.8	38.2	33.3	33.3	16.7	9.4
35-39	3.3	3.0	3.8	5.3	6.0	36.6	23.5	53.8	13.1	6.8
40-44	3.9	3.8	3.7	5.9	6.7	11.4	4.0	30.0	12.4	6.9
45-49	3.2	4.1	3.4	6.1	7.0	36.3	44.6	30.0	12.6	6.3
50-54	3.9	4.4	3.0	6.2	7.0	38.8	41.6	33.3	13.4	6.9
55-59	3.2	4.0	0	6.3	7.1	37.5	16.6	**	13.9	6.5
60-64	2.5	0	2.5	6.4	6.8	33.3	**	**	14.4	7.7
65 +	6.0	5.0	0	6.5	6.9	50.0	**	**	14.8	7.4
Total	3.2	3.4	3.0	4.8	5.2	36.7	28.5	48.8	45.7	36.9
Number	223	133	90							

*Only one worker in each case.
**Less than five cases.

	Mean children per mother by marital status					Percent childless by marital status***				
Single	2.7	2.8	2.4	3.2	3.3	71.0	63.3	80.4	92.5	92.1
Married	3.1	3.2	2.7	4.9	5.6	12.8	7.8	22.5	8.3	6.4
Consensual Union	4.3	4.5	4.1	4.4	4.5	12.5	14.2	11.1	9.8	11.3

***The factory worker group includes women 20+ while the base for the entire population is 10+ years.

Stycos Lima Survey

Of Married Women 20-44, 1961[2]

Mean Lima Births

Social Class	Working	Not Working	Working, by Occupation	
High	2.4	3.0	3.01	Professional & Technical
Middle	3.6	3.8	2.00	Office
Low	4.0	4.6	3.1	Artisan & Handicraft Workers
			3.5	Service Workers

[1]Table 40, p. 90, Vol. I , Tomo II, 1961 Censo Nacional de Poblacion del Peru.
[2]Table 3, p. 47 in J. Mayone Stycos, "Female Employment and Fertility in Lima, Peru," op. cit.

On balance, therefore, we are dealing with a peculiar but real phenomenon -- a group of workers being phased out--or down. Normally, the turnover of female workers is higher than male but in this case the median seniority of female workers was higher than that of males since most of them are not being replaced.[1] (Male workers, 11 years; female, 12)

Therefore this analysis may have a primarily historical relevance except in the important sense of indicating the fertility reduction potential which will be lessened. (However, it must also be noted that the manufacturing sector as a whole has shrunk from 17.2 to 16.6% from 1940 to 1961. On the other hand, the proportion of presumably "high fertility" handicraft shops in this category has probably lessened in favor of the modern factory.)

In Table 7 it can be seen that the fertility of the factory women is significantly below that of all urban mothers in Peru at all age levels. (In view of the fact that some infant deaths may have been overlooked one could raise the factory workers' family size closer to that of the (largely non-employed) urban population. On the other hand, since the median seniority of the mothers is 14 years (15 Lima born, 13 migrant) and their median age is 35 years--and the median age at the birth of the first child for all Peruvian women, rural and urban, is 20 years--it is likely that most

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[1] David Chaplin, The Peruvian Industrial Labor Force, Princeton University Press, 1967, p. 161.

of these mothers have been employed at their present job through most of their childbearing years. In this case their employers could not have missed noting their children.)

Table 8.

Median Age on Employment of the Childless and Mothers by Birthplace and Marital Status

Age on Employment					Marital Status of Women					
	Childless		Mothers		All Peru			Factory Sample		
	Lima	Migrants	Lima	Migrants	Lima	Rural Peru	Total Workers	Total Mothers	Total Lima-born	Total Migrants
Single*	19	24	27.5	25	52.1	40.2	40.3	18.0	36.8	45.5
Married	30	20	21	23	39.5	42.7	52.4	72.0	57.9	44.1
Consensual Union	17	43	27	22	8.4	17.1	7.2	10.0	5.3	10.1
Total	20	24	22	23	100	100	100	100	100	100

*Includes separated, divorced, and widowed.

Women born elsewhere in Peru were distinguished from the Lima born to see if the formers' fertility was higher by virtue of a small town or rural background. However, the opposite appears to be the case. In most ages and types of marital status, moreover, they were much more likely to be childless whether single or married. In addition, there were less

Table 9.

Employment Stability
by Age and Parity, by Birthplace

Median seniority by age

	Childless		Mothers	
	Lima	Migrants	Lima	Migrants
20-24	3	4	4	--
25-29	5.5	10	12	5
30-34	11	13	13	13
35-39	13	17.5	15	14
40-44	18	12	13	14
45-49	11	25	18	14
50-54	20	30	18	22
55-59	14.5	25	19	--
60-64	--	49	--	23
65 +	35	--	--	--
Total	11	14	15	13

Median Seniority by Parity

	Childless	Children					All Mothers
		1	2	3	4	5+	
Lima	11	15	13	13	15	15	15
Migrants	14	12	14.5	13	23	13	13
		Numbers					Total
Lima	38	13	28	17	13	24	133
Migrants	44	14	8	11	3	10	90

likely to be married although their median age on employment was higher. Note also that the married Lima mothers went to work especially young, making it likely that most of their children were born during their employment. (Table 8)

The extraordinary stability of this group of workers has already been noted. At this point, differentials by birthplace and maternity should be examined. It appears that Lima born mothers are the most stable while the Lima-born childless are least so./ (see Table 9) It is also interesting that seniority does not decrease with the number of children, as one might expect if a double entry (before and after children) type of labor force participation were in operation. Of course mothers of more children would tend to be older and hence have more seniority but only under the conditions of high stability of employment. It would seem more plausible for seniority to increase with parity (the number of children ever born). Therefore the absence of a significant relationship between seniority and parity is presumably the result of the sharp reduction in the hiring of women in recent years.

Summing up these observations on the relationship between employment status and fertility, we find the potentially growing "role incompatibility"[1] between motherhood and employment which characterizes industrial societies and which leads to a negative relationship between the two.

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[1] Robert H. Weller, "The Employment of Wives, Role Incompatibility and Fertility; A Study Among Lower and Middle Class Residents of San Juan, Puerto Rico," Paper read at the 1968 annual meeting of the Population Association of America, Boston, April 18, 1968.

However, the effect of this role conflict may not be to reduce the total birthrate but rather to expel women from these low fertility occupations, thus favoring a persistently high birth rate.

The pro-natalist effect of much of the government's legislation is clearly at odds with a policy of fertility reduction but not in the direct sense expected. Women who lose or can't obtain jobs owing to child care costs thereby lose these benefits since they are not yet available to the general public--only to the fully employed. But in losing them, non-employed women do not thereby have fewer children than employed women. In fact they have more children but without benefit of the above mentioned services at the lower class level. A policy designed to reduce fertility in Peru through employing married, or at least mated, women would not be very successful in the face of such pro-natalist legislation at the blue collar level.

Although beyond the scope of the present paper, education might be the more productive "contraceptive" investment, since various studies have found it to be more strongly related to low fertility than employment among manual workers. In Peru the predominantly sex-segregated system of public and private education (up to the university level) might permit a more "feminist" approach to female education than seems to occur in co-educational schools.

In conclusion, it has been demonstrated that: 1. current Peruvian birth rates represent an increase over the already

high levels existing before death rates were reduced; 2. the institutional factors favoring high fertility are found in the urban industrial sector as well as the traditional rural sector; 3. the era of the highest rate of population growth in Peru is just now underway.