THE EMERGENCE OF DIFFERENTIAL FERTILITY IN URBAN EGYPT

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With her population increasing at the rate of almost 3 per cent per year, Egypt is a classic example of a modernizing society that has already experienced a radical drop in mortality rates unmatched by any decrease in fertility. Projections of her future population must anticipate the time when Egypt will enter the next phase of the demographic transition, that is, when the birth rate will begin to decline, thus narrowing the gap which has grown progressively wider since the mid-nineteenth century and has resulted in constantly augmented rates of natural increase.

According to demographic theory, the beginning of an over-all decline in fertility will be signaled by the emergence, within the urban segment of society, of significant fertility differences by socioeconomic class. This is based on the assumption that declining fertility is initiated by the educated, upper-occupational classes within the largest urban centers and diffuses gradually to other subgroups in the society.¹ If this is correct, the presence (or absence) of fertility differentials in urban Egypt must be investigated if we are to gauge how close that country is to terminating her period of explosive growth. Demographers studying Egyptian fertility, however, have been impressed primarily by the constancy and uniformity of the birth patterns. For more than two generations, the crude birth rate has fluctuated narrowly around an uncorrected average of 43/1,000 per annum, and only minor fertility differences have been identified between urban and rural populations,² among occupational classes³ and religious groups.⁴ Recently it has been suggested that educational and income variables are becoming significant determinants of differential fertility.⁵ However, since well-educated, upper-income families constitute so small a fraction of the total population, their representation in sample field studies has been insufficient to permit the computation of statistically valid fertility rates.

Lack of refined data has, thus far, precluded the kinds of analyses required to investigate fertility differentials among urban classes. Although tabulations of live births and surviving offspring by duration of marriage and (separately) age of wife appeared in the Egyptian Census of 1947, no cross-tabulations by socio-economic variables were made available in that year.⁶ This situation has been rectified by the Census of 1960, in which three extremely significant tables appear for the first time. We now have available tabulations of the number of children ever born (live births) by: 1. age of wife within given duration-of-marriage classes; 2. education of wife within the same duration-of-marriage classes; and 3. occupation of husband by duration-of-marriage class. This article analyzes data from these tables for the capital city of Cairo, since we believe that if differentials are to be found, their existence will be most distinctly evident in the returns for Egypt's major metropolis.⁷

EDUCATION AND FERTILITY

According to this new evidence, education appears to be a most significant variable in the fertility of urban Egyptian women. There is a clear inverse relationship between the educational attainment of wives and the number of children borne by them. Among women married for less than five years, the strength of this variable is almost obscured by the operation of what appears to be a universal pattern

TABLE I. MEDIAN NUMBER OF LIVE BIRTHS TO CURRENTLY MARRIED WOMEN, BY EDUCATION OF WIFE AND DURATION OF MARRIAGE, CAIRO, 1960.

	Duration of Marriage (Years)					
Education of Wife	Under 5	5-9.9	10-19.9	20-29.9	30+	
Illiterate	1.21	3.36	5.87	8.01	8.38	
Barely reads	1.15	3.56	5.75	7.59	7.78	
Reads and writes	1.22	3.42	5.49	6.53	6.52	
Did not complete intermediate	1.27	3.21	4.65	5.63	5.93	
Completed intermediate	0.95	2.76	3.70	4.32	4.77	
Went beyond intermediate	1.02	2.63	3.66	3.61*	3.89*	
Completed college or more	1.17	2.53	3.33			
All levels	1.19	3.32	5.67	7.62	8.09	

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* Combined because of small numbers. Source: Medians have been computed from grouped data appearing in Table 53 on pp. 466-469, CENSUS oF 1960, Volume Muhāfazat al-Qāhirah. Women whose literacy status or births are unknown have been excluded entirely from the computations.

ar: : of immediate, unspaced childbearing, regardless of educational ЭC. level. However, among women married for longer durations, dif-0 ferences in education are increasingly reflected in fertility differ-Į¥, entials. The mechanism of this divergence is the tendency of women 虛 with less education to sustain throughout their marital histories the 5. uncontrolled reproduction characteristic of the opening years of 01 marriage, whereas women of higher educational achievement appear to terminate the initial period of high fertility earlier and more ũ. effectively. Table 1 and Figures 1 and 2 illustrate this phenomenon Żi beyond question. V.

1 As can be seen, the gap between educational groups grows increasingly pronounced with prolongation of marriage. Within the οÉ first five-year interval, the relationship is weak and subject to chance reversals. The rank correlation coefficient (rho) between educational level and median number of live births in these early years of marriage is only - .50. However, among women married five to ti 10 years, this coefficient increases to -.89 and, for every durationŗ, of-marriage group longer than this, a perfect negative correlation 抠 (rho = 1.00) is found. The development of greater differentiation and regularity within successive marital-duration groups is demonesi strated in Figure 2.

Three major variables underlie the differentials identified above: 1. differences in age at marriage; 2. differences in the proportion of wives reporting no live births; and 3. differences in the use and effectiveness of birth control techniques. To trace the effects of these variables, it is necessary to go beyond the data presented in the census tables, for only tangentially do they offer relevant information.



Figure 1. Median number of live births to currently married women, by education of wife and duration of marriage, Cairo, Egypt, 1960.



Figure 2. Median number of live births to currently married women, by education of wife for each duration-of-marriage group, Cairo, Egypt, 1960.

TABLE	S 2. MEDIAN	NUMBER	OF LIVE BU	RTHS TO CU	RRENTLY
MARRIE	D WOMEN, 1	BY DURATI	ON OF MAR	RIAGE AND	AGE OF
WIFE, C	AIRO, 1960.				
Age of Wife		Duratio	on of Marriage	(Years)	
(Years)	Under 5	5-9.9	10-19.9	20-29.9	3 0+
Under 20	0.83				
20-24.9	1.44	3.17			
25-29.9	1.43	3.57	4.74		
30-34.9	1.29	3.34	5.99		
35-39.9	0.95	2.95	6.27	8.09	
40-44.9	0.73	1.97	5.04	7.82	
45-49.9	0.69	0.97	3.81	7.40	8.66
50 plus	0.67	0.75	1.61	5.05	7.89

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Source: Table on pp. 463-465, CENSUS OF 1960, $Muh\bar{a}fazat~al-Q\bar{a}hirah$. Unknowns were excluded from computations.

1. The fertility performance of urban Egyptian women is undoubtedly affected by the ages at which they marry, as can be seen from Table 2. While it is impossible to isolate with precision each specific age-at-marriage class, it appears probable from the data that, at least among women married less than 20 years, those who married between the ages of 20 and 25 had the highest fertility rates,⁸ while those marrying later had significantly lower rates. Therefore, postponement of marriage beyond the middle twenties should result in fewer births.

Age at marriage is directly related to education in most societies, not only because education itself may require a postponement of matrimony but also because a value system that favors or permits the production of educated women also implies assignment of roles to these women that extend beyond the universal one of childbearing. While we lack data from which mean or median age at marriage might be computed for Cairo women according to their educational attainment, other evidence indicates a direct relationship between educational attainment and age at marriage in Egypt.

First, in the field study conducted by Rizk, husband's educational level was related to wife's age at marriage. (Data on wife's education were, unfortunately, not tabulated.) On the average, wives of illiterate men had married at 17; wives of men with elementary 240 and/or secondary education had married at 18 and 19, respectively; whereas the average age at which wives of college-educated men had married was 22.⁹

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In addition, an extremely close relationship between literacy and age at marriage was found in our analysis of population characteristics in individual census tracts of Cairo based on the census returns of both 1947 and 1960.¹⁰ In this study, the index used to measure relative educational attainment was the percentage of literate females in the census tract; the index used to measure relative age at marriage was the percentage of adult females still single. The Pearson Product Moment correlation coefficient between these two variables was +.89 in 1947 and +.90 in 1960, indicating not only a strong but also a persisting relationship between literacy and later marriage.

While these differences in age at marriage undoubtedly account for some of the observed variations in fertility performance by educational level, they do not appear sufficient to account for all the variance, particularly since the divergence in fertility levels by education appears so early in the marital history.

2. To some extent, differences in the median number of children born to Cairo women at different educational levels can be traced to differences in the proportion of women bearing no children at

TABLE 3. PERCENTAGE	OF	CUI	RE	NTLY	MAR	RIE	D	WOM	EN
REPORTING NO LIVE BIRTE	IS EV	ER,	BY	DURA	ATION	\mathbf{OF}	MA	RRIA	.GE
AND EDUCATION, CAIRO, I	960.								

		Duration of Marriage (Years)						
مثآ	Education of Wife	Under 5	5-9.9	10-19.9	20-29.9	30+		
1	Illiterate	42.5	10.2	6.6	5.7	4.5		
متر ا	Barely reads	45.3	9.2	7.2	6.4	5.3		
e.	Reads and writes	42.7	10.2	7.1	6.3	5.6		
9	Did not complete intermediate	41.0	8.8	5.8	4.3	3.2		
	Completed intermediate	52.4	13.2	10.3	8.6	9.2		
	Went beyond intermediate	49.0	15.9^{*}	13.4^{*}	10.6*	13.6*		
سأأذ	College or higher	46.1						
Ū.	All	43.5	10.4	6.9	5.9	4.7		

* Combined because of small numbers. Source: Same as for Table 1.

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all. Table 3 shows the prevalence of childlessness—voluntary and involuntary—by education of wife and duration of marriage. As would be expected, the percentage of women reporting no live births declines with length of marriage, from 43.5 per cent among women married less than five years to only 4.7 per cent among women married 30 or more years. However, within each durationof-marriage class, the better educated women consistently report greater percentages childless than those with less education. The combined operation of two factors is probably responsible for this. çd.

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First, fecundity impairments are not unrelated to age at marriage. Numerous studies substantiate the lower fecundity of women marrying late in life. The high rates of childlessness observed for women who attended school beyond the intermediate level are possibly due in part to the tendency of these women to have married somewhat later than average.

A second and more selective factor may also be operative. Childlessness, traditionally, has been a reason for divorce and/or the taking of a second wife among Muslim Egyptians, whereas the presence of children acts there, as elsewhere, as a practical deterrent to divorce. (During a sample period examined, two-thirds of the divorces registered in Cairo involved childless couples.¹¹) It may be that, particularly among the less educated, there is a progressive "weeding out" of sterile women from the ranks of the currently married. This process may not occur so readily when the wife has achieved high educational status and is no longer judged primarily in terms of her fecundity. Thus, in part at least, the strikingly low percentage of childless women married for long durations among the less educated groups may result from selective marriage and remarriage patterns in these groups.

3. Reproduction to approximate biological limits is more common among illiterate women than among those with higher education, as evidenced by the greater prevalence of maximum birth orders reported by the former group.¹² It appears significant that among women with more than intermediate education none had borne 10 or more children within the first 20 years of marriage, and only a negligible percentage had reached this maximum category 1:1even after longer exposure. This contrasts markedly with the experience of less-educated women, for whom the probability of reaching the maximum birth category increases with each successive marital-duration period and with each decrease in educational 22 level. Table 4 illustrates these relationships.

100 It is reasonable to assume that birth control has been employed MC. by some women to prevent childbearing to maximum potential,¹³ der and that it has been employed more frequently and/or more OR effectively by the better educated women. The Rizk field study offers 177 substance to this presumption, since he found a significant relation-Ware I ship between husband's education and use of birth control within Valia his urban subsample. Among families in which the husband had a 17.1 secondary or college education, 39 per cent of the couples who had ΤĊ. completed their families and 51 per cent of the couples still in the reproductive ages had used birth control at some time. This contrasted with only 19 and 23 per cent, respectively, in families where the husband had attended primary or elementary school, and 22 with only 9 per cent of the families, completed or still productive, 57 Z in which the husband was illiterate.¹⁴

In summary, it appears that education was significantly related

TABLE 4. PERCENTAGE OF CURRENTLY MARRIED WOMEN WITH MAXIMUM NUMBER* OF LIVE BIRTHS IN EACH DURATION-OF-MARRIAGE CLASS, BY EDUCATION, CAIRO, 1960.

10/00	maye oj w	omen nav	ing Maxi	imum
4+	7+	10+	10+	10+
in 5	in 10	in 2 0	in 30	in over
years	years	years	years	30 years
1.2	1.5	4.5	25.5	32.4
1.3	1.3	3.6	22.2	28.5
0.8	0.9	3.3	16.2	18.4
0.5	0.5	1.6	9.4	14.3
0.3	0.3	0.6	4.5	7.6
0.0	0.0	0.0	3.0	8.6
1.0	1.3	4.0	22.9	29.9
	4+ in 5 years 1.2 1.3 0.8 0.5 0.3 0.0 1.0	$\begin{array}{rrrrr} 4+&7+\\ in 5∈ 10\\ years&years\\ 1.2&1.5\\ 1.3&1.3\\ 0.8&0.9\\ 0.5&0.5\\ 0.3&0.3\\ 0.0&0.0\\ 1.0&1.3\\ \end{array}$	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$

* As defined by classification in Egyptian Census. † Categories combined because of small numbers. Source: Same as for Table 1.

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Œ 匮. to fertility performance among Egyptian women residing in Cairo in 1960. Differential fertility patterns by educational level were found even among women married for 20, 30, and more years, indicating that the relationship has existed now for at least one generation. The ability of education to "inhibit" fertility is clearly progressive, and each minor increment to the education of an Egyptian urban woman seems to be reflected in a reduction in the total number of children borne to her during her marital life.

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OCCUPATION OF HUSBAND AND FERTILITY

Occupational class of the household head may be taken as a rough index to socio-economic status, even though it is not without its limitations. Not only is there substantial overlap of statuses within each occupation but, in addition, the categories are only as good as the original classification system and the skill of census enumerators in assigning specific jobs to categories.

The occupational categories that have been cross-tabulated in the Cairo Census with number of live births leave much to be desired, since they lend themselves only partially to unidimensional status ranking. We have arranged the first six classes in descending order of prestige as follows: 1. technical, professional; 2. executive, managerial; 3. clerical; 4. commerce and sales; 5. artisans and craftsmen; and 6. transport and communications. However, the four residual categories cannot be so simply ordered since, while they are all primarily categories for the unskilled and the low in status, they lack internal uniformity and inherent order.¹⁵

Bearing these defects in mind, we can proceed to examine the data relating fertility performance to husband's occupation. Table 5 shows the median number of children ever born to presently married women by duration of marriage and current occupation of husband. In the upper portion of the table the expected inverse relationship between status and fertility is substantiated. With few exceptions, ranking by class is inversely correlated with fertility within each of the duration-of-marriage intervals, although the range of variation is not nearly so great as that apparent when the 244

TABLE 5. MEDIAN NUMBER OF LIVE BIRTHS TO CURRENTLY MARRIED WOMEN BY DURATION OF MARRIAGE AND HUSBAND'S OCCUPATIONAL CLASS, CAIRO, 1960.

	Duration of Marriage (Years)					
Occupational Class of Husband*	Under 5	5-9.9	10-19.9	20-29.9	30+	
Status Ranks						
Technical-professional	1.17	2.95	4.53	6.04	7.12	
Executive-managerial	1.23	2.91	4.46	6.21	7.67	
Clerical-office	1.24	3.20	5.43	7.18	7.87	
Sales and commerce	1.23	3.38	5.92	8.06	8.41	
Artisans and craftsmen	1.28	3.44	5.93	8.10	8.50	
Transport and communication	1.28	3.47	5.93	8.13	8.59	
Other Classes						
Service and entertainment	1.01	3.23	5.83	7.94	8.16	
Agriculture, fishing, and mining	1.12	3.03	5.46	7.54	8.05	
Ill-defined occupations	1.59	3.30	5.30	6.13	7.75	
Unemployed	0.98	2.69	4.40	5.81	7.08	
All Occupations	1.19	3.32	5.67	7.62	8.09	

*We have taken the liberty of combining certain occupational categories and of rear-ranging the order into a rough ranking by socio-economic status. Medians have been com-puted from grouped data. *Source:* Table on pp. 469-472, CENSUS OF 1960. Volume on *Muhāfazat al-Qāhirah*. Un-knownsthave been excluded.

independent variable was the wife's educational level. This relationship becomes increasingly evident and regular with each increase in the duration of marriage, a perfect linear relationship taking form only among those married 20 years or longer. The relationship between occupation of husband and fertility performance of the wife is much less clear within the final four occupational groups which, as pointed out above, do not permit simple ranking by status. Additional information would be required to interpret this portion of Table 5 and Figure 3.

The mechanisms whereby occupational differences have been translated into fertility differentials are the same as those which were operative in the case of education, namely, differences in age at marriage, in the percentage of childless couples, and in the differential use of contraceptives. However, we know even less about how these are related to occupation than we do about their relationship to education.

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Figure 3. Median number of live births to currently married women, by occupation of husband for each duration-of-marriage interval, Cairo, Egypt, 1960.

TABLE 6. PERCENTAGE OF CURRENTLY MARRIED WOMEN REPORTING NO LIVE BIRTHS EVER, BY DURATION OF MARRIAGE AND OCCUPATIONAL CLASS OF HUSBAND, CAIRO, 1960.

	Duration of Marriage (Years)						
Occupational Class of Husband	Under 5	5-9.9	10-19.9	20-29.9	<i>30</i> +		
Technical-professional	43.0	11.7	7.2	5.5	5.8		
Executive-managerial	41.7	11.8	7.8	5.1	4.5		
Clerical-office	42.0	9.9	6.9	5.2	4.7		
Sales and commerce	42.0	9.9	6.4	5.9	4.8		
Artisans and craftsmen	41.3	8.3	5.3	4.5	3.9		
Transport and communication	40.2	8.7	5.6	4.4	4.1		
Service and entertainment	49.8	13.9	8.3	5.1	4.6		
Agriculture, fishing, and mining	45.4	11.1	7.2	4.6	4.0		
Ill-defined occupations	31.8	11.9	11.9	9.1	4.7		
Unemployed	51.1	24.2	17.9	24.1	12.9		
All occupations	43.5	10.4	6.9	5.9	4.7		
	Occupational Class of Husband Technical-professional Executive-managerial Clerical-office Sales and commerce Artisans and craftsmen Transport and communication Service and entertainment Agriculture, fishing, and mining Ill-defined occupations Unemployed All occupations	Decupational Class of HusbandUnder 5Occupational Class of HusbandUnder 5Technical-professional43.0Executive-managerial41.7Clerical-office42.0Sales and commerce42.0Artisans and craftsmen41.3Transport and communication40.2Service and entertainment49.8Agriculture, fishing, and mining45.4Ill-defined occupations31.8Unemployed51.1All occupations43.5	DurationOccupational Class of HusbandUnder 55–9.9Technical-professional43.011.7Executive-managerial41.711.8Clerical-office42.09.9Sales and commerce42.09.9Artisans and craftsmen41.38.3Transport and communication40.28.7Service and entertainment49.813.9Agriculture, fishing, and mining45.411.1Ill-defined occupations31.811.9Unemployed51.124.2All occupations43.510.4	$\begin{array}{c c} Duration of Marria\\ \hline Occupational Class of Husband \\ \hline Under 5 & 5-9.9 & 10-19.9 \\ \hline Technical-professional \\ Executive-managerial \\ Clerical-office \\ Sales and commerce \\ Artisans and craftsmen \\ Transport and communication \\ Service and entertainment \\ Agriculture, fishing, and mining \\ Agriculture, fishing, and mining \\ Hi-6fined occupations \\ Hi-6fined \\ Hi-6fin$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $		

Source: Same as for Table 5. Computations are ours, with unknowns excluded.

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TABLE 7. PERCENTAGE OF CURRENTLY MARRIED WOMEN HAVING MAXIMUM NUMBER OF LIVE BIRTHS WITHIN EACH DURATION-OF-MARRIAGE CLASS, BY OCCUPATION OF HUSBAND, CAIRO, 1960.

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5 Percentage of Couples Having Maximum 4+ 7+ 10 +10 +10 +in 30 in 5 in 10 in 20 in over Occupation of Husband years years years 30 years years 23.3 Technical-professional 0.4 0.6 1.9 13.0ų: Executive-managerial 0.7 0.7 2.515.126.13.120.428.2 \mathbf{M} Clerical-office 0.6 0.8 Sales and commerce 1.1 1.6 5.226.833.6 1.5**4.4** 25.833.3Artisans and craftsmen 1.1 1.24.326.334.4 Transport and communication 1.4 3.824.530.9 Service and entertainment 0.9 1.30.6 1.1 3.521.127.8Agriculture, fishing, and mining 1.74.416.026.5Ill-defined occupations 1.523.9 2.3 $\mathbf{2.0}$ 3.413.5Unemployed 1 29.9 All occupations 1.0 1.34.022.9 11

Source: Same as for Table 5.

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It would be reasonable to assume that wives of upper-status husbands marry somewhat later on the average than wives of men in low-income occupations, even though direct evidence on this point is unavailable. For example, in the analysis of Cairo census tracts cited earlier, we found a strong correlation between early marriage and such measures of low socio-economic status as room-overcrowding (PPR ratio) and poor condition of the dwelling.

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Tables 6 and 7 suggest that, among the first six groups at least, the prevalence of childless couples is directly related to socio-economic status while there is an inverse connection between high occupation and the tendency to bear the "maximal" number of children within each duration-of-marriage group. However, there are sufficient exceptions to this generalization to require additional explanation.

First, although status and childlessness seem to go together within the first six occupational groups, this relationship breaks down entirely at the lowest end of the socio-economic "scale" where, particularly in the early years of marriage, highest prevalence is reported by wives of men in the service and entertainment professions, in the primary industries, and among the unemployed. Whether childlessness is actually higher among these less-advantaged groups of the population—possibly due to adolescent sterility among very young wives—or whether, in fact, the observed differences arise from underreporting of deceased children in these groups with high infant mortality rates cannot be determined.

In any event, these anomalies fade with increasing duration of marriage until among women married 30 or more years only those married to unemployed men have substantially higher rates of childlessness. Why this should be so cannot be determined from the data. Perhaps unemployment is increasingly selective with age, so that men without dependent children can more readily "afford" unemployment than those with pressing family responsibilities. On the other hand, it may be that some women reporting themselves married are actually without spouses; some may report the absent (or fictitious) spouse as unemployed. Additional inquiry into this phenomenon seems necessary.

Table 7 presents the percentages of women within each durationing: of-marriage group who have borne the maximum number of chil-(C (); dren, by occupation of husband. The clear linear relationship be-ŊĿ tween occupation and fertility is sustained for the first six categories, 1 indicating that eventual control over the free operation of fecundity NT: occurs more frequently within the highest status groups than among families in the lower ranks of the occupational hierarchy. It would <u>.</u> be premature, without further evidence, to interpret the data conel :: cerning the remaining four categories.

nit. In summary, a general relationship between the occupation of the husband and the fertility performance of the wife has been found in ² Cairo in 1960, but the differences observed are less marked and con-sistent than those revealed when the wife's education is used as the independent variable. Either occupation is a less sensitive index to socio-economic status in Egypt than female education (the belief of this writer), or the causal connection between the husband's occube pation and the wife's fertility in actuality operates through the interwe vening variable of the wife's education. The tendency of men in high-status occupations to select wives of relatively high educational attainment may be sufficient to account for the observed moderate relationship between occupation and fertility. However, until a truly effective index to the socio-economic status of the husband can be found, we must hold in abeyance any firm conclusions as to whether ccupational class of the husband or educational level of the wife is the more critical independent variable influencing fertility.

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The emergence by 1960 of significant fertility differentials in II. Egypt's largest city has been substantiated by the foregoing analysis. 4 It is legitimate to inquire whether these differentials have appeared only in recent years or whether they have been operative in the preceding generation as well.

The cross-sectional data from 1960 suggest that differential fertility has existed in Cairo for at least one generation, since the widest spread between median number of children ever born to married women at various levels of education and status occurs among those married for 20, 30, and even more years. It is difficult to find any other logical explanation for this phenomenon other than the assumption that the underlying causal factors were already present and affecting the fertility behavior of women who married in the 1920s and 1930s.

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It is unfortunate that we lack comparable data from the Census of 1947, for only these could indicate whether the observed differentials are tending to grow wider or to converge. However, the data we have for that year support the view that a fertility differential had already appeared in Cairo. In our statistical analysis of census tract characteristics, the only measure of fertility that could be computed was a fertility ratio. In 1947, the correlation coefficient (r_r) between the fertility ratio of a census tract and the educational level of females in the tract was -.82, similar to the correlation of -.80which was found in 1960. A similarly impressive correlation was found in both years between the fertility ratio and the index of ageat-marriage (-.81 and -.84 for 1947 and 1960, respectively).¹⁶

Another study based on a single vital statistics tabulation made in 1947, reported by El-Badry,¹⁷ indicates that a relationship between occupation and fertility existed in that year. Registered births during that period were classified by birth order and cross-tabulated with father's occupation. The parity of children born to wives of men in technical and professional occupations was significantly lower than that of children born to women whose husbands were in other occupational classes; no other difference was found to be statistically significant. Although this analysis was for the entire country, rather than for Cairo alone, the conclusions suggest that the occupational differences in fertility found in 1960 were at least foreshadowed as early as 1947. It is our belief that these differences would have been even more pronounced had the data for Cairo itself been isolated.

The implications of these findings are of the utmost importance in projecting future growth rates for Egypt. This country entered the demographic transition during the nineteenth century when mortality rates had begun to decline. A second phase of even more explosive growth began after 1946 when death rates plummeted. 250

Thus far, however, the Egyptian birth rate has shown no signs of decrease. In fact, fertility rates appear to be increasing, a temporary phase we plan to explore in another article. Nevertheless, if the present differentials by education and occupation are sustained in the coming generation, we may anticipate a gradual decline in fertility as education becomes more widespread and as norms alter in conformity with those already well established within the bettereducated and upper-occupational urban classes.

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² Clyde V. Kiser (The Demographic Position of Egypt, in DEMOGRAPHIC STUDIES OF SELECTED AREAS OF RAPID GROWTH, New York, Milbank Memorial Fund, 1944, pp. 97-122); El-Badry, M., Some Aspects of Fertility in Egypt, Milbank Memorial Fund Quarterly, 34, 22-43, January, 1956; and Janet Abu-Lughod (op. cit.) agree that gross urban-rural differentials have not yet appeared in Egypt. Dissenting from this view is Marzouk, G., Fertility of the Urban and Rural Population in Egypt, Egypte Contemporaine, 48, 27-34, 1957.

³ El-Badry, M., op. cit., pp. 35-39.

⁴Kiser (op. cit.) was the first to stress the significant fertility differences among Egyptian Muslims, Christians, and Jews, and to suggest that the concentration of the latter two groups in the largest cities might account for any urban-rural differences.

⁵ See the following by Hanna Rizk: Fertility Patterns in Selected Areas in Egypt (unpublished dissertation, Princeton University, 1959); Social and Psychological Factors Affecting Fertility in the United Arab Republic, Marriage and Family Living, 25, 69–73, February, 1963; Population Growth and Its Effect on Economic and Social Goals in the United Arab Republic, Population Review (India), 7, 51–56, January, 1963.

⁶ For the relevant tables on Cairo, see CENSUS OF EGYPT, 1947, Volume on the Governorate of Cairo (in Arabic, Muhāfazat al-Qāhirah), Cairo, Government Printing Office, 1952, pp. 190–191.

⁷ CENSUS OF THE UNITED ARAB REPUBLIC, 1960, Volume on the Governorate of Cairo (in Arabic, *Muhāfazat al-Qāhirah*), Cairo, Government Printing Office, 1962, pp. 463–471. It is legitimate to allow Cairo to represent Egypt's "urban" population since it constitutes 13 per cent of the total and more than one-third of the urban (20,000 or more) population of the country.

⁸ Our method was approximate but logical. For each current age class in each duration-of-marriage interval, there is a range of 10 to 20 years for the corresponding age at marriage. These ranges were calculated for the cells in which the maximum median number of children was found. Using vital statistics reports on marriages by age of the bride, we developed probable estimates of age distributions within each cell. This can be done since the proportion of women under 20 or 20-24.9 and 25-29.9 years of age marrying in any given year remains fairly constant. This method allowed us to determine that, in cells reporting the highest median number of children, the majority of women producing them had married between the ages of 20 and 25.

⁹ Rizk, Hanna, Population Growth and Its Effects on Economic and Social Goals in the United Arab Republic, *Population Review* (India), 7, 53, January, 1963.

¹⁰ In the study cited, a battery of demographic and socio-economic indices was computed for each of the 216 tracts of Cairo in 1947. See Abu-Lughod, Janet, and Attiya, E., CAIRO FACT BOOK, Social Research Center, American University at Cairo, 1963. The correlation coefficients have been taken from an unpublished matrix prepared as a preliminary step to factor analysis. These and a similar set prepared from 1960 data will be used to trace changes in the city. Full results will appear in a forthcoming volume on the history and ecological development of the city of Cairo.

A brief explanation of the indices is necessary. To measure relative education in a census tract, only the literacy rate was available. In countries with almost universal literacy, such an index could scarcely be considered sensitive. However, in Egypt, where general illiteracy is high and female illiteracy even higher, the ability of a woman to read and write takes on greater social significance. In fact, the female literacy rate appears to be the single most sensitive measure of socio-economic status and "modernization" in Egypt, reflecting as it does both attitudes relating to the education of females and capacities to finance education which, for females, is still viewed by many as a luxury.

The use of the percentage of adult females still single as an indicator of the "typical" age at marriage in a census tract can also be justified for Egypt. At least one marriage per female is almost universal in Egypt, even though a significant minority are eventually divorced or widowed. Therefore, the overwhelming majority of women 16 years of age and older classified as "never married" are in the youngest age groups. Where typical age at marriage is close to 16, only a small percentage—in some census tracts as little as 3 per cent—of females are listed as never married. As many as 25 per cent of the females may be so listed in census tracts where typical age at marriage is higher.

¹¹ Computed from data appearing in FOURTH QUARTERLY RETURN OF BIRTHS, DEATHS, INFECTIOUS DISEASES, MARRIAGE AND DIVORCE, 1957, Cairo, Government Printing Office, 1958, p. 49. le en la companya de la companya de

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¹² In this instance, "maximum birth order" refers to four or more live births within the first five years of marriage, seven or more live births in the first 10 years of marriage, and 10 or more live births within longer duration-of-marriage classes.

¹³ Abortion is an additional method, but it has been ignored here because we lack factual information.

¹⁴ Rizk, Hanna, Population Growth and Its Effect on Economic and Social Goals in the United Arab Republic, *Population Review* (India), 7, 53, January, 1963.

¹⁵ The service occupations, for example, include the domestic servant but also persons offering quasi-professional services or engaged in professional athletics and entertainment. Thus, presumably, this category might include members of the Cairo Symphony Orchestra, an Olympic swimming champion, and a fashioner of haute couture, along with servants and laundrymen. The category of "ill-defined" is even more diverse, subsuming floating workers and scavengers as well as persons in highly specialized but unclassifiable occupations, such as faith healers.

¹⁶ Fertility ratio was the number of children under 5/1,000 women 15-49 years of age in the census tract. Literacy rate was percentage of literate females/ all females over five years of age in 1947 and females over 10 years of age in 1960, owing to a change in census procedure. Therefore, direct comparisons between correlation coefficients should be made with caution.

¹⁷ See El-Badry (op. cit.) for details on these findings.

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