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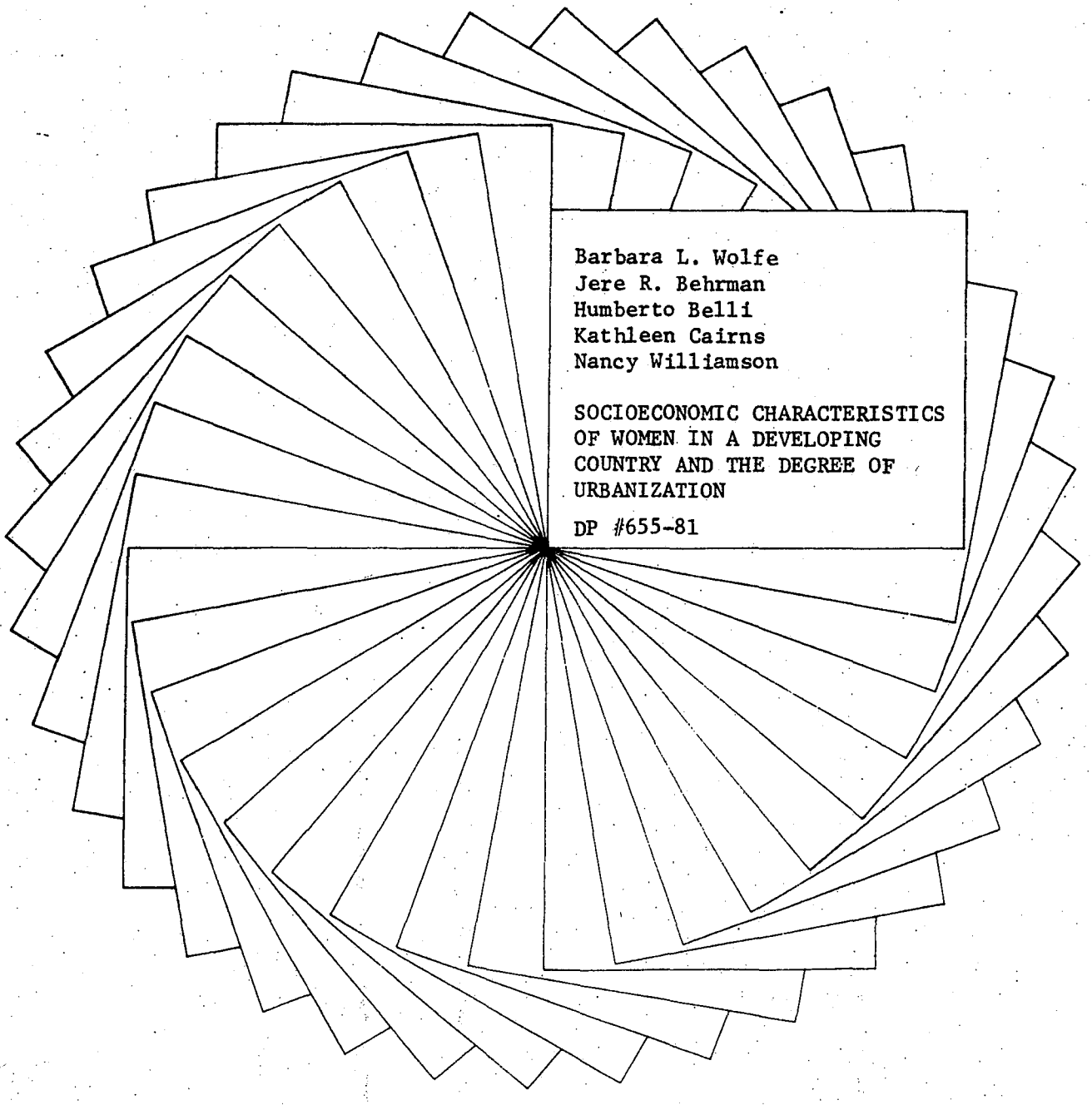

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SOCIOECONOMIC CHARACTERISTICS OF WOMEN IN A DEVELOPING COUNTRY AND THE DEGREE OF URBANIZATION

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Socioeconomic Characteristics of Women in a Developing Country and the Degree of Urbanization

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ABSTRACT

A number of important indices of the socioeconomic status of women in a developing country in Latin America are characterized in terms both of their distribution and their interaction. They include human capital investments such as schooling, nature of relationships with male companions, economic activities, health and nutrition status, fertility outcomes, and childhood background. Similar characteristics of the women's male companions are also considered. This examination is based on a stratified random sample of over 4,000 women aged 15-45 in Nicaragua. We place particular emphasis on (1) differences in such characteristics among the central metropolises, other urban areas, and rural regions and (2) the nature of associations among various background, human capital, and adult socioeconomic characteristics. We include insights from more specialized multivariate analyses which we have undertaken.

These results add to a more integrated knowledge of the socioeconomic characteristics of women in developing countries, the associations among such characteristics, the roles of family background, human capital investments, and the differences in the distribution of these characteristics, by degree of urbanization.

1. INTRODUCTION

Since Boserup's [24] seminal book was published in 1970, there has been increasing interest in the role of women in developing countries. This is hardly surprising. Women comprise about half of the adult population of developing countries; they are important or dominant in a wide range of activities, especially the rearing of the next generation. Independently of any interest in women per se, an understanding of the processes and prospects for development and of potentially effective policies regarding it requires an understanding of the roles of women.

What is surprising is the little that is known about the socio-economic characteristics of women in developing countries. The explosion--relatively speaking--of studies in the past decade gives no very systematic, integrated picture of these socioeconomic characteristics encountered in developing countries.[1] Available data are, to be sure, inadequate, the evidence that exists piecemeal and too often anecdotal. Data sets with systematic nationwide samples or censuses generally are fairly narrowly directed towards a smaller subset of questions, often demographic in nature, and do not permit much characterization of associations with other important socioeconomic variables. Those with more comprehensive socioeconomic coverage usually are for a fairly special subpopulation, such as a particular town or village; it is difficult to know if the characterizations they develop hold for large populations. We have, in consequence, a body of general information about some socioeconomic characteristics of women, and an extensive understanding of small and possibly not representative groups, but no broad picture of the important

socioeconomic characteristics of women in developing countries and of the relationships among them.

In this paper we contribute to a more integrated understanding of the socioeconomic characteristics of women living under various degrees of urbanization in developing countries. We consider three levels of urbanization because common wisdom suggests that there are significant socioeconomic differences among rural, central metropolitan and other urban areas. We do so by examining quantitative measures for a sample of women from the Central American country of Nicaragua. We collected the data for this sample in 1976-1977 as part of a large project on the socioeconomic role of women in a developing country.[2] We interviewed 4104 women aged 15-45 (excluding nonworking, full-time students) about: childhood and adolescent background, schooling, migration, marital status and characteristics of any male companion, current and past economic activities, health and nutrition status, and fertility and contraceptive knowledge and use. The sample is stratified by geographic regions and is random within them. The three major geographic regions of interest are the central metropolis (population about 500,000, almost a quarter of the nation), other urban areas (ranging in size from 500 to 80,000 inhabitants), and rural areas. This data set permits us to give a more unified picture of the socioeconomic characteristics of women in different areas of developing countries than has been possible previously, and to explore whether these characteristics vary with the degree of urbanization, as often hypothesized.[3]

We organize our socioeconomic characterization of women within a rough life-cycle framework. In Section 2, we consider childhood and

adolescent background variables, schooling, and migratory status. In Section 3, we consider age of first cohabitation, current marital status, and characteristics of current male companion, if any. In Section 4, we discuss work and income-related variables such as expected earnings, occupational status, and other household income. In Section 5, we turn to health and nutrition status. In Section 6, we discuss fertility, breastfeeding and contraception knowledge and use.

This analysis focuses on quantifiable characteristics. For those characteristics which are cardinal (e.g., schooling) or dichotomous (e.g., whether or not the respondent was raised in an urban area), we present the means and standard deviations of the overall distributions and of the distributions within each of our three regions in Table 1.[4] To keep our discussion as concise as possible, we here note that in general Chi-square tests indicate that the distributions differ among the three regions, and that such differences are significant. In general, then, the degree of urbanization matters, and we will note below only the relatively few exceptions to this generalization.

Since we also are very interested in the extent of association among the various socioeconomic characteristics, in Table 2 we present correlation coefficients among the variables which are included in Table 1,[5] by region in addition to the overall sample. Of course these correlations refer to simple bivariate associations only, do not necessarily reflect causality, and do not control for other possibly important variables within a multivariate framework. To avoid tedious repetition, however, we do not repeat these qualifications below.

Table 1. Means and Standard Deviations for Important Women's Socioeconomic Characteristics in Central Metropolis, Other Urban Areas, and Rural Areas and Combined Sample.

	All Regions		Central Metropolis		Other Urban Areas		Rural Areas	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Background and Schooling								
Age in years	29.2	7.7	28.8	7.6	29.3	7.8	29.7	7.9
Number of siblings	4.9	3.0	4.7	3.0	4.9	3.1	5.3	3.0
Mother's schooling	2.3	2.8	3.2	2.9	2.7	3.0	0.6	1.6
Father's schooling status (SES)[a]	33	8.7	34	10.1	34	8.7	32	5.9
Schooling (grade completed)	4.2	3.6	5.3	3.5	4.9	3.6	1.5	2.1
Urban residence	.74	.44	.90	.30	.90	.31	.32	.46
Marital Status and Companion's Characteristics								
Age of first cohabitation	18.0	3.5	18.2	3.4	18.4	3.6	17.3	3.2
Companion's: Father's SES[a]	34	9.7	35	10.7	34	9.6	30	6.5
schooling	5.0	4.4	6.6	4.0	6.1	4.5	1.3	2.4
SES[a]	34	13	38	14	36	14	28	7.7
Her Economic Activity								
Paid work experience in years	6.3	7.1	6.6	7.0	6.6	7.4	5.2	6.6
SES[a]	28	9.4	28	10.6	29	10.1	26	5.4
Predicted earnings[b]	184	140	226	162	180	138	117	41
Other income[b]	629	2360	670	778	632	774	561	4432
Health and Nutrition Status								
Had: medically preventable diseases[c]	.41	.49	.42	.49	.39	.49	.40	.49
generally preventable diseases[c]	.49	.50	.42	.49	.56	.50	.50	.50
therapeutically treatable diseases[c]	.33	.47	.31	.46	.38	.49	.29	.46
pulmonary diseases[c]	.26	.44	.23	.42	.30	.46	.25	.43
Days ill in current year	4.1	13	5.3	17	3.3	9	3.2	9.1
Nutrition input: calories[d]	.62	.19	.60	.15	.74	.17	.51	.17
protein[d]	1.40	.44	1.50	.39	1.56	.38	1.07	.38
vitamin A[d]	1.22	.58	1.29	.55	1.41	.57	.89	.51
iron[d]	.50	.11	.52	.10	.53	.10	.41	.10
minimum[c]	.49	.12	.51	.11	.53	.11	.40	.12
product[c]	.79	.81	.79	.70	1.14	.96	.36	.53
sum[c]	3.75	1.21	3.91	1.04	4.24	1.12	2.89	1.10
Fertility and Contraceptive Use								
Living children	3.2	2.6	2.9	2.3	3.0	2.5	4.0	2.8
Expected number of children	4.3	2.3	3.9	2.0	4.0	2.2	5.1	2.6
Children if begin again	2.5	1.6	2.3	1.2	2.6	1.5	2.9	2.1
Children/year of exposure	.27	.17	.25	.18	.26	.16	.31	.16
Months breastfed (average)	6.2	7.4	5.1	6.8	4.8	6.7	9.9	7.9

[a] Socioeconomic status (SES).

[b] Cordobas per fortnight (7 cordobas = 1 US $).

[c] See Section 5 for definitions.

[d] As proportion of international standards (see 38).

TABLE 2A

Significantly Nonzero (at 5% level) Correlation Coefficients Among Important Women's Socioeconomic Characteristics: All Regions (top triangle of table) and Central Metropolis (bottom triangle of table)[a]

	Background and Schooling						Marital Status and Companion				Economic Activity				Health and Nutrition Status									Fertility			
	Age	Siblings	Mother's Schooling	Father's SES	Schooling	Urban	Age Cohabitation	Comp's Father's SES	Comp's Schooling	Comp's SES	Work Experience	SES	Pred. Earnings	Other Income	Med. Prevent.	Gen. Prevent.	Thera. Treat.	Pulmonary	Days' Ill	Calories	Protein	Vitamin A	Iron	Minimums	Product	Sum	Children	Exp. Children	Begin Again	Child/Year	Breast Fed
Background																														
Age		-.1	-.1	.0	-.2	-.0	.2	.0	-.2	-.0	.4	.0	.0	.0	.0	.1	.1	.0	.1	-.0	-.1	-.0	-.0	-.0	-.0	-.1	.6	.5	.1	-.0	.3
Siblings	-.1		-.1	-.0	-.0	-.1	.0	.0	-.0	.0	-.0	-.0	-.0	-.0	.0	.0	-.0	.0	-.0	.0	.0	.0	.0	.0	.0	.0	-.0	.0	.1	.0	-.0
Mother's Schooling	-.0	.0		.3	.6	.3	.2	.2	.5	.4	-.0	.3	.4	.1	-.0	-.0	.1	.0	-.0	.3	.3	.3	.3	.3	.3	.3	-.2	-.2	-.1	-.1	-.2
Father's SES	.0	-.0	.3		.3	.1	.1	.2	.3	.3	.0	.2	.2	.2	.0	-.0	.0	-.0	.0	.1	.1	.2	.1	.1	.1	.1	-.1	-.1	.0	-.1	-.1
Schooling	-.2	.0	.4	.3		.4	.3	.3	.7	.5	-.1	5	.7	.1	-.0	.0	.1	.0	.0	.4	.4	.4	.4	.4	.4	.4	-.3	-.3	-.1	-.1	-.4
Urban	-.0	-.1	.1	.1	.2		.1	.1	.4	.3	.1	.1	.3	.1	-.0	-.0	.0	-.0	.0	.3	.1	.2	.1	.1	.2	.3	-.1	-.2	-.1	-.1	-.2
Marital Status																														
Age Cohabitation	.2	.0	.1	.1	.3	.0		.1	.2	.2	.1	.2	.3	.1	-.0	.1	.0	-.0	-.1	.1	.2	.2	.1	.1	.1	.2	-.2	-.2	-.0	.0	-.2
Comp's Father's SES	-.0	.0	.2	.2	.2	.1	.1		.3	.3	-.0	.2	.2	.2	.0	.0	.0	-.0	.0	.1	.1	.2	.1	.1	.2	.2	-.1	-.1	.0	-.1	-.1
Comp's Schooling	-.2	-.1	.4	.3	.6	.2	.2	.3		.6	-.1	.4	.5	.2	-.0	.0	.0	-.0	.0	.4	.5	.4	.4	.4	.4	.5	-.3	-.3	-.1	-.1	-.4
Comp's SES	-.0	.1	.3	.3	.5	.1	.2	.2	.6		-.0	.3	.4	.1	-.0	.0	.1	-.0	.0	.3	.4	.3	.3	.3	.3	.4	-.2	-.2	-.0	-.1	-.2
Economic Activity																														
Work Experience	.5	-.1	.0	.0	-.2	-.0	.2	-.1	-.1	-.0		.1	.3	-.0	.0	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	.0	.2	.1	-.0	-.1	.1
SES	.0	.1	.2	.2	.5	.1	.2	.1	.3	.3	.1		.5	.1	-.0	.1	.1	.0	.0	.2	.2	.2	.1	.1	.2	.2	-.1	-.1	.0	-.0	-.2
Pred. Earnings	.0	.0	.3	.2	.7	.1	.3	.1	.3	.4	.3	.5		.1	-.0	.1	.1	-.0	-.0	.3	.4	.3	.3	.3	.4	.4	-.2	-.2	-.2	-.1	-.2
Other Income	.1	.1	.2	.3	.3	.1	.1	.2	.4	.5	-.1	.3	.3		.0	.0	-.0	-.0	.0	.1	.1	.1	.1	.1	.1	.1	.0	-.0	.0	.0	-.1
Health and Nutrition																														
Med. Prevent.	-.0	-.0	-.1	-.0	-.0	.0	-.0	-.0	-.0	-.0	-.0	-.0	-.0	.0		.1	.1	.1	.1	-.0	-.0	-.0	-.0	-.0	-.0	-.0	.1	.0	.0	.0	-.0
Gen. Prevent.	.1	.0	-.0	.0	.0	.1	.1	-.0	-.0	.0	.1	.0	.1	-.0	.1		.1	.1	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	-.0	.0
Thera. Treat.	.1	-.0	.0	.0	.0	-.0	.1	-.0	.0	.0	.1	.1	.1	.0	.1	.1		.8	.1	.1	.0	.0	.0	.0	.1	.0	-.0	-.0	-.0	-.0	-.0
Pulmonary	.1	-.0	-.0	.0	-.0	-.0	.0	-.0	-.0	-.0	.1	.0	.0	-.0	.1	.1	.8		.1	.0	.0	.0	.0	.0	.0	.0	-.0	-.0	-.0	-.0	-.0
Days' Ill	.1	-.0	-.1	-.0	-.0	.0	-.0	-.0	-.0	-.0	.1	.0	-.1	.0	.1	.1	.1	.1		-.0	-.0	-.0	-.0	-.0	-.0	-.0	.0	.0	.0	-.0	.0
Calories	-.0	.1	.1	.0	.2	.1	.1	.1	.1	.2	.0	.1	.3	.1	-.0	.1	.0	.0	-.1		.9	.7	.8	.8	.8	.9	-.1	-.2	-.0	-.1	-.2
Protein	-.1	.1	.1	.1	.2	.0	.1	.1	.2	.3	-.0	.1	.3	.1	-.0	-.0	.0	.0	-.1	.8		.7	.9	.9	.8	.9	-.2	-.2	-.0	-.1	-.3
Vitamin A	-.0	.1	.2	.1	.3	.0	.1	.1	.2	.3	-.0	.1	.3	.2	-.0	.0	.0	-.0	-.0	.6	.6		.7	.7	.8	.9	-.2	-.1	-.0	-.1	-.2
Iron	-.0	.1	.1	.0	.1	.0	.1	.0	.1	.2	-.0	.0	.2	.1	-.0	.0	.0	.0	-.1	.8	.9	.6		1.0	.8	.9	-.1	-.2	-.0	-.1	-.2
Minimum	-.0	.1	.1	.0	.2	.0	.1	.0	.1	.2	-.0	.1	.2	.1	-.0	.0	.0	.0	-.1	.8	.9	.6	1.0		.8	.9	-.1	-.2	-.0	-.1	-.2
Product	-.0	.1	.2	.1	.2	.0	.1	.1	.2	.3	.0	.1	.3	.1	-.0	.0	.0	-.0	-.1	.8	.9	.8	.8	.8		.9	-.1	-.1	.0	-.1	-.2
Sum	-.1	.1	.2	.1	.3	.0	.1	.1	.2	.3	-.0	.1	.3	.2	-.0	.0	.0	.0	-.1	.8	.9	.9	.8	.9	.9		-.2	-.2	-.2	-.1	-.3
Fertility																														
Children	.6	-.1	-.1	-.1	-.3	-.0	-.2	-.0	-.3	-.1	.2	-.1	-.2	.1	.1	.0	-.0	-.0	.0	-.1	-.1	-.1	-.0	-.0	-.1	-.1		.9	.1	.5	.4
Exp. Children	.5	-.0	-.1	-.0	-.3	-.0	-.2	-.0	-.2	-.1	.1	-.1	-.1	-.0	.0	.0	-.1	-.0	.0	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.9		.3	.3	.3
Begin Again	.1	.1	.0	.0	.0	-.0	-.0	.1	.0	.1	.0	.0	.0	.1	-.0	.1	-.0	-.0	.0	-.0	.0	.0	.0	.0	.0	.0	.1	.2		.0	.1
Child/Year	-.0	.0	-.1	-.1	-.1	-.0	.0	-.0	-.1	-.0	-.1	-.0	-.1	.1	.1	-.1	-.1	-.1	-.0	-.0	-.1	-.0	.0	-.0	-.1	-.1	.5	.3	-.0		.2
Breast Fed	.3	-.0	-.1	-.1	-.3	-.1	-.2	-.1	-.3	-.2	.1	-.2	-.2	-.1	.0	.0	-.0	.0	.1	-.1	-.1	-.2	-.1	-.1	-.1	-.2	.4	.3	.1	.2	

[a] See Table 1 for more extensive variable definitions.

TABLE 2B

Significantly Nonzero (at 5% level) Correlation Coefficients Among Important Women's Socioeconomic Characteristics: Other Urban Areas (top triangle of table) and Rural Areas (bottom triangle of table)[a]

	Age	Siblings	Mother's Schooling	Father's SES	Schooling	Urban	Age Cohabitation	Comp's Father's SES	Comp's Schooling	Comp's SES	Work Experience	SES	Pred. Earnings	Other Income	Med. Prevent.	Gen. Prevent.	Thera. Treat.	Pulmonary	Days' Ill	Calories	Protein	Vitamin A	Iron	Minimum	Product	Sum	Children	Exp. Children	Begin Again	Child/Year	Breast Fed
Background and Schooling																															
Age		-.1	-.1	.0	-.2	.0	.2	.0	-.2	-.0	.5	.0	.1	.1	.1	.1	.0	-.0	.1	-.1	-.1	-.1	-.0	-.0	-.0	-.1	.6	.5	.1	.0	.3
Siblings	-.1		-.1	.0	-.0	-.2	.0	.0	-.0	-.0	-.0	-.1	-.0	-.0	.1	.0	-.0	.0	-.0	.0	-.0	.0	-.0	-.0	-.0	-.0	-.1	-.0	.0	-.0	-.0
Mother's Schooling	-.1	.0		.4	.6	.2	.2	.2	.5	.3	-.1	.3	.4	.2	.0	.0	.1	.0	-.0	.3	.3	.3	.2	.2	.3	.3	-.1	-.1	.0	-.0	-.2
Father's SES	.1	.0	.2		.3	.0	.1	.1	.2	.2	.0	.2	.2	.1	.0	.1	.1	.0	.1	.1	.1	.2	.1	.1	.1	.1	-.1	-.1	-.0	-.0	-.1
Schooling	-.2	.1	.4	.2		.2	.3	.2	.7	.5	-.1	.5	.8	.3	-.0	.1	.1	.1	.0	.3	.4	.3	.3	.3	.3	.4	-.3	-.3	.1	-.1	-.3
Urban	.0	-.0	.2	.1	.2		-.0	.1	.2	.1	.0	.1	.1	.1	-.1	-.1	.0	.0	.0	.1	.1	.1	.1	.1	.1	.1	.0	-.0	-.0	.0	-.0
Marital Status																															
Age Cohabitation	.3	.0	.0	.1	.1	.0		.1	.2	.2	.1	.2	.3	.1	.0	.1	.0	-.0	-.0	.1	.1	.1	.1	.1	.1	.1	-.2	-.2	.0	.0	-.2
Comp's Father's SES	.0	.0	-.0	.2	.1	-.0	.1		.3	.3	.0	.2	.2	.1	.0	.1	.1	.0	.1	.1	.1	.2	.1	.1	.2	.2	-.1	-.1	.0	-.1	-.1
Comp's Schooling	-.2	.0	.4	.1	.5	.2	.1	.1		.6	-.2	.4	.5	.4	-.0	.0	.1	.0	-.0	.3	.4	.3	.3	.3	.3	.4	-.3	-.3	.0	-.1	-.3
Comp's SES	.0	.0	.1	.1	.1	.0	.1	.1	.2		-.1	.3	.4	.4	-.0	.1	.1	.0	.0	.2	.3	.2	.2	.2	.2	.3	-.2	-.1	.1	-.1	-.2
Economic Activity																															
Work Experience	.3	-.0	-.0	.1	-.0	.1	.1	-.0	-.0	-.0		.1	.3	-.1	.0	.1	.1	.0	.1	-.1	-.1	-.1	-.0	-.0	-.1	-.1	.2	.2	.0	-.1	.1
SES	.0	.0	.2	.1	.3	.1	.2	.1	.2	.1	-.1		.6	.2	-.0	.1	.1	.0	.1	.2	.2	.2	.2	.2	.2	.2	-.1	-.1	.1	-.0	-.2
Pred. Earnings	.0	.0	.3	.2	.5	.3	.1	.0	.4	.2	.3	.2		.3	-.0	.1	.1	.0	.0	.3	.4	.3	.3	.3	.3	.4	-.1	-.1	.0	-.1	-.2
14. Other Income	.1	-.0	.2	-.0	.2	.1	.1	.1	.2	.1	-.0	.3	.1		.0	-.0	.0	.0	.0	.2	.2	.2	.2	.2	.2	.2	.0	-.0	.1	.1	
Health & Nutrition																															
Med. Prevent.	.1	.0	.0	.0	-.0	-.0	-.0	.1	-.1	-.1	.0	-.1	-.1	.0		.1	.1	.1	.1	-.0	-.0	-.0	-.0	-.0	-.0	-.0	.1	.0	.0	.0	
Gen. Prevent.	.0	-.0	-.0	-.0	.1	.0	-.0	.0	.0	-.0	.0	-.0	-.0	.0	.2		.1	.1	-.0	.1	.0	.0	.0	.0	.0	.0	-.0	.0	.1	-.1	
Thera. Treat.	.0	.0	.1	-.1	-.0	-.0	-.1	.0	-.0	.0	-.0	-.0	-.0	-.0	.2	.1		.8	.1	.0	.0	.0	.0	.0	.0	.0	-.0	-.0	-.0	-.0	
Pulmonary	.0	.0	.0	-.1	-.0	-.0	-.1	.0	-.1	-.0	-.0	-.0	-.0	-.0	.2	.1	.9		.1	.0	.0	.0	.0	.0	.0	.0	-.0	-.0	-.0	-.1	
Days Ill	.1	.0	.0	.1	-.0	.0	-.0	.0	-.0	.1	.0	.1	-.2	-.0	.1	.1	.1	.1		.0	-.0	.0	-.0	-.0	-.0	-.0	.0	.1	-.1	-.0	
Calories	-.0	.1	.2	.1	.3	.2	.1	-.0	.3	.2	.0	.1	.6	.1	-.1	.0	-.0	-.0	.0		.9	.7	.9	.9	.9	.9	-.1	-.1	.1	-.1	
Protein	-.0	.1	.2	.1	.3	.2	.1	-.0	.3	.2	.0	.1	.6	.1	-.1	-.0	-.0	-.0	.0	.9		.7	.9	.9	.8	.9	-.2	-.2	.1	-.1	
Vitamin A	-.0	.1	.2	.1	.3	.2	.1	.0	.3	.2	.0	.1	.6	.1	-.1	.0	-.0	-.0	.0	.8	.8		.7	.7	.9	.9	-.1	-.1	.1	-.1	
Iron	-.0	.1	.2	.1	.3	.2	.1	-.0	.3	.2	.1	.1	.6	.1	-.1	-.0	-.0	-.0	.0	.9	.9	.7		1.0	.8	.9	-.1	-.1	.1	-.1	
Minimum	-.0	.1	.2	.1	.3	.2	.1	.0	.3	.2	.0	.1	.6	.1	-.1	-.0	-.0	.0	.0	.9	.9	.8	1.0		.8	.9	-.1	-.1	.1	-.1	
Product	.0	.1	.2	.2	.3	.2	.1	.0	.3	.2	.1	.1	.6	.1	-.1	-.0	-.0	-.0	.0	.8	.8	.8	.8	.7		.9	-.1	-.1	.1	-.1	
Sum	-.0	.1	.2	.1	.3	.2	.1	-.0	.3	.2	.0	.1	.6	.1	-.1	-.0	-.0	-.0	.0	.9	1.0	.9	.9	.9	.9		-.1	-.1	.1	-.1	
Fertility																															
Children	.7	-.0	-.1	.0	-.2	.0	-.1	.0	-.2	.0	.1	-.0	-.1	.0	.0	.1	.0	.0	.1	-.1	-.1	-.1	-.1	-.1	-.0	-.1		.9	.1	.5	
Exp. Children	.5	.0	-.1	.0	-.1	-.0	-.1	.0	-.2	-.0	.1	.1	-.1	.0	.0	.1	.0	.0	.1	-.1	-.1	-.1	-.0	-.1	-.1	-.0	-.1	.8		.2	.3
Begin Again	.1	.1	-.1	.0	-.1	-.1	.0	.0	-.1	.0	-.1	.1	-.1	.0	.0	.0	.0	.0	.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.1	.3		.0	
Child/Year	-.0	.1	.0	.0	-.0	.0	.1	-.1	-.0	-.0	-.1	.0	-.0	-.0	-.1	-.0	-.0	.0	.0	-.0	.0	.0	-.0	-.0	.0	.0	.5	.3	.0		
Breast Fed	.3	-.1	-.1	-.1	-.3	-.1	-.0	-.1	-.2	.0	.0	-.1	-.1	-.1	-.0	-.0	-.0	-.0	.0	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.3	.1	.1	.1	

[a] See Table 1 for more extensive variable definitions.

2. CHILDHOOD AND ADOLESCENT BACKGROUND, SCHOOLING AND MIGRATION

We conceptualize the respondents' parents[6] as having an implicit preference function, defined over their own lifetime consumption, their number of surviving children, the quality of these children as represented in part by their expected earnings and those of probable mates, and other factors, all conditional on norms for consumption, number of children, etc. The parents act as if to maximize these preferences, subject to constraints on their own time and income, expected earnings functions that depend on investments in human capital like schooling and genetic endowments, assortive mating functions that depend on similar considerations, biological birth and death functions, their own knowledge, and the like.

Elsewhere we have formalized this framework extensively [10, 13, 15, 35].[7] Here it is less useful, because of our emphasis on descriptive characteristics, but we should point out that use of such a conceptual framework clarifies three issues of relevance for this paper.

First, it points out the difficulty in interpreting the causality underlying associations among characteristics. For example, a high association between the respondent's and her mother's schooling may reflect any or all of the following: the genetic inheritance of qualities related to success in school, the role model of the mother in encouraging a higher education level, economic resources that permit investment in schooling (directly from earnings of the mother or the father if there is assortive mating by schooling, or from inherited or _in vivos_ gifts from the mother's parents or relatives), tastes or norms for schooling, or the differential availability of schooling among geographic regions

(at least for mothers who did not migrate after completing schooling). Even with multivariate analysis, identifying the relative importance of such possible causes usually is difficult, because some critical variables such as genetic endowments generally are unobservable.[8] Within our bivariate framework it is even more important that the multiplicity of possibilities and the difficulties in identification be kept in mind.

Second, within a multivariate framework in which other factors are controlled, there may be a significant causal impact of some characteristic on another that does not appear in a bivariate framework. The true effect may, for instance, be swamped by correlations with other characteristics which are not held constant in a bivariate association. For example, suppose that more skilled mothers transmit the genetic bases of those skills to their daughters. Such mothers, however, are likely to be partners in higher-income households, both because of their own contributions and because they tend to marry men of similar qualities. In such households, labor force participation for women may be considered inappropriate; thus there may be no bivariate association between the paid labor force participation rates of mother and daughter, even though a true, underlying, causal association would be revealed, were there a control for family income.

Third, this kind of framework formalizes the widely held hypothesis that childhood and adolescent background affects adult socioeconomic outcomes through a multiplicity of channels. Thus it is of interest below to ask to what extent these background variables are associated with the adult characteristics of our women respondents.

Background Variables

Age. A woman's age may reflect cohort effects or secular changes in norms, opportunities, and the like. For our total sample, the mean age is 29.2 years, with a slight (but probably insignificant) inverse association between the regional means and the degree of urbanization (28.8, 29.3, 29.7).[9] In the central metropolis, a relatively high proportion of women are in the 20-24-year bracket (25%, 21%, 22%) and a relatively low proportion in the 40-45-year bracket (11%, 14%, 14%), probably because of recent selective immigration of younger women from other areas.

Siblings of respondent. Our second background variable expresses the pressures on the parents' resources for investments in each particular child, childrearing costs, and norms for family sizes. For our total sample, the mean number of siblings is 4.9, again inversely associated with the degree of urbanization (4.7, 4.9, 5.3). The dispersions in the distributions are not, however, associated with the means, in contrast to the results over time for the United States which Michael and Willis [29] report, interpreting them to reflect differential contraceptive knowledge and use. Also there does not seem to be much of a secular effect--the correlations with age are quite small (-0.1).

Mother's years of schooling. This may reflect the broad spectrum of genetic endowment, efficiency in household production, economic well-being, role model, and norm effects that are cited above. For the total sample, the mean grade of schooling completed by the mother is 2.3; there is a positive association with urbanization and a particular dichotomy between the two urban and the rural areas (3.2, 2.7, 0.6), that is also revealed by the percentages of respondents' mothers either

with no formal education (30%, 42%, 81%) or with more than three grades of formal education (46%, 35%, 7%). There seems to be no strong cohort effect--the correlations with age are between -0.0 and -0.1--and no strong link between the mother's formal schooling and the number of siblings--the correlations are all -0.1.

Father's socioeconomic status (SES, as defined by international standards; see [28]). This variable represents the male raiser's earnings and schooling and is our best proxy for the income available to the household in which the woman respondent was raised, although it may of course, also reflect genetic endowments and norms inherited from or conditioned by the father. The entire sample mean is 33; means and standard deviations reflect great similarity between urban and rural areas (34, 34, 32; 10.1, 8.7, 5.9). This similarity masks the relatively greater proportional representation of farmers among the fathers of currently rural women (27%, 40%, 72%). The correlations indicate no important association of the father's SES with the respondent's age (and thus no secular trend), nor with the number of siblings (which suggests a limited income effect on fertility in the previous generation). The correlations between the father's SES and the mother's schooling are significantly positive; they are somewhat greater for urban than for rural women, perhaps because of the limited dispersion in both variables for the latter (.3, .4, .2).

Urban origin. A respondent raised in an urban area is likely to have rather different social norms and greater opportunities than respondents raised in rural areas. About 90% of the currently urban respondents, and a third of the currently rural residents, were raised in urban areas. The

figures are not so high for the other urban and the rural areas. For the overall sample, this variable is significantly positively associated with the schooling of the respondents' mothers (0.3), but very little so with other background variables.

Other background variables are not discussed, because of the great homogeneity in the sample or inadequate information. One possible variable is religion, but almost all of our respondents were raised in Catholic households. Another example is the occupational status of the mothers, but the respondents reported "housewife" or "not working" in the majority of cases (53%, 61%, 66%).

Investments in Human Capital

Schooling. Within the conceptual framework that we sketch at the start of this section, we posit that the respondent's background and her expectations concerning returns determine investments in her human capital.[10] One of the most important of those investments on which we have observations is schooling. For our entire sample, the women respondents on average had completed 4.2 grades. We note sharp dichotomies in the mother's schooling between urban and rural areas: means are 5.3, 4.9, 1.5 and standard deviations 3.5, 3.6, 2.1; the proportions with no formal schooling are 11%, 16%, 55%, and with more than six grades of schooling, 29%, 27%, 3%. On the average, the women respondents completed 1.9 grades more than their mothers, but the intergenerational increments between the means are also larger, in absolute terms, for urban than they are for rural residents (2.1, 2.2, 0.9).

For the entire sample, the women's schooling is positively correlated with their mothers' schooling (0.5), an urban upbringing (0.4), and their fathers' SES (0.3); it is somewhat less (and negatively) correlated with age (-0.2). Eighty-seven percent of the mothers of women respondents with no formal schooling were themselves without schooling; in contrast, 57% of the daughters of mothers with no schooling had some schooling themselves. This pattern reinforces the tendency we have already noted towards more schooling in urban areas, whether because of greater supply of schools, or of norms that are more favorable to female education. It reveals secular trends towards a higher level of schooling for women, but also suggests that parental characteristics, particularly the mother's, are significant. Apparently tastes, role models, and time spent with children as a group all affect a daughter's educational attainment, beyond any purely genetic effects or income constraints.[11] But simple statistical manipulation shows that more than half of the variation in the women respondents' schooling is not accounted for by these background characteristics. Fairly significant intergenerational mobility appears to be occurring although unobservable family background variables are not included [see 8].[12]

The correlations between women's schooling and the background variables are similar within each region but there are differences among regions: correlations with the mother's schooling are lower in the central metropolis and rural areas (0.4, 0.6, 0.4), those with the father's SES are lower in rural areas (0.3, 0.3, 0.2). Women whose mothers have no schooling and who themselves have no schooling are more common in rural areas (21%, 29%, 63%).

Migration. Elsewhere, we have estimated that there are significantly different returns to schooling and to other human capital investments in the

different regions [17]; we are also exploring, within a multivariate framework, the extent to which these differences account for migratory flows [16]. In the total sample, 54% of the women have migrated (either inter- or intra-regionally). Perhaps to the surprise of some, more of the women currently living in rural areas have migrated than have those in urban areas, particularly in the urban areas other than Managua (56%, 48%, 61%). Unfortunately, we cannot identify intra- versus interregional migration, nor identify the age at which migration occurred.

We can explore the bivariate association between schooling and migration. For the sample as a whole, these are inversely associated: 62% of those with no education and 44% of those with 12 or more years of schooling have migrated. This contrast with the usual assumption, that it is the more schooled (skilled?) who migrate, is striking. Of course, there are several qualifications. First, the same pattern may not hold for both intra- and interregional migratory flows. Second, for current rural residents the association between migration and schooling is positive: 84% of those with 7 or more years of schooling have migrated, as compared to 61% of the total. Third, in urban areas, particularly the central metropolis, causality may run the other way: the urban-born had access to more schooling and perhaps higher norms for schooling than did immigrants. Fourth, for the same urban-born group, the economic incentives run counter to migration, since these women are already in the region with the highest marginal returns to human capital investments [17].

Other human capital investments. Health and nutrition are important examples of such investments that may occur early in the life cycle, but we do not have direct, relevant information on these. In what follows, we

capture such investments only to the extent that they are represented by our background variables or by the woman's schooling or migration status.[13] In other studies [35, 37] we are exploring the determinants of such investments in the children of our respondents. Preliminary results suggest that family background characteristics, particularly the mother's education, are quite important, so our background variables may serve well as proxies in the present study.

3. AGE OF FIRST COHABITATION, CURRENT MARITAL STATUS, AND CHARACTERISTICS OF MALE COMPANION

Many women leave the household of their childhood and adolescence when they first live with a man, at a time that is determined by various family background factors, societal norms, and the pool of potential male companions [13]. The average age of first cohabitation in our total sample was 18.0 years; the means are slightly higher in the urban areas, lower in the rural areas (18.2, 18.4, 17.3). In all three regions the highest percentage, about a third of these women, first cohabitated in the 17-19-year range (35%, 34%, 33%); in the rural areas, higher proportions did so under 14 years (10%, 11%, 16%) and between 14 and 16 (26%, 23%, 31%). When we consider the variables just discussed the age of first cohabitation is most highly correlated, for the entire sample and for the urban areas, with the respondent's schooling (0.3). As one might expect, high proportions of those married before 14 have no formal education, especially in rural areas (21%, 37%, 62%). Nevertheless, since primary education begins before the teenage years the low mean levels of schooling suggest that schooling is not commonly terminated in order to cohabitate.

For the rural areas, the variable most highly correlated with first cohabitation is age (0.3); in the total and urban area samples this is the second highest correlation, at 0.2. These figures suggest a secular decline in the age of first cohabitation, particularly in the rural areas. For the overall sample and other urban areas, the correlation with mother's education is 0.2--this may represent the variety of effects we outlined above. The other correlation coefficients with the variables of Section 2 are 0.1 and 0.0.

Of all our respondents, 94% have lived with a man, but there is an inverse association with urbanization (92%, 93%, 98%) that probably reflects a combination of factors. Rural women are more likely to have lived with a man because they have less schooling, adhere to more traditional norms, have fewer alternatives to cohabitation available to them.

The nature of the unions varies among respondents. In the entire sample, 35% of the women currently are in common law unions: the smallest proportion of such unions is in other urban areas, the largest in rural areas (33%, 35%, 46%). Currently, 27% are in both civil and religious unions; again the assocation with urbanization is inverse (22%, 30%, 32%). Women previously but not currently accompanied make up 17% of the entire sample (20%, 18%, 12%); 14% are in civil (but not religious) unions (17%, 15%, 8%), both of which are relatively more common in more urban areas. These patterns probably reflect the relative predominance of common law marriages among poorer people, the relative predominance of religious unions among more traditional households (particularly in the rural areas), and the less disadvantageous position of unaccompanied women in more urban areas both because social norms are less traditional and economic opportunities better.

The characteristics of their male companions condition many important aspects of life for women in our sample. The means for these characteristics reflect, once again, a sharp urban-rural dichotomy.

In the urban areas, on average, fathers of male companions have about the same SES scores as the fathers of the women, but the men average over a year more schooling than do the women and score 7 to 10 points higher on the SES index. The intergenerational correlations in the SES scores for males are 0.2 or 0.3, suggesting substantial intergenerational mobility. The correlations between the male companion's schooling and SES scores are much higher, at 0.6, implying an important role for male education in male socioeconomic attainment, either because of the greater return on human capital investments or because of the value of education in signaling possession of certain qualities which are relatively highly rewarded in the market place.[14]

In rural areas, in contrast, fathers of male companions on the average had SES scores a couple of points below those of fathers of the women respondents (there were fewer farmers, but more farm laborers among them). Male companions average slightly although probably not significantly less education than do the women and have mean SES scores only 2 points above those of the women. Two-thirds of the male companions in rural areas had no formal schooling, as compared to 55% of the women in those areas and 7% and 14% of the male companions in the two urban areas. The intergenerational correlation for the male's SES is only 0.1, in part because of a substantial intergenerational shift from farmers to farm laborers and unskilled laborers.[15] As in the urban areas, the correlation of the

male's SES with his own schooling is definitely higher than the intergenerational correlation of SES, but is only a third as large (0.2) as in urban areas.

Our figures suggest strong patterns of assortive mating. The correlations between the schooling and SES of the women, their male companions, and their fathers and mothers are all fairly close. Those for schooling are relatively greater. When we examine the figures within regions, assortive mating appears to be stronger in the urban areas, particularly outside Managua, than in the rural areas.

Although assortive mating by these characteristics is not perfect, it is substantial, considered both intra- and intergenerationally although somewhat less in rural areas. It represents an important mechanism through which the background and schooling of women are reinforced in the determination of their adult socioeconomic characteristics.

4. ECONOMIC ACTIVITY AND INCOME

The participation of women in the paid labor force helps to determine income constraints on the consumption of market goods and services by their households, may alter their norms, and conditions other socioeconomic outcomes, such as fertility.

Work Experience

For the total sample, the paid work experience of women averages 6.3 years; values are higher in urban than in rural areas despite the fact that the rural sample is slightly older, because rural women engage in more unpaid farm labor (6.6, 6.6, 5.2).[16] Somewhat fewer than a fifth of the women report no paid work experience; there is

not much regional variation (18%, 22%, 18%). Women have participated in the paid labor force for an average of one-third of the time potentially available for that work once schooling was completed; there are some regional differences, particularly less participation in rural areas (38%, 36%, 23%).[17]

Of course, this work experience is positively correlated with age, but far from completely so, and less so in rural areas than elsewhere (.5, .5, .3). The absolute values of the correlations with schooling are much smaller, which suggests that any trade-off between early labor force participation and schooling is almost offset by the higher subsequent labor force participation rates for the more educated (-.2, -.1, -.0).[18] Age of cohabitation is slightly positively correlated with work experience; the probability that women participate in the labor force may be higher before they cohabitate than after because of the increased opportunity costs in terms of household production after they set up housekeeping (.2, .1, .1). The correlation is higher in the central metropolis than elsewhere, a result which may reflect the child care concerns which, our research [17, 21] indicates, are significant only in this region. In the entire sample and for each of the regions there are negative correlations with the male companion's schooling and his SES and with other income, suggesting women are less likely to work in paid positions if their companions and transfers provide more other income--but these correlations are quite small. None of the other correlations of work experience with any of the variables discussed in previous or subsequent sections is larger than 0.1 in absolute value, with the exception of number of living and expected children.

In these cases, work experience is probably a proxy for age in the bivariate correlations. Thus the simple associations with other background variables (including mother's schooling, which might represent effects of role models and norms), health and nutrition status, and fertility variables are quite limited.

Occupational Structure

Not surprisingly, this varies significantly among the three regions. Percentages for professional and technical (11%, 11%, 3%), clerical (11%, 7%, 0%), and domestic (16%, 11%, 5%) occupations are positively associated with urbanization. Percentages of farmers and farm laborers (0%, 1%, 26%) and less so informal sales (18%, 22%, 24%) are inversely associated with urbanization. Other occupations reflect the influence of urbanization differently. Merchants and vendors (5%, 7%, 6%) and particularly skilled labor (12%, 19%, 12%) have inverted Vs, unskilled labor (27%, 22%, 24%) has a shallow V. In general, these patterns are consistent with a priori expectations, although the relative importance of skilled versus unskilled labor in other urban areas is noteworthy. In rural areas farming accounts for only about a quarter of the women in the labor force (and informal sales and unskilled labor are about equally important), but the vast majority of the women in the rural sector (78% at the time of our survey) are not engaged in paid labor force activity, though many work in their own households' farm activities.

Sectoral Differences

An alternative typology that is common for developing countries is to distinguish between the formal and informal sectors of the labor force.

For women domestic work is often a third alternative that has some aspects of the formal sector--regularity of employment, wages and specific employers--but, like the informal sector, limited skill requirements. By this categorization, the relative importance of the formal (44%, 35%, 24%) and the domestic (16%, 11%, 5%) sectors is strongly associated with the degree of urbanization--and, of course, that of the informal sector (40%, 54%, 72%) is inversely associated with urbanization. For the total sample, about half of the women in the labor force are in the informal sector.

In other studies we have explored within a multivariate framework the determinants of selection among these sectors [17, 20-22, 33]. One interesting result is that in the central metropolis the presence of small children without home child care options increases the probability of participation in the informal sector, primarily because in this sector on-the-job child care is a realistic possibility.

In the urban areas, more schooling increases the probability of participation in the formal sector and reduces the probabilities of participating in the informal or domestic sectors. On a bivariate level, the association between schooling and sectoral activity is very sharp in the urban areas (although not so much in the rural areas). The proportion of women labor force participants who are working in the informal sector is inversely associated with schooling, that in the formal sector is directly associated and, in the domestic sector, increases as level of schooling rises from zero to 1-3 years of schooling, then declines for

higher levels of schooling. In all three regions, the majority of women labor force participants with more than 6 years of schooling are in the formal sector. In the other urban and rural areas the majority of women labor force participants with 6 or less years of schooling are in the informal sector, and the same is true in the central metropolis for women with 3 years or less of schooling, a plurality of those with 4-6 years schooling are in the informal sector. Such patterns suggest that education may be an important determinant of the sector in which a woman works.

Socioeconomic Attainment

SES. Yet another index of a woman's labor force status is her SES score. The means for these are slightly higher in the other urban areas than in the central metropolis, but lower (and with less dispersion) in the rural areas (28, 29, 26). The correlations in the overall sample with the characteristics discussed in the previous two sections suggest a relatively high association with the woman's schooling (.5), an assortive-mating association with her male companion's schooling (.4) and SES (.3), and slightly weaker associations with her mother's schooling (.3) and her father's SES (.2). On a regional level, these associations are slightly stronger for other urban areas than for the central metropolis, and weaker for the rural areas than for the urban areas. Once again, family background and schooling seem to shape adult outcomes in significant respects, particularly in urban areas, but those that we can measure are hardly complete determinants.

Earnings. For the women in our sample, instead of using actual earnings we use predicted earnings, based on an extended human capital model with control for selectivity for labor force participation and for reporting earnings [17, 20-22, 33]. The advantages are twofold: (1) Random, transitory fluctuations are ignored, so that the concept may be closer to a lifetime or permanent earnings notion than to a transitory one.[19] (2) Although we have observed earnings only for women who were participating in the paid labor force in the time immediately preceding the survey and who reported such earnings, we can construct predicted earnings for all women based on each one's individual characteristics.

The means of the women's predicted earnings (226, 180, 117 cordobas) are positively associated with urbanization, but the standard deviations have an inverse association (162, 138, 41).[20] The regional disparities are also clear in the proportions in the left-hand tails of the distributions--for example, below 100 cordobas per fortnight (14%, 28%, 38%) or below 200 cordobas per fortnight (56%, 70%, 86%). Thus, to the extent women's predicted earnings are a major share of family income poverty is greater in rural areas.

Our other studies suggest that one reason for the lower predicted earnings for women in rural areas lies in the lower market returns to human capital investments than in more urban areas [17, 20]. A second reason is the tendency towards lower human capital investments in women in the more rural areas, whatever the causes--a relatively higher concentration of poorer families, more conservative social norms, lesser

supplies of schools and other facilities related to investment in human capital.

Some of the correlations with previously discussed variables reflect these factors. For the total sample, a woman's predicted earnings are most highly correlated with her schooling (0.7) and her SES (0.5), her companion's schooling (0.5) and SES (0.4), her mother's schooling (0.4), her age of cohabitation (0.3), and an urban upbringing (0.3). Participants in the formal sector have a modal predicted earnings in the range of 200-400 cordobas per fortnight; those in the informal and domestic sectors have modal earnings ranging from 100-200 cordobas.[21]

On a regional level, the patterns of association tend to be similar, although again somewhat stronger for other urban areas and somewhat weaker for rural areas. Also, for reasons discussed above, the average differentials between those who have migrated and those who have not are different across the regions: comparing these groups, migrants have lower predicted earnings in the central metropolis, higher earnings in rural areas and about equal earnings in other urban areas. Of course, in all three regions, many of these associations reflect the same or similar influences of background and schooling on women's socioeconomic success.

Other income. In addition to her earnings, the household of which the woman is a member receives other income from earnings of other household members (most importantly the male companion, if any), transfers from friends and relatives, and income from income-generating assets.[22] For the sample as a whole, other income averages 3.4 times the woman's predicted earnings, with relatively greater mean importance (3.0, 3.5, 4.8) and larger variances (778, 774, 4432 cordobas) in the more rural areas. These regional differences

are due primarily to the relatively great importance of assets in the form of land and the wider dispersion in the size of household holdings of such assets in rural areas.[23] In any case, other income is on average relatively important in comparison to the woman's own earnings in the determination of her household's command over market goods and services, even though it does not represent her human capital stocks so directly as does her predicted earnings.

For the overall sample other income is not very highly correlated with any of the other characteristics which we discuss, except for marital status. The mean flow of other income for currently accompanied women is definitely higher than is that for previously (but not currently) accompanied women; their income in turn is higher than that for never accompanied women. The reasons are simple: only currently accompanied women receive income from earnings of male companions--the most important component of other income. Only previously accompanied women receive transfers from previous male companions--primarily for child care--which are another important component.

Among currently accompanied women, finally, there is a somewhat weaker tendency for other income to be highest on the average in civil and religious unions, next in civil unions and least in common law unions. This might reflect the strength of the unions, but is as likely to reflect a positive association between type of unions and general economic wealth: common law unions are concentrated in the relatively poor rural areas (see Section 3 above).

Within the urban regions, other income is more correlated with various characteristics than in the rural areas. Particularly important are the

male companion's SES (.5, .4, .1) and schooling (.4, .4, .2): these reflect the important role of earnings from male companions in other income. For the same reason, the income patterns just described for the sample as a whole tend to hold on the regional level. In the rural areas, however, never accompanied women receive relatively more other income (probably from transfers from their family) and women in both civil and religious unions receive somewhat less other income (perhaps because the more traditional and religious families tend to have fewer income-generating assets).

Correlations with other income that are at the 0.3 level in absolute value include those with the woman's own SES in all three regions, those with her schooling in both urban areas, and those with her predicted earnings and her father's SES in the central metropolis. These, and the smaller correlations, suggest that the supply of other income is somewhat positively associated with the general human and physical assets of the woman and the household in which she grew up. They do not permit the confident identification of intergenerational transfers of assets, whether physical, financial, or human capital, but at least they are consistent with the possibility that the last of these is relatively important. It is interesting to note that these associations are strongest in the most urban of our three regions.[24]

5. HEALTH AND NUTRITION

Health and nutrition status are important indices of socioeconomic welfare. In addition, their interactions with other indices of socioeconomic welfare, such as those discussed in Sections 4 and 6, are possibly significant.

Health

We have five indicators of the woman's health status. We ask if she has suffered from a disease or diseases that fall into one of four categories, selected on the recommendation of medical experts: (1) medically preventable diseases (e.g., diphtheria and tetanus); (2) generally preventable diseases (e.g., intestinal parasites and TB); (3) therapeutically treatable diseases (e.g., typhoid and high blood pressure); and (4) pulmonary diseases. The fifth is the number of days since the start of the year the woman has missed work or similar activities because of illness--a variable reflecting more current or transitory health. All five measure lack of health; they all suffer from dependence upon the respondent's recall and upon correct identification of the disease or disease category in the first four cases.

For the sample as a whole, 41% of the women report medically preventable diseases, with little variation across regions (42%, 39%, 40%). The reported incidence of generally preventable diseases is higher (49%), and those of therapeutically treatable (33%) and pulmonary (26%) disease categories are lower. For these last three disease categories, however, the reported incidences suggest an inverted V with respect to such incidence and the degree of urbanization. In contrast, the number of mean reported days ill is higher in the central metropolis than elsewhere. This may reflect the higher proportion of women who work and report days ill as days missed from work. If we assume that there is no systematic bias associated with the degree of urbanization in these data, they suggest, if anything, that women's health is better in the rural than in the urban areas. This is

surprising, if true: generally the rural areas tend to be poorer, with a less adequate public health infrastructure, poorer health care, and lower human capital investments.

With what are these health measures correlated? For the variables included in Table 2 the answer seems to be, not much that we have been able to quantify. Except for some correlations among the health indicators (particularly the therapeutically treatable and pulmonary categories), there is only one correlation coefficient in Table 2 that involves the five health indicators and that is as large as 0.2 in absolute value. This one is a -0.2 correlation between a woman's predicted earnings (representing her general human capital?) and her days ill in the rural areas. But generally there is no evidence of bivariate associations between the health indicators and the background variables, the economic activity variables, nutrition,[25] or fertility.[26]

One possibly important variable that is not included in Table 2 and on which we have some data is the source of water supply (public, inside; private, inside; outside, on-site; outside, not on-site; well; river, lake or fountain; purchased).[27] Careful consideration of disease incidences, across regions and in general, classified by these types of water sources, indicates the following. First, in all three regions and in the total sample, better health is experienced by those with publicly supplied internal water, if one judges by the incidence of medically preventable diseases, and by those with privately supplied internal water or wells if one judges by days ill. Second, on the regional level, only those with outside, not on-site connections in other urban areas have better

than average health, by all of the health indicators. These results are murky, but suggest some possible associations between health and water supply. For example, in other urban areas public neighborhood sources may allow maintenance of safe water supplies fairly cheaply and efficiently.

All in all, however, we find surprisingly little evidence of associations between measures of women's health status and other plausible variables.

Nutrition Status

Our data permit measures of four important nutrient inputs, on a standardized basis, for the whole household,[28] by examining the foods that were consumed in the week immediately preceding the survey. These four nutrients are calories, proteins, vitamin A and iron. In addition, we consider the possibility that these nutrients combine to produce an effective nutrition input so that: (1) there is no substitution, so only the minimum of the four standardized values is relevant, (2) there is unitary substitution, so that the product of the four is relevant, or (3) there is infinite substitution, so that the sum of the four is relevant. We note from Table 2, however, that the seven resulting nutrient measures are highly correlated.[29] Therefore in what follows we focus on the nutrient international food experts consider the most important of these, calories.

For the overall sample the mean caloric intake is 62% of international standards: the highest average is in the other urban areas and the lowest in the rural areas (60%, 74%, 51%). The largest correlations, in absolute value, with variables that we have discussed above are with the women's and with the companion's schooling (0.4); with the mother's schooling, the

companion's SES, the woman's own predicted earnings (0.3); and with the woman's SES (0.2). These suggest that general knowledge and economic purchasing power condition household nutrition intakes. In multivariate analysis which we have undertaken for the central metropolis, the woman's schooling, whether or not she works as a domestic and thereby receives food as in-kind wages, her particular nutritional knowledge, and a particular consumer durable, refrigeration [38], seem relatively more important than the general economic constraints. Moreover, the mother's schooling remains significant apparently because of the role as a model to her daughter even after controlling for the effects of the woman's own schooling.

On the regional level the patterns are similar, but their strength seems inversely associated with the degree of urbanization. The largest correlations in each of the regions (although three others in the nonmetropolitan urban areas are as large) are with the woman's predicted earnings. The value of 0.6 for the rural areas is, however, twice as large as the values for the urban areas. Of course, there remains the question of the direction of causality. Elsewhere we have argued that it runs from better nutrition status to higher productivity and earnings [17, 20-22, 33].

6. FERTILITY AND CONTRACEPTIVE USE

The number of children a woman has directly affects private and social welfare. From a private perspective children add to their parents' welfare in a number of respects: for instance, they provide some insurance for care in the parent's old age. But there also may be costs to more children: available economic and human resources are spread over

more family members, and the like. (We note in Table 2, however, that there is very little evidence that the women's characteristics are adversely affected by her number of siblings, since none of the relevant correlation coefficients are greater than 0.1 in absolute value). Likewise there are possible social benefits and costs to more children; and these may differ from the private ones.

Contraception

Whether or not women and their sexual partners attempt to control their number of children depends first of all on whether they have knowledge of means of control. For the entire sample, 85% knew of modern contraceptive methods, somewhat more so in urban than in rural areas (88%, 87%, 81%). Another 1% in each region claimed to know traditional, but not modern methods. The others claimed no knowledge (12%, 13%, 18%).

Knowledge of contraception is positively associated with the woman's embodied human capital, in the general form of her predicted earnings and in the more specific form of her schooling. In neither respect, however, does the proportion who know change dramatically as human capital varies. As one moves from the lowest predicted earnings class to one with a midpoint 16 times as large, knowledge of modern contraception increases from 81% to 92%. As schooling increases from zero to 12 or more grades, the proportions rise somewhat more, from 78% to 97%. The association of contraceptive knowledge with human capital is strong, but there still are some who are very high in these distributions who report knowing nothing, and

a large number very low in the distributions who claim knowledge of contraception.

Knowledge of modern contraception is also associated with a number of other characteristics: age (86% of those 15-34, 83% of those 35-45),[30] urban versus rural childhood (87% versus 80%), labor force participation for older women (for women 34-45, 87% for workers, 80% for nonparticipants), work sector (64% for domestics, 88% for formal, 89% for informal), and with age of first cohabitation (with a peak of 90% who know for ages 20-24 years, as compared to 85% for below 14 and 84% for above 30). The general picture which emerges is one of a secular increase in knowledge of contraception (the age classification is robust with all of the other controls), with relatively high proportions of those who know among those with more human capital and those exposed to a wider perspective through such activities as urban residence or labor force participation.

For those who know modern contraceptives and have been exposed to conception possibilities, the next question is the extent of usage. In the national sample 55% of these women have used modern contraceptives; the the percentages are strongly associated with the degree of urbanization (71%, 55%, 25%).

And what determines such usage? The answer would seem to lie in a combination of factors: the perception of possible excess fertility (that is, more children than would be desired in a perfect contraceptive society, given neither disutility nor economic costs of fertility), the extent of the disutility and economic costs associated with contraceptive use, the nature of social norms, and the degree of understanding about

the interaction between fertility and such factors as health and nutrition [9, 15, 18, 19].

Of course, older women might seem to have more incentive to use modern contraceptives, ceteris paribus; they are more likely to have had enough children not to want any more. However, only 42% of women in the 35-45 age category who know about modern contraception and are at risk of pregnancy make use of it, as compared with 55% of similar women under 35 years old. This greater receptivity may be related to more use of contraceptives by younger women for timing pregnancies, lower norms for family size, and lower disutility costs for contraception (all of these may be affected by the different backgrounds and greater human capital stock of younger women).

This age-related pattern of discrepancies holds primarily for women currently living in or with upbringing in urban areas. For example, in the central metropolis the percentages of women who have ever used contraceptives are 71% and 58% for younger and older women respectively, in other urban areas they are 56% and 43%, but in rural areas they are 25% and 21%. Likewise, for women brought up in urban areas the two percentages are 62% and 47%, but for those raised in rural areas they are 30% and 28%. Apparently, living in urban areas has changed social norms or has reduced the costs of contraception (or increased the cost of contraceptive failures) for younger women much more than for older women; but such differential effects by age are much weaker in the rural region.

Part of the explanation may have to do with the distributions of human capital across regions and within regions by age. The associations of contraceptive use with general human capital as represented by a woman's

predicted earnings, and with the specific human capital investment of her schooling, are both strongly positive. Within earnings ranges, women who have ever used contraceptives constitute 39% of the lowest predicted range; the percentages then increase monotonically to 86% in the highest range for which we have many observations (with a midpoint 16 times that of the lowest range). Likewise, only 27% of those with no schooling have used contraceptives; 82% of those with 12 or more years of schooling have done so. In fact, once we control for schooling, most of the differences between younger and older women in the proportions of those who have ever used contraceptives disappear; percentages are 29% and 25%, respectively, for those with no schooling and 59% and 51% for those with 4-6 years of schooling. There remain some discrepancies which may be due to different social norms.

We also have explored several other possible associations with contraceptive usage. A higher proportion of women in the labor force use contraceptives (53%) than do women not participating (49%). When we compare proportions across the sectors, the figures are 63%, 51%, and 31% for the formal, informal, and domestic sectors. Of women who first cohabitated when 20-24 years old, 55% have used contraceptives; there are smaller proportions for those cohabitating at younger or older ages. For all of these classifications, younger women tend to be more likely to have used contraceptives than do older women. However, once again much of the differences among these categories and between age groups apparently is associated with the nature of the human capital distributions for women. Apparently greater human capital leads to more contraceptive use, through a combination of factors: the increasing opportunity costs of unwanted births, reduction in

the disutility and relative economic costs of contraception, and changing norms towards smaller family sizes.

Knowledge and use of contraception are of interest less in themselves than because of their relation to fertility outcomes, but most of the women in the sample are still in child-bearing ages. Since we cannot measure final outcomes, we include in Table 1 and 2 four fertility-related measures: (1) the current number of living children, which averages 3.2 for the whole sample (2.9, 3.0, 4.0); (2) the expected number of children, given the number at the time of the survey (3.9, 4.0, 5.1); (3) the number of children that the woman would have were she able to begin again--this averages 0.7 less than the number that she currently has (and 1.8 less than the expected number) (2.3, 2.6, 2.9); (4) the average number of children per year since the woman first cohabitated (.25, .26, .31). Note that all four reflect, to varying degrees, a rural-urban dichotomy, albeit this is somewhat less for (4) owing to the earlier average age of first cohabitation in the rural areas.

The expected number of children might on the face of it seem to be our best measure of completed family size, but this variable apparently is quite contaminated by the number of current children. The overall correlation between the two is 0.9. This hardly seems plausible if the expected number of children represents what it purports to be, since a significant proportion of the women are near or at the end of their child-bearing years while another large proportion have at least a decade and a half remaining.

Of course, because of the high association between the distributions of living and expected children, the pattern of correlations between these

and the other variables we have been considering are about the same. The highest of these in the overall sample are with age--0.6 and 0.5 respectively. This, in association with the -0.2 values for age of first cohabitation, possibly reflects exposure to risk of conception (the positive correlations with work experience are probably for the same reason). The correlations with the characteristics of the mother, father, and male companion are all negative, suggesting some intergenerational, inverse effects of the socioeconomic background of both partners on the current number of children.[31] In neither case, interestingly, is the number of siblings significantly correlated--thus there is no evidence of an intergenerational impact of the norms of family size established by the family in which the woman grew up. The associations with the human capital of the woman and of her male companion generally are also inverse; the largest absolute values (-0.3) are for the schooling of both, but there are also significant values for SES, nutrition intake, and the woman's predicted earnings. The health measures, however, are unrelated, except for a correlation of 0.1 between the current number of children and the woman's having had a disease in the medically preventable category. The patterns for the regions are quite similar, although generally a little weaker (except for age) in the rural areas.

The third fertility-related measure does not seem to be reflecting the same phenomena as the first two. The correlation between the children a woman would have if she could begin again and the number of living children is only 0.1 for the whole sample and in each region; that with the expected number of children is slightly higher, at 0.2 or 0.3.

The distributions suggest that women in the sample would rather generally prefer fewer children than they have if they could start over.

The "begin again" variable may represent some notion of desired fertility in a perfect contraceptive society in which contraception had neither economic nor disutility costs [9]. The correlations indicate that such desired fertility is weakly associated with the other characteristics that we can observe (only one is greater than 0.1 in absolute value--that with the sum nutrition measure for the entire sample). It is positively correlated with the number of the woman's siblings and with having had generally preventable diseases and negatively correlated with an urban upbringing, one of the nutrition measures, and the schooling of the woman's mother, the woman herself, and her male companion. This pattern is consistent with the hypothesis that background and human capital investments affect the number of children desired (if contraception is costless) through tastes and opportunity costs in the form of the child care possibilities for women.[32] The number of siblings may shape tastes in an intergenerational manner. The disease and rural upbringing variables reflect a poorer environment, e.g., in such matters as public sanitation and water, and, probably, fewer choices and more traditional norms, favoring larger families. Schooling probably alters tastes for children by weakening the orientation to large families and, in the case of the woman herself, increasing her choices. Better nutrition also opens more opportunities for women.

There are differences in the associations between the "begin again" fertility variable and the other characteristics, as compared to our other fertility-related variables. The differences suggest that these

characteristics are associated not only with the number of desired children in a perfect contraceptive world but also with the (economic and disutility) costs of contraception. Because of differential total contraceptive costs, some individuals behave almost as if they were in a perfect contraceptive world, but many others are far from such behavior. Such a characterization is consistent with the Easterlin, Pollak and Wachter [27] contraceptive use-fertility outcome taxonomy for developing nations.[33]

Our fourth fertility-related variable is probably our best proxy for completed family size. Other work which we have undertaken (14) suggests that the number of currently living children per year of exposure to pregnancy has implications similar to Boulier and Rosenzweig's [25] international standards to adjust for incomplete fertility.

In the overall sample and for each of the regions, this variable is positively correlated with live children (0.5) and with expected number of children (0.3), but not with "begin again." If, in fact, variable 4 is a good proxy for completed fertility, and variable 3 for desired fertility in a costless contraceptive world, the lack of correlation between them points sharply to the importance of different determinants of tastes and of the perceived total contraceptive costs.

For the entire sample, the number of children per year is not significantly associated with any of the woman's background variables, is negatively associated with most variables pertaining to her human capital (e.g., schooling, work experience, predicted earnings, various nutrition measures) and that of her male companion (e.g., schooling, SES), and with

the woman's having had generally preventable and pulmonary diseases, and is positively correlated with other income. (The human capital results are consistent with the opportunity cost hypothesis of and/or tastes for having children; the other income results with some positive income effect through other income.) But all of these correlations are quite small (i.e., 0.1 in absolute value), and the rural patterns differ primarily in being even weaker, although there is a positive association with number of siblings. Thus our bivariate associations are suggestive of some plausible opportunity cost--tastes--income determinants of completed family size, but also imply that other factors, not included here, have substantial effects.[34]

After a child is born, an important and controversial behavioral question has revolved about the issue of breastfeeding. On the average, the women in our overall sample did so for 6.2 months, though again there was a sharp urban-rural divergence (5.1, 4.8, 9.9). In the entire sample (and at the regional level, although there is a somewhat inverse association with urbanization), the average length of breastfeeding is positively correlated with each of the four fertility-related variables (.4, .3, .1, .2). It also is associated positively with age (.3) and with the woman's work experience as a probable proxy for age (.1), and negatively with most of the background and human capital variables (those not related to health) for the woman and for her male companion. The largest associations are -0.4 for both the woman's and the male companion's schooling. The pattern suggests that background and human capital investments work through changing norms, raising opportunity costs for

woman's time, and lowering the relative economic costs of purchasing substitutes for breastfeeding.

CONCLUSIONS

The data which we have summarized reveal the nature of many important socioeconomic characteristics of women in a developing country, the differences among regions, and the associations among those characteristics.

Generally, the indices of socioeconomic welfare are positively associated with urbanization or an urban-rural dichotomy but there are some interesting exceptions. For example, women in other urban areas tend to be better fed than women in the central metropolis and women in rural areas, but worse off by measures of health. And women currently in rural areas are most likely to have undertaken "human capital investment" in migration, in contrast to frequent assumptions to the contrary.

The associations among the various socioeconomic characteristics. reveal a number of interesting features.

First, such associations tend to be greater in the urban than in the rural areas, although again there are exceptions (e.g., that between the woman's SES and her schooling and those for the nutrition intakes).

Second, some of the background variables are correlated with a number of measures of the woman's socioeconomic success. Most striking is the woman's mother's schooling; this may reflect a combination of genetic, role model, and economic factors. However, the correlations with the woman's number of siblings are quite small--there is no evidence that many children in the woman's family limited investment in her because of the

strain on family resources. Moreover, the intergenerational correlations for schooling and SES, although significant and large, leave open the possibility of considerable intergenerational social mobility.

Third, there appear to be some systematic shifts over time, as reflected in significant correlations with age. Important examples include negative correlations with schooling, age of first cohabitation, and contraceptive use and positive correlations with fertility-related variables.

Fourth, the woman's schooling is associated fairly strongly with a number of other indices of her socioeconomic welfare. This association is reinforced by fairly strong assortive mating. Of course, such association does not necessarily indicate that schooling is causal; it may serve as a proxy for ability, motivation, and/or family background. Nevertheless, this pervasive association is striking and is at least consistent with the possibility that returns to this form of human capital investment are substantial. In the case of schooling and migration, however, association is the opposite (negative) of the one usually posited.

Fifth, there is little evidence of association between the health indices and the wide range of other variables in our data set. In contrast, the associations with nutritional status are frequent and generally plausible.

Sixth, the associations among the fertility-related and other variables suggest that Easterlin, Pollak and Wachter's [27] extended fertility model may be useful in understanding how disutility and economic costs may affect contraceptive use and thereby fertility outcomes. Although contraceptive

knowledge is widespread, contraceptive use seems to reflect differential norms that are associated with age and the wider perspective which is correlated with more schooling, greater urbanization, and more labor force participation (particularly in the formal sector).

NOTES

1. For examples, see [26, 31, 32, 45].
2. We have completed or currently are involved in a large number of studies based on this sample [9-23, 33-44].
3. As with any data, this data set has some shortcomings. Some important data, for example, are recall data and probably are contaminated by measurement error. We do not have other information (e.g., age of migration, if any), which would be useful in the analysis. We also note a number of other limitations in the discussion below.
4. We also discuss in the text some categorical variables, such as the source of the water supply, in which there are more than two alternatives. For such variables the means, standard deviations and correlation coefficients do not have very interesting interpretations, so they are not included in Tables 1 and 2.
5. These correlation coefficients are calculated on the bases of the complete set of available observations for the two characteristics in each pair under the assumption that any missing values are random. For discussion of alternative approaches and reports on some Monte Carlo experiments which favor this procedure, see [42].
6. Some of the respondents were raised by females and/or males other than their genetic mothers and/or fathers. To avoid awkward circumlocutions, however, we will use the terms "mother" and "father" to include these others throughout.
7. Also see [1-5, 7-8] and the references therein.

8. See [6] for an attempt to decompose the family background role in the determination of socioeconomic success into genetic and environmental components by using data on identical and fraternal twins.

9. Throughout this paper we adopt the convention of giving statistics for the three regions in order of decreasing urbanization without regional identificiation unless otherwise noted. Thus the number in parentheses here refers to the mean age of respondents of 28.8 years in the central metropolis, 29.3 years in other urban areas, and 29.7 years in rural areas in Table 1.

10. Our estimates elsewhere suggest that such returns on human capital investments may be quite high, particularly in urban areas [6-16, 28, 30]. Of course, as Behrman, Pollak, and Taubman [7] argue, parents may incorporate equity as well as investment return considerations in their decisions about intrafamilial allocation of resources. We are exploring this possibility in [10].

11. If the income constraints (which primarily relate to the male's earnings, see [14, 30, 31]) and genetic endowments (which relate equally to the father and the mother) were overwhelming, in comparison to the factors mentioned in the text, the correlation with the father's SES would probably be much higher than that with the mother's schooling.

12. The squares of the correlation coefficients give the maximum proportion of the variance for which each could account (assuming no intercorrelation and no biases due to missing variables). Their sum gives the maximum for the whole set.

13. See [3, 5, 6, 8-11, 13, 14] for discussion of the importance of such investments.

14. We estimate the returns to investments in male human capital in [14] and find substantial values in urban markets, although not in rural ones.

15. Within the sample as a whole only 3.4% of the male companions whose fathers were farmers themselves became farmers (although 83% of those who became farmers had fathers who were farmers), 18% became farm laborers, 12% became skilled laborers, 10% became unskilled laborers, and 10% were unemployed at the time of the survey. Half of those whose fathers were farm laborers also became farm laborers (with 12% unemployed the next biggest category) and 37% of those whose fathers were unskilled laborers became unskilled laborers (11% in skilled labor and 10% in transportation constitute the next biggest categories). Among the male companions of rural respondents whose fathers were farmers, only 6% are farmers, 41% are farm laborers, and 16% are unskilled laborers. Among those whose fathers were farm laborers, 69% are farm laborers; the 10% who are foremen or who are in the national guard constitute the next largest category.

16. The data are actual work experience by recall, <u>not</u> potential work experience in the Mincerian [30] age minus schooling minus six years sense. The questions ask for work experience within certain periods of a woman's life such as before cohabitating, before birth of first child, etc.

17. This estimate is a minimum because it assumes that no school grades were repeated or left incomplete and that all were six years old when they started school.

18. We examine the determinants of women's labor force participation in [17, 20, 21, 33].

19. However some of the unsystematic part of the underlying earnings functions may be due to different individual characteristics that our observed variables do not represent well. For more discussion see [20, 41].

20. All earnings and income figures are in cordobas per fortnight. At the time of the survey, 7 cordobas equaled 1 U.S. dollar.

21. This pattern holds on the regional level, except that in the central metropolis the modal earnings range is 200-400 cordobas per fortnight for the informal sector, and in rural areas it is 100-200 cordobas per fortnight for the formal sector.

22. We study the nature of income distribution and the roles of demographic and human capital factors therein in [17, 40, 41].

23. An added factor is that 6% of rural households had negative net other income in the sample period, after market purchases of inputs had been subtracted from the value of production. The percentages with no positive other income, however, are about the same across regions [15%, 16%, 15%].

24. For futher exploration of the determinants of other income and its major components within multivariate frameworks see [17, 40, 41].

25. For the nutrition variables there is some limited evidence of a nonlinear effect for medically preventable and therapeutic disease

categories. The most poorly nourished households (i.e., those below 40% of international caloric intake standards) reported higher than average incidence of these two diseases in all three regions and in the overall sample. However, at higher levels of caloric intake, the incidence seems not to be associated with nutrition, so the correlation coefficients in Table 2 are not large.

26. Within the multivariate framework of other studies we do find some limited evidence of the association of women's health with a few of these variable groups, for example in increasing fertility. But generally we do not find very compelling evidence for interaction between adult health and socioeconomic indicators within the multivariate framework either [9, 11, 14, 17, 19-22, 40]. On the other hand we do identify some apparently robust effects of nutrition intakes, the woman's schooling, and (less substantially) economic variables on anthropometric measures of her small children's health [35].

27. The relative importance of these water sources differs substantially among our three regions. In the central metropolis, 66% of households have public, connected, inside water, and 94% have one of the first three sources. In other urban areas 59% have public, connected, inside water, 14% have wells, 13% have outside, on-site connections, and 9% buy water. In rural areas 43% have wells and 38% depend on rivers, lakes, or fountains.

28. We do not have direct information on the distribution of nutrients among household members. However our earnings functions for women and men in [20] suggest that men have higher returns to better

household nutrition in terms of earnings and apparent market productivity--a result consistent with allotment of relatively large shares of household nutrients to adult males.

29. In Table 2 the correlations between calories and the other six nutrient indicators are all at least 0.7 in all regions and on an overall level with the single exception of the value of 0.6 for calories and vitamin A in the central metropolis.

30. Most of the differential remains if education levels are held constant, at least at lower schooling levels.

31. The human capital characteristics of the companion generally are considered to represent an income effect, with a positive sign therefore expected. However in this case, through assortive mating, they probably represent a substitution effect in terms of the woman's time. In multivariate analysis, the characteristics of the woman dominate.

32. We do not go into detail here because of space limitations, but we do want to point out that such patterns hold in the regional subsamples in the rural areas and more weakly in the central metropolis. But in other urban areas there is some evidence of a dominance of an income effect rather than the opportunity cost effect, in that correlations are positive with the woman's schooling and SES, her male companion's schooling, other income, and nutrition intakes.

33. We present some evidence consistent with this scheme in [9, 14]. We are exploring it further in [15].

34. We undertake multivariate exploration of fertility determinants in [14, 15, 19].

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