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THE SCHOOLING AND HEALTH OF CHILDREN OF U.S. IMMIGRANTS AND NATIVES

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Abstract

The behavioral hypothesis that guides this empirical study is that immigrants may differ fundamentally in unobserved capacities, according to the mechanisms by which they are selected into the migration process. This paper examines the school achievements and health of children of immigrants to the United States and compares these outcomes with those of children of native-born Americans. The data are from the 1976 Survey of Income and Education, an augmented current Population Survey conducted by the U.S. Bureau of the Census. The years of schooling completed by children of immigrants differ relatively little from that of children of natives, holding constant for the education of the parents. The children of immigrant parents who had resided in the U.S. for more than a decade received slightly more schooling than the comparably aged children of native Americans. Differences by duration of U.S. residence, regional origin, and the migration status of both parents are described. Measures of child health that are self-reported by the parents also show a consistent pattern of better health among the children of immigrants than among the children of natives. This difference is evident for six health-related activity and function limitations and for the sum of 13 infrequent chronic health conditions evaluated in the survey.

1. Introduction

This paper compares the school achievement and health status of children of immigrants to the United States with those of children of native-born Americans. Since schooling and health of children influence their productivity and earnings as adults, these comparisons should help to assess whether any relative economic disadvantge that immigrants may sustain upon entry to the United States is transmitted to their children. Any initial disadvantage of immigrant parents may be reduced or reinforced in their offspring, depending on three processes. Are the genetic endowments immigrants transmit to their children more or less productive than the endowments that natives transmit to their offspring? Do immigrant parents invest more or less in their offspring than do native parents, given the same economic opportunities and returns? Does society allocate its educational and public health resources so as to benefit differentially the children of immigrants and of natives? Although it is not possible to discriminate among these three mechanisms here, by fitting a simple explanatory model for child schooling and health status, one can estimate the partial effects of the immigrant's origin and of his duration of residence in the United States on these outcomes, which provide some insights into how these various mechanisms work.

The behavioral hypothesis that guides the empirical analysis is that immigrants differ fundamentally from natives, according to the mechanism by which they are selected. The strength and character of the selection process may depend on a variety of factors, and may be more or less strongly related to

particular forms of behavior (Schultz, 1983). Those who immigrate from countries providing substantially fewer opportunities than the U.S. for children to be educated and to receive good health care would be partly selected into the stream of immigrants according to the strength of their preferences for investing in these forms of human capital in their children. Surmounting administrative or language barriers, and incurring high transportation costs, are also likely to cull from the potential stream of migrants those who value most highly the especial opportunities provided by the U.S. economy and society. Consequently, the flow of migrants from, for example, Canada who can readily immigrate to the U.S. should be less selective than the migrant flow from more "distant" origins, such as Chile and China. It remains to be determined empirically, however, whether this latent selectivity of immigrants to the U.S. is revealed noticeably in the school achievements and health of their children, since there are clearly countervailing factors, as enumerated above, that must also be adapted to and overcome by immigrants from these more distant origins.

A series of tabulations of data from the 1976 Survey of Income and Education (SIE) are presented in Section 2. Section 3 discusses problems of measuring the relevant concepts and relations. In Section 4 a simple model of migrant behavior is used to specify the empirical analysis. Section 5 reports the empirical findings. The concluding section summarizes these findings.

2. Preliminary Tabulations

The Survey of Income and Education (SIE) is an expanded version of the Current Population Survey conducted by the Bureau of the Census from April to July of 1976. First, a subfile of the full sample of 151,170 households was extracted that contains all enumerated households in which a family head or his spouse or both are born outside of the United States.[1/] To permit

comparisons between immigrant households and U.S. native born households, a control sample was then randomly drawn of about the same size from the remaining SIE households. From these immigrant and native subfiles, working samples were drawn to include only those families with at least one of their children present. This working sample of families with children included 6,224 immigrant families with 11,438 adults and 13,447 children. Following the same procedure, a native working sample was obtained of 7,557 families with 13,594 adults and 16,672 children.

Two measures of child education were initially considered: (1) number of years of school completed if not currently attending school and current grade if now attending school; (2) current school attendance defined as being enrolled since 1 February 1976 (survey conducted in March 1976).2/ The percentage of qualified children is reported in table 1, according to whether they have completed 2 or more years of school, 8 or more years of school, 12 years or more of school, and 16 years or more of school. Among male children, those of native born parents have a slightly greater chance of having completed at least 8 years of schooling, but a growing disadvantage, compared with children of immigrant parents, of completing 12 and 16 years of schooling.3/ Among female children (second half of table 1), one finds a similar pattern. Thus, children of immigrant parents are somewhat less likely to complete elementary school, but have about the same or better likelihood of completing high school or college. In the United States, girls are generally ahead of boys in school achievement until leaving high school.

Table 2 reports the percentage of children currently attending school by age and sex. Through age 29, children of immigrant parents are more likely to be attending school, regardless of sex.4/ Health status is more difficult to

Table 1

Percentage of Children Who Have Completed Specified Levels of School by Sex and Age of Child, and Whether Either or Both of Their Parents are Immigrants or Both Are Natives

	Age of Child				
	4-9	10-14	15-19	20-29	30-39
Males					
2 Years or More					
Immigrants	8.04	99.2	99.6	99.0	99.2
Natives	6.87	99.2	99.6	99.1	95.7
8 Years or More					
Immigrants	-	11.4	96.0	97.2	93.4
Natives	-	13.0	96.8	97.8	88.0
12 Years or More					
Immigrants	-	-	24.8	85.5	74.6
Natives	-	-	24.6	86.8	65.8
College Completion or More					
Immigrant	-	-	-	17.0	21.3
Natives	-	-	-	12.3	18.8
Percentage Special and Preschool					
Immigrants	8.61	23.89	.95	0	0
Natives	2.98	24.43	1.15	0	0
Numbers					
Immigrants	1557	1568	1418	812	122
Natives	2215	2105	1999	914	117
Females					
2 Years or More					
Immigrants	30.5	98.6	99.8	99.7	95.6
Natives	23.6	99.8	99.5	98.4	95.4
8 Years or More					
Immigrants	-	12.8	96.6	96.4	86.7
Natives	-	13.2	97.4	98.1	86.4
12 Years or More					
Immigrants	-	-	28.5	88.8	76.7
Natives	-	-	27.2	89.8	68.2
College Completion or More					
Immigrants	-	-	-	15.6	11.1
Natives	-	-	.1	12.3	17.0
Percentage Special and Preschool					
Immigrants	9.52	21.99	.54	0	0
Natives	2.58	23.77	.49	0	0
Numbers					
Immigrants	1432	1492	1330	609	90
Natives	2032	2049	1868	686	88

Table 2

Percentage of Children Currently Attending School by Sex and Age of Child and Whether Either or Both of Their Parents Are Immigrant or Both Are Natives

	Age of Child					
	4-9	10-14	15-19	20-29	30-39	40-49
Males						
Immigrants	90.7	99.4	86.0	39.3	10.7	2.78
Natives	80.5	99.6	84.8	38.7	11.1	3.85
Females						
Immigrants	91.6	98.7	88.7	44.0	10.0	4.48
Natives	82.2	99.7	87.6	40.5	12.5	0.00

measure, because the condition in question is by its nature hard to quantify, and when the condition is also self evaluated, it is more likely to be subjectively related to other aspects of behavior, such as whether the child remains in the parents' household and works. With these qualifications and cautions, table 3 reports the proportion of children in the samples for whom the parents reported a health condition functionally limiting their child's (1) ability to do school work; (2) to take part in sports; and (3) to engage in normal work. Regardless of whether one treats nonresponses as "no" or omits them altogether (see notes to table 3), it appears that children of immigrant parents report somewhat fewer health conditions that limit school attendance, sports activities, and work than do children of native born parents. Additional indicators of child health, such as functional limitations and 13 specific chronic health conditions, are considered in subsequent analyses and their pattterns of prevalence are similar to those reported in table 3.

From these preliminary tabulations, children of immigrant parents as a whole do not evidence any notable disadvantge in their school achievements compared with children of native born parents. If there is a differential in the self-reported indicators of health limitations, it would appear that offspring of immigrants report fewer health induced limitations than do the offspring of natives.

3. Measurement of the Education and Health of Children

A child's educational attainment is an indicator of the amount of time, effort and income that a child and his parents commit to the process of schooling. This indicator does not represent the resource intensity or "quality" of that schooling, nor does it incorporate the standards that each school applies for grade advancement and graduation.

In one sense, the educational process is never irrevocably over, even to a working adult, but most people concentrate their schooling while young and

Table 3

Percentage of Children Whose Health Condition Limits Activities By Sex and Age, and Whether Either or Both of Their Parents Are Immigrants or Both Parents are Natives*

	Age of Child					
	4-9	10-14	15-19	20-29	30-34	40-49
1. Limits School						
Males						
Immigrants	3.79	3.32	3.75 (2.47)*	-	-	-
Natives	5.09 (4.33)	5.42	3.78 (2.50)	-	-	-
Female						
Immigrants	2.09	2.08	3.05 (2.03)	-	-	-
Natives	3.28 (2.80)	2.93	3.18 (2.19)	-	-	-
2. Limits Sports						
Males						
Immigrants	1.86	2.23	4.06 (2.68)	-	-	-
Natives	2.80	5.13	5.51 (3.65)	-	-	-
Females						
Immigrants	1.26	3.08	3.84 (2.56)	-	-	-
Natives	2.36	2.88	5.60 (3.85)	-	-	-
3. Limits Work						
Males						
Immigrants	-	-	3.99 (1.34)	7.03 (6.90)	12.71 (12.30)	25.35 (25.00)
Natives	-	-	6.60 (2.20)	8.88 (8.85)	24.35 (23.93)	33.33 (32.69)
Females						
Immigrants	-	-	2.52 (.83)	4.19 (4.11)	12.22	20.00 (19.40)
Natives	-	-	5.75 (1.77)	8.88 (8.75)	19.77 (19.32)	38.24

-: question not asked of this age group

*: The first figure is the percentage reporting "yes" a health condition limits that activity to the number reporting "yes" or "no." The second figure reported in parentheses below the first figure is the percentage of all children responding "yes" including implicitly in the "no" disability category those who left the question blank or not reporting. When the second percentage is the same as the first, only the first is reported.

dependent on their parents. A suitable indicator of school achievement for the purposes of this study would be, therefore, school attainment at the end of "childhood" before the individual enters the adult work phase of the life cycle. If we exclude, however, from our study all but children who are beyond some relatively mature age, of say 25, the working sample of children residing in their parents' home is a very small fraction of all such children over 24 years of age, and this sample is not likely to be representative of all children. A simple procedure is adopted here to combine children at younger ages by assuming that there exists a sex-specific technical relationship between age and educational attainment. These relationships may reflect biological attributes, economic opportunities, and social institutions and conditioning. The relationship determining educational attainment is first estimated from the control sample of children of native born parents, where the child's age and higher orders of age are sequentially introduced as explanatory variables into the regression, until the statistical fit (incremental F test) to the data does not improve with added polynomial terms in age. The joint F test of equality of parameters across sex groups confirmed in this and subsequent cases the distinctive form of these relationships for male and female children. As reported in table 4, the educational attainment relationship was fit to a fourth degree polynomial for both sexes. The enrollment probability and a variety of child health status indicators were also fit to age polynomials by sex as shown in the balance of table 4.

It is assumed that a child's relative deviation from this smoothed technical relationship for his or her birth cohort (or age group in 1976) represents relative deviations in his or her final (projected) years of educational attainment as an adult.5/ This normalization procedure is used for measuring

both educational and health status in order to facilitate comparisons across groups for children of different ages and gender. Since different school systems may encourage children to enter school at slightly different ages, 5 through 7, our normalized index of educational attainment may contain additional "errors" from this source that will not reflect individual parent-child choices. Analysis is later restricted to the sample of older children, age 15 to 29, to reduce the importance of this potential school-entering age effect and increase the weight attached to differences in school-leaving age.6/

Measures of child health are much more difficult to elicit, and relatively little work has been done to confirm the reliability of these responses for identifying clinically confirmed states of health or in measuring their consequences on adult productivity. In general, the further one proceeds toward making the health question specific, in so far as the health condition actually limits the individual from performing specific everyday activities, the greater is the reliability of the response. Nonetheless, there are worrisome pieces of evidence that suggest social, economic, and racial groups may apply different thresholds in their subjective evaluation of health states.7/ If this were generally true, it could make cross sectional comparisons of parents' evaluation of their children's health of limited value as indicators of health

Table 4

Estimation Equations of the Technical Relationship between the Schooling and Health of Children by Sex and Age: Children of Native Born U.S. Parents*

Dependent Variable and Sex (age range)	EXPLANATORY VARIABLES: Intercept	Age	Age^2	Age^3	Age^4	Age^5	Age^6	R^2	F Statistics	Number of Observations	Mean Value (stand. dev.)
1. Years of School Completed (6-29)											
Male	5.443	-22260	.31853	-.01233	.0001488			.9350	22,258.	6198	8.213
	(8.44)	(11.3)	(16.0)	(14.6)	(11.7)						(4.26)
Female	4.712	-2.001	.2947	-.01118	.0001288			.9473	25,765.		8.089
	(4.71)	(10.9)	(15.7)	(13.9)	(10.6)					5740	(4.247)
2. Current School Attendance (6-29)											
Male	-6.463	3.523	-.6658	.06408	-.003292	8.5230×10^{-6}	-8.715×10^{-7}	.4180	752.1	6289	.8574
	(6.21)	(7.58)	(8.12)	(8.72)	(9.31)	(9.80)	(10.2)				(.349)
Female	-4.180	2.429	-.45449	.04307	-.002164	5.436×10^{-5}	-5.356×10^{-7}	.4087	669.1	5815	.8856
	(4.12)	(5.33)	(5.91)	(6.14)	(6.23)	(6.19)	(4.12)				(.3182)
3. Health Condition Limits Schoolwork(6-19)											
Male	-.02400	.01624	-.000784	-.000109				.0499	97.34	5569	
	(.87)	(3.33)	(4.03)	(2.32)							
Female	.1733	-.04107	.003751	-.000109				.0309	42.16	5297	
	(2.23)	(1.96)	(2.13)	(2.32)							
4. Health Condition Limits Sports (6-19)											
Male	.3000	-.08389	.008180	-.002431				.0487	71.25	5569	.0413
	(3.32)	(3.46)	(4.02)	(4.49)							(.199)
Female	.2946	-.08264	.007781	-.0002237				.0380	52.27	5297	.0320
	(3.56)	(3.71)	(4.15)	(4.47)							(.176)
5. Health Condition Limits Work (18-29)											
Male	.6752	-.06276	.001610					.0879	50.89	1590	.0780
	(1.76)	(1.80)	(2.06)								(.268)
Female	-61.646	11.205	-.7563	.02246	.0002472			.1007	28.30	1269	.0733
	(2.19)	(2.23)	(2.26)	(2.29)	(2.31)						(.2607)
6. Health Condition Limits Housework(18-29)											
Male	.48715	-.04642	.001149					.0367	20.15	1590	1.97
	(2.10)	(2.20)	(2.43)								(.163)
Female	.3192	-.03300	.000937					.0460	20.36	1269	1.9696
	(1.17)	(1.35)	(1.67)								(.1716)
7. Has Any Chronic Health Limitation(3-29)											
Male	-.05115	.03110	-.002285	5.3433×10^{-5}				.0846	173.8	7528	.07837
	(2.08)	(4.77)	(4.58)	(4.68)							(.268)
Female	.002044	.01153	.009677	2.9703×10^{-5}				.0678	126.20	6947	.05787
	(.09)	(1.96)	(2.12)	(2.79)							(.233)

*The coefficients in the linearized relationships explaining a dichotomous health status variable are consistently estimated by ordinary least squares, but the t statistics reported beneath the regression coefficients are not generally consistent in these cases.

differentials. The SIE did the best it could, however; the instrument included many carefully sequenced questions that relied upon the most widely accepted approaches for obtaining clinically valid and replicable responses on child and adult disabilities and chronic health limitations (Eisen, et al., 1979, 1980). As further confirmation of the quality of SIE data, it may be noted that the frequencies of various child chronic health conditions confirmed by medical examination in the National Health Examination Survey were very similar to those reported by parents in the SIE (Schultz, 1981).

Three lines of questioning on health are explored in the SIE. The first is focused on disabilities that lead to a chronic activity limitation. Usual activities differ by age group, and, therefore, four activities are considered: school aged children, age 6 to 19, are asked if their health condition limits their ability to participate in athletic (sports) activities; school aged children and youths age 6-19 were asked if their health condition limited their school work or attendance; adults, age 18 and over (to age 29 here), were asked if their health condition limited their work in the labor force or around the house.

Two additional functional limitations are also reported in the SIE; whether the person needs help in eating, dressing and personal hygiene, and whether they require help to get around in the house (mobility) or outdoors. A final sequence of questions categorizes the nature of the individual's health disability or limiting condition. The prevalence of any one of the thirteen specified categories is very low, less than one percent, and more than a third of the conditions are attributed to the residual, "not specified elsewhere."8 Thus, it was not possible to consider separately specific health activity limiting conditions, though they are tabulated in Appendix table A.

Table 5 reports the mean (and standard deviation) of each of the education and health variables and their age/sex adjusted index value for the control sample of children of native born parents, and for the sample of children of immigrant parents. The sample size varies because the questions are age specific as shown in table 6 (see Schultz, 1981, for definitions in terms of the SIE file).

The immigrant population is divided into three groups. The first immigrant sample includes children whose mothers and fathers in the household are both born outside of the U.S. or U.S. territories (col. 3, table 6). The second immigrant sample consists of children whose mothers are immigrants but whose fathers are U.S. born (col. 4). The third immigrant sample consists of children whose fathers are immigrants, but whose mothers are born in the U.S. (col. 5). These three groups of immigrant parents and their children are treated separately because the composition of immigrants across these categories may be affected by immigration policy. Is the two-immigrant parent family able to achieve the same educational and health status for its children as the one-immigrant parent family; does the cultural absorption process take longer if both parents are immigants? The major problem with our answer to this question is that immigrants who marry a person born in the U.S. are likely to be different from those who marry a person from their own country of birth. I would expect that those who are inclined to, and succeed in, marrying outside of their origin group will already be more culturally similar to natives than are immigrants who intermarry.9/

Comparing actual and age/sex adjusted values of the educational attainment variable does not confirm any large differences between immigrants and natives (table 5). Children of all immigrants have completed 8.20 years of schooling

Table 5

Means and Standard Deviations of Measures of the Schooling and Health of Children of Native and Immigrant Parents: Survey of Income and Education, 1976

Dependent Variable	Both Parents U.S. Native Born		Either or Both Parents Immigrants		Mother and Father Immigrants		Mother Only Is Immigrant		Father Only is Immigrant	
	Actual (1)	Adjusted* (2)	Actual (3)	Adjusted* (4)	Actual (5)	Adjusted* (6)	Actual (7)	Adjusted* (8)	Actual (9)	Adjusted* (10)
Education										
1. Years Completed	8.15	.999	8.20	1.003	7.92	1.003	8.18	1.000	8.66	1.009
	(4.25)	(.170)	(4.44)	(.173)	(4.40)	(.190)	(4.38)	(.165)	(4.55)	(.160)
2. Current Attendance	.871	.999	.8640	1.017	.876	1.033	.877	1.025	.820	.979
	(.335)	(.572)	(.3428)	(.7213)	(.330)	(.713)	(.328)	(.726)	(.384)	(.722)
Health Activity Limitation										
3. Schoolwork	.0359	.9269	.0227	.588	.0183	.4747	.0314	.8053	.0251	.6298
	(.1863)	(5.037)	(.1491)	(4.02)	(.1340)	(3.63)	(.1744)	(4.70)	(.1564)	(4.073)
4. Sports Activity	.0368	.9404	.0235	.6184	.0167	.4288	.0265	.6909	.0282	.7750
	(.1883)	(5.24)	(.1515)	(4.27)	(.1282)	(3.56)	(.1607)	(4.47)	(.1655)	(4.850)
5. Labor Force	.0759	.9746	.0463	.5723	.0340	.3968	.0495	.6149	.0569	.7262
	(.2649)	(3.62)	(.2103)	(2.80)	(.1814)	(2.27)	(.217)	(2.93)	(.2318)	(3.167)
6. Housework	.0287)	1.019	.0205	.6548	.0181	.6233	.0208	.6225	.0229	.7465
	(.1672)	(6.56)	(.1416)	(5.15)	(.1334)	(5.17)	(.1428)	(4.95)	(.1497)	(5.46)
Self Care and Mobility Limitation										
7. Needs Help with Personal Hygiene	.0020	.3792	.0016	.2573	.0014	.2241	.0020	.3278	.0012	.1709
	(.0308)	(7.03)	(.0278)	(4.94)	(.0256)	(4.40)	(.0313)	(5.83)	(.0232)	(3.647)
8. Needs Help to Get Around and Outdoors	.0035	1.613	.0033	1.019	.0036	1.532	.0039	.994	.0016	.2726
	(.0506)	(16.9)	(.0547)	(23.7)	(.0576)	(34.1)	(.0602)	(18.3)	(.0350)	(8.16)
Chronic Health Condition										
9. Any Condition	.0685	1.004	.0470	.7013	.0352	.5441	.0533	.7864	.0532	.782
	(.2526)	(3.98)	(.211)	(3.48)	(.1844)	(3.19)	(.2247)	(3.62)	(.224)	(3.63)

*The adjusted value of the variable is the actual value divided by the predicted value, based on the child's age (and higher powers of age) and the estimated technical relationship for his or her sex, as reported in Table 4.

Table 6

Sample Number of Children of Native and Immigrant Parents,

For Whom Education and Health Variables Are Defined

Dependent Variable (and age range)	Both Parents U.S. Natives (1)	Either or Both Parents Immigrants (2)	Both Parents Immigrants (3)	Only Mother Is Immigrant (4)	Only Father Is Immigrant (5)
Education					
1. Years Completed (6-29)	11938	8446	2876	3673	1897
2. Current Attendance (6-29)	12104	8566	2921	3716	1929
Health Activity Limitation					
3. Schoolwork (6-19)	10866	7446	2571	3279	1596
4. Sports Activity (6-19)	10866	7446	2571	3279	1596
5. Labor Force (18-29)	2859	2244	735	929	580
6. Housework (18-29)	2818	2200	718	914	568
Self Care and Mobility Limitations					
7. Needs Help with Personal Hygiene (4-29)	13216	9369	3224	4062	2083
8. Needs Help to Get Around (4-29)	13240	9382	3228	4068	2086
Chronic Health Condition					
9. Any Limitation (3-29)	14475	10380	3603	4465	2312
Sample Composition Maximum Size					
10. Mother Present	16316	11805	4138	5110	2557
11. Mother and Father Present	13661	10608	4138	3913	2557

versus 8.15 for children of native born parents, and this small gap is reduced further when adjusted for age and sex differences. For the subsample of children, both of whose parents are immigrants, education is somewhat lower, 7.92 years, but upon adjustment for age and sex differences of the children, nothing remains to explain.

Health conditions that limit activities--sports, schooling, labor force, housework--are all somewhat less commonly reported among children of immigrants than among children of natives, though schoolwork differences are small and of opposite sign if both parents are immigrants. The two functional limitations --personal hygiene and mobility--are also less common among children of immigrant parents than among children of native parents, and this is again reflected in the summary response to the chronic health condition/disability question. The limited predictive power of age and sex to account for the child health status indicators (table 4) suggests that the unnormalized health status variables could also be treated as a dependent variable in our analysis in Section 5 with little change in findings.

The SIE reports very few cases of personal self care and mobility (functional) limitations (table 5) for children of natives, on the order of one quarter of a percent. It is not possible, therefore, given the size of the SIE, to extract much information about differences in the rate of such rare occurrences among immigrant and native populations. At least one or more chronic conditions affect seven percent of the children of native parents, though these conditions may not limit major activities.10/

4. Outlines of a Model of Migrant Behavior

Determinants of Outcome Measures

Direct comparisons of the actual educational and chronic health status of

children of native and immigrant parents, and analogous comparisons of the age and sex adjusted differences, do not take into account the different background characteristics of the two groups of parents. A more structured approach to the study of differences between migrant and native behavior is required to decide what additional socioeconomic factors should be treated as control variables.

As indicated earlier, the current enrollment status of a child, of a given age and sex, may be affected by many extraneous factors that suggest it is a poor predictor of the child's completed educational attainment. For example, delays in entering school and repeating grades may be directly related to the problems immigrants have with language and social adjustments, but may not necessarily have a persistent effect on the child's school achievements. The number of years of schooling that the child has completed, after age 15, appears to be a better predictor than enrollment status for this purpose, but it will also be biased for the same reasons, as a predictor of the cumulative schooling investments that parents and society are likely to make in a representative child of immigrant and native parents.

Many U.S. studies have confirmed that both the mother's and father's education are correlated with the school achievements of children. It is generally found that the mother's education has a stronger effect than the father's, namely, a larger coefficient in the regression on the child's school achievement or test score (Leibowitz, 1974; Lindert, 1978). This asymmetry between parents is often attributed to the greater time-input of mothers than fathers into child rearing, since the genetic contributions to the child of both parents must be equal (Lindert, 1978; Walker, 1976).

Measures of family earned and unearned income are not included here among

the factors conditioning child educational and health investments. The child's parents may increase earned income by their decision to work longer hours in the labor force, and unearned income may reflect past savings and investment behavior. If the wealth of parents were increased exogenously, without reducing the parents' time available for home and child care activities, economic demand theory would suggest that child schooling and health would probably benefit from more resources. But without a satisfactory measure of exogenous difference in family wealth reported in the SIE, the parental education variables become proxies for both the efficiency with which parents can invest in their children's education and health (a price effect under some assumptions) and the economic resources that they have available to invest in their children (an income effect). The mother's age may also be treated in this light as a control variable. However, the mother's age (given the sampling frame and the age standardization of the child's schooling and health) may capture the effect of the timing of her childbearing and may, therefore, reflect other life cycle allocative choices of the parents that are not strictly exogenous. 11/

Less study has focused on the determinants of child health than on child school achievement. To the extent that chronic health conditions are not responsive to the input of parents' time and market goods, the prevalance of these conditions may reflect mostly genetic endowments. On one hand, we anticipate some beneficial effect of mother's education. On the other hand, given the subjective basis for self-reported health of own-children, more educated mothers may be more alert to, and thus more inclined to report, a chronic health condition/limitation for any given severity of a clinically confirmed condition. In addition to controlling for mother's education and perhaps mother's age, the partial association will be estimated with the immigrant's origin

country and how long the immigrant has resided in the United States.

Migrant Selection and Adaptation

There are two general explanations for the distinctive behavior of migrants that might be relevant to this study of immigrant and native parents' investment in the health and education of their children. The first hypothesis stresses that migrants are selectively drawn from their country of birth, because they decided to overcome a variety of economic and cultural barriers to realize anticipated gains in the United States (Schultz, 1983). Holding constant for educational attainment and age, which largely determine economic opportunities in the U.S. labor market and in household production, one anticipates that migrants should excel relative to natives in those activities that are particularly well rewarded, or for which the relative costs are particularly low, in the United States compared with their country of origin. Immigrant groups that must overcome the largest barriers to entry should evidence the largest selection effects, and conversely these selection effects should be smallest among groups that must surmount the fewest barriers. Hence, "migrants" from Puerto Rico to mainland United States should be less selectively drawn than immigrants from Colombia, because travel costs and immigration barriers are greater for Colombians than for Puerto Ricans.

It is less clear how relevant this selection hypothesis is to refugees. If refugees were randomly expelled from their country of birth and all are then allowed to enter the United States, there would be no selection effect. However, if a broad class of persons from a country, such as Cuba, are potential refugees, and only some decide to leave Cuba for the United States, these refugees are also self-selected. But the criteria for selection may, nevertheless, differ from those applicable to ordinary international migrants.12/

Cuba, as an immigrant origin, is, therefore, distinguished separately in later empirical work, and future work might distinguish among other immigrants by origin and year of arrival to separate out those that could be classified as probably refugees.

The second hypothesis stresses the time that is required for migrants to adapt their behavior to accommodate efficiently the new opportunities and constraints associated with their destination environment. Acquiring useful information about their new country, accumulating vocational skills that are most valued in the U.S. labor market, often learning a new language--all of these processes take time and consume the resources of the immigrant. One anticipates, therefore, that the behavioral pattterns and performance of immigrants should gradually converge toward those reported by native-born Americans as this adaptation process occurs. The longer the immigrant resides in the United States, the smaller should be the adaptation disadvantage.13/ In the first few years after immigration, it is not possible here to separate the potentially offsetting selection and adaptation effects on migrant behavior or performance. Only as the adaptation process is completed, can one, under simplifying assumptions, interpret the remaining differences between migrants and natives as a measure of the selection effect.

One cross-sectional survey cannot confidently distinguish between cohort differences and duration of residence effects for a representative immigrant, and thus one cannot evaluate the separate significance of the adaptation and selection hypotheses. A valid measure of either the selection or adaptation effect requires ultimately longtitudinal data on migrants and nonmigrants, including information on the migrants who decide to return to their origin country or at least leave the U.S. over time. The single cross section of the

U.S. population sampled in the SIE, cannot apportion, therefore, the differences associated with duration of residence in the United States between the true adaptation effect on behavior that occurs over time, the unobserved differences between (the behavior of) immigrant cohorts entering the United States in different calendar years, and the changes in a cohort's composition as some leave the U.S.

Country of Birth

The SIE provided respondents with a choice of twenty countries to designate as their birthplace. The listed choices omitted many countries that were major sources of U.S. immigrants in the past, such as Ireland, Austria, Hungary, and Czechoslovakia, and also the countries of Latin America, other than Mexico and Cuba. Parents born in the United States are here referred to as natives. Parents born outside of the U.S., Puerto Rico or other U.S. territories are referred to as immigrants, and are combined into seven groups of countries as shown in table 7, based on the level of per capita income in the country of birth and the primary language of that country. The first three classes include Mexicans, Cubans and other Latin Americans, including unavoidably some persons from Spain. Class four includes two English speaking high income countries, though some immigrants from Canada may speak only French. Immigrants from the specified European countries, other than England, are combined in class five. The sixth class includes the specified Asian immigrant countries. The other (unspecified elsewhere) category contains 22 percent of the immigrant parent households and is undoubtedly a mixture of immigrants from high and low income regions. The distribution of the sample of immigrant parents is shown in table 7, by origin country groups, and intermarriage classes.

Table 7

The Numbers of Children Aged 6 to 29 of Immigrants in the SIE,

by Country of Origin of Parent

	Country of Birthplace*	Both Parents Immigrants		Only Mother Is Immigrant	Only Father Is Immigrant
		Mother	Father		
1.	Mexico	399	380	460	248
2.	Cuba	73	60	86	38
3.	Other Latin America [1]	170	175	150	28
4.	Canada and U. K. (English)	306	287	912	401
5.	Other Europe [2]	730	741	1003	492
6.	Asia (specified) [3]	394	395	356	131
7.	Other [4]	735	769	622	413
	Total	2807	2807	3589	1751

Notes:

1. Born in "other" or "not available" or "blank" country, and language spoken at home during youth was either Spanish or Portugese (PLANNGC position 276-277)
2. Born in France, Germany, Greece, Italy, Poland, Portugal, Russia or Scandinavia
3. Born in China, Japan, Korea, Philippines or Vietnam
4. Born in "other country," "not available" or "blank," and not speaking Spanish or Portugese at home during youth (see group 3 above)

*Response to birthplace question SIE for individuals not born in the U.S. coded as PBORN in data file position 260-261.

5. Empirical Findings

Regressions on the index of the children's years of schooling are reported in table 8 for native parents and three groups of immigrant parents, where the father's education could be used as a conditioning variable. The intercept represents the schooling of children of an average couple with the following characteristics: the mother and father each have 12 years of schooling, and the immigrant parent is born in one of the "other" countries (class 7), and did not report (in the SIE) year of entry into the United States.[14] In other words, these are the suppressed categories in the regressions that follow of the various explanatory variables for mother's and father's education, origin, and duration of residence in the U.S. Where both parents are immigrants, the country of origin and year of entry variables refer to those of the mother.[15] The proportion of the variance in schooling explained increases, and the coefficients generally increase in magnitude, when the analysis is restricted to older children. The analysis reported here is limited to children between the ages of 15 and 29.

For native parents, the education of mothers and fathers is strongly related to the schooling of their children. For example, a child of a mother with 0-8 years of schooling has on average 6.4 percent fewer years of schooling than the child of a mother who graduated from high school, and 9 percent fewer years of schooling than the child of a mother who graduated from a four-year college. Education of fathers in the native parent sample appears to advance their child's school achievement at about

Table 8

Regressions within Birthplace Class on Adjusted Years of Schooling Completed,

Children Aged 15 to 29, with Father in the Household

	Both Parents U.S. Natives	Both Parents Immigrants	Only Mother Is Immigrant	Only Father Is Immigrant	Both Parents Immigrants by Mother's Birthplace		
					Mexico and Latin America	Canada and Europe	Asia Specified
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	1.011	.950	1.019	.976	1.082	1.068	1.145
Years of Mother's Education:	+		+	+			
0-8	-.0638	-.0107	-.0569	-.0577	-.038	-.012	.029
9-11	-.0292	-.0089	-.0158	-.0007	-.015	-.010	.030
13-15	.0103	.0058	-.0080	.0267	-.042	.026	.050
16	.0264	.0064	-.0114	.0088	.022	.027	.070
17 or more	.0287	-.0075	.0127	-.0120	.073	-.017	-.072
Years of Father's Education:	+	+	***	***		**	
0-8	-.0259	-.0488	-.0194	-.0165	-.079	-.035	-.056
9-11	-.0124	-.0111	-.0041	-.0037	-.043	-.018	-.098
13-15	.0216	-.0023	.0121	.0391	.011	-.008	-.056
16	.0309	.0206	.0398	.0346	-.023	.024	-.027
17 or more	.0251	.0318	.0255	.0346	-.026	.043	-.021
Year of Immigration:		+	***	**	+	+	+
1974-76		-.0106	-.0092	.0114	-.043	-.081	-.159
1970-73		.0015	-.0798	-.0234	-.200	-.088	-.149
1965-69		.0267	-.0396	-.0599	-.080	-.108	-.113
1950-64		.0724	.0009	.0080	-.035	-.044	-.107
1949 or before		.1055	-.0011	.0277			
Birthplace:		+	***	**			
Mexico		-.0253	-.0180	.0019			
Cuba		.0316	-.0313	.0119			
Other Latin America		-.0298	.0067	.0713			
Canada and U.K.		.0087	-.0068	.0115			
Other Europe		.0130	.0057	.0307			
Asia (specified)		.0498	.0260	.0242			
R^2	.1422	.1589	.1344	.1650	.2861	.1533	.1655
F statistic	73.44	11.01	9.27	8.08	4.35	6.53	2.07
Number of Observations	4440	1246	1276	880	161	520	161

Categorical variables jointly statistically significant at the following levels:

* .10
** .05
*** .01
\+ .001

half the rate as does the education of mothers.

The effect of the mother's education on the child's schooling is weaker when both parents are immigrants (Col. 2 Table 8). For example, the difference in child schooling between immigrant mothers with 0-8 years of schooling and mothers with 16 years of schooling is only about 1.8 percent more schooling for the offspring. The father's education among the immigrant samples is more consistently related with their children's schooling, and the magnitude of the effects is at least as large as those estimated from the sample of native parents. When the immigrant married a native, the children's education is more strongly related to both the mother's and father's schooling as was the case among the native parents (Col. 3 and 4, Table 8).

One interpretation of these findings is that the transmission of relative educational status from parent to child is more attenuated among immigrant couples than it is among native U.S. families. Conversely, the children of immigrants are apparently more mobile, upward and downward, from the educational status of their parents than is the case of children of native born Americans. One explanation for this difference would be that the immigrant parents have come from a variety of school systems that do not screen as much on genetic ability as do those in the U.S. According to this hypothesis, upper-class immigrants will have relatively more education (and less ability) and lower class immigrants will have relatively less education (and more ability) than would be true of the children of natives who have matriculated through the U.S. school system. Whatever the reason, the education of parents who are both immigrants is a less adequate predictor of their children's schooling than is the education of native born parents.

The number of years of residence in the United States is associated with increased child schooling levels if both parents are immigrants. But for the children of mixed immigrant-native couples, schooling levels are lowest among parents who have resided here for 4 to 9 years. In many instances that follow, the child education and health status for immigrants arriving in the last two years is also dissimilar to the **pattern of duration effects that are observed among couples living in the U.S. for more than two to five years. It is possible that some of these immigrants entering the U.S. in 1974 to 1976 are short-term residents in the United States--students or migratory workers--with distinct behavioral patterns that are not consistent with the behavior of immigrants who remain in the United States for more than five years.**

The effects of parent birthplace on child schooling are small, but generally statistically significant as a group for each of the three immigrant samples. Parents from the specified group of Asian countries--Japan, China, Philippines, Vietnam and Korea--and from the other specified European group tend to secure more schooling for their children than is accounted for by the other variables in the regression, namely, two to five percent more. Where both parents or only the mother came from Mexico, their children achieve an average 2.5 and 1.8 percent fewer years of schooling, respectively. The other origin groups are generally associated with smaller differential effects on schooling or they represent very small sample cells.

The weakness of the effect of mother's education among the intermarried immigrants is explored further by subdividing this group according to the birthplace of the mother (Col. 5-7, Table 8). For specified Asian countries, Canada and Europe mothers with more than 16 years of education have children with lower school achievement.[16/] For immigrant couples from Latin America, Canada and Europe, the mother's education effects are otherwise regular in form, but they are different for Asian immigrant couples, signalling perhaps a different family structure or merely the small size of the sample.

Mother's age in the schooling regression may introduce simultaneity bias, since it represents the timing of childbearing which is under some behavioral control. However, the inclusion of age, though statistically significant, does not alter appreciably the other estimated effects. Mother's who are currently over age 45 have children who have completed somewhat more schooling than the rest of the sample. Another possible source of bias is the omission of mothers who do not report their husband as present. Adding these women back into the sample, and omitting the father's education variables, leads to similar estimates of the origin and duration effects, and the coefficients on the mother's education are increased, particularly for intermarried immigrants (Schultz, 1981; Table 13).

As anticipated, examination of current enrollment status, adjusted for the child's age and sex, does not yield satisfactory evidence on school achievement. Higher enrollment propensities are observed for recent immigrant groups from countries where English is not the primary language and who are behind their expected grade level. To forecast final school attainment, I would hypothesize that current school enrollment is not a useful proxy, at least not for the immigrant-native comparisons sought here.[17/]

The health variables are defined over smaller samples than is the schooling variable. The infrequent occurrence of these dichotomous health conditions also supplies one with less information on health than on schooling for comparing the statuses of the children of immigrants and natives.[17/] Child health activity limitations may also be distributed to a greater extent than schooling according to genetic permutations, more or less randomly across the population; educational achievement is more responsive to compensatory parental investments and is less dominated by genetic variations in ability. It may require very large samples, therefore, to identify precisely which types of parents have children who suffer disproportionately these disadvantages of chronic bad health.

One may recall that activity limitations on sports affects less than half as many children of parents who are both immigrants than children of parents who are both native, 1.7 versus 3.7 percent (Table 5). Mixed immigrant-native couples report prevalence rates for their children about half way between the two extremes. Regressions on the adjusted sports disability variable in Table 9 suggest that its prevalence decreases with mother's education and may decrease with duration of residence for children of two-immigrant parents. Mexicans report relatively low prevalence rates and Asians, along with those from high income countries, report somewhat higher prevalence rates. Immigrant fathers, controlling for the education of their native wives, report similar prevalence rates for their children as do natives. This general pattern is seen repeatedly in the health regressions that follow. Higher prevalence rates are reported among immigrants from

Table 9

Regressions on Adjusted Sports and Schoolwork Activity Limitation,

Children Age 6 to 19

Explanatory Variables	Sports Activity Limitation				Schooling Activity Limitation			
	Both Parents U.S. Natives (1)	Both Parents Immigrants (2)	Only Mother Is Immigrant (3)	Only Father Is Immigrant (4)	Both Parents U.S. Natives (5)	Both Parents Immigrants (6)	Only Mother Is Immigrant (7)	Only Father Is Immigrant (8)
Intercept	6.027	-.173	1.552	-.377	5.247	.193	1.005	.271
Years of Mother's Education:		*			+		***	
0-8	.390	.421	.146	.435	1.227	.324	.284	.407
9-11	.151	.021	.314	.589	.489	-.260	.740	.474
13-15	.127	-.179	-.221	-.162	.121	.114	-.045	-.087
16	-.265	.128	-.041	-.098	-.230	.100	-.846	-.406
17 or more	.070	-.337	-.529	.790	-.209	-.402	.232	.973
Mother's Age:	+				+			
Age in Years	-.248	.0086	-.038	.049	-.222	-.011	.0076	-.013
Age Squared	.00287	-.000058	.00040	-.00042	.00263	.00013	-.00016	.000037
Year of Immigration:				*				
1974-76		.475	-.756	2.347		.311	-1.032	-.442
1970-73		.065	.600	-.262		.248	-.253	1.380
1965-69		.219	-.015	.951		.410	-.231	.680
1950-64		.167	.092	-.272		.267	.011	.463
1949 or before		.291	omitted	-.387		.618	omitted	.403
Birthplace:							**	**
Mexico		-.240	-.305	-.382		-.095	-.702	-.307
Cuba		-.457	.657	.290		.399	.681	.976
Other Latin America		.323	-.178	-.052		-.110	-.549	.290
Canada and U.K.		.055	-.145	.132		.387	.043	.128
Other Europe		-.030	-.118	.322		.053	-.545	.555
Asia (specified)		.195	.447			.189	-.117	1.100
R^2	.0036	.0065	.0065	.0137	.0087	.0055	.0079	.0184
F statistic	5.49	0.90	1.22	1.13	13.32	0.76	2.02	1.53
Number of Observations	10689	2506	3206	1491	10689	2506	3206	1491

Categorical variables jointly statistically significant at the following levels:

* .10
** .05
*** .01
\+ .001

countries that are more similar to the United States in terms of income, and lower prevalence rates are reported among all immigrants and particularly among those coming from low income countries, such as Mexico and other Latin American countries.

A disability that limits school work is reported with about the same frequency as the sports limitation, but only a small fraction of the children that report such a condition are actually unable to attend school regularly.[19/] The second half of table 9 reports the model for schoolwork limitation, conditioned on the mother's education and also the mother's age. Mother's education has a substantial effect decreasing the prevalance of school work limitations among natives, from twice the average rate for mothers with 0-8 years to half the average rate for mothers with 16 years of education. In contrast with the other health indicators, father's education is also weakly associated with a reduction in school work disabilities, but does not change the other effects (not reported). Immigrant parents from high income and specified Asian countries report school activity limitations more frequently, similar to U.S. native parents, and immigrants from Mexico and other Latin American countries generally report lower levels of school disability. With increased residence in the

United States, immigrant parents report more frequently health conditions limiting their children's school work. These data cannot determine whether this convergence of the children of immigrants to the health status of children of natives is due to a real decline in the health status of children of immigrants with longer U.S. residence, or whether the immigrant parents are lowering their subjective threshold toward that which native parents apply in responding to survey questions regarding the chronic health conditions of their children. One may conclude, however, that whichever interpretation of the data is valid, there is no evidence that the children of immigrants are less healthy than the children of natives, given their parents' education.

The increase in work disabilities among Americans in the last two decades is a widely noted trend. Some analysts have sought to explain this trend in terms of the increasing level of disability benefits provided under the Social Security insurance program from 1967.[20/] Only the first of the two work disabilities reported in the SIE (i.e. labor force and housework) is potentially related to disability insurance benefits, while the second is uninsured. Parsons (1980) has argued, for example, that the self-reported prevalence of disability has increased because of this increase in level of benefit payments. Under this assumption, one would expect labor force activity limitations to be reported more frequently by children whose earnings in the labor market fell short of, or approached, this benefit level. Children of the least

educated parents would, therefore, be more likely on average to find the disability benefit an attractive alternative to working, other things being equal. The results for natives in table 10 are consistent with this form of Parson's hypothesis: the effect of mother's education is to decrease the reported frequency of labor force disabilities. But the same pattern is also evidenced in the second half of table 10 for health conditions that limit the child's capacity to perform work around the house, even though there is no reporting incentive to benefit this group. The association with mother's education was equally pronounced in both cases of work disability, casting doubt on the completeness of Parson's interpretation of the elevated disability rate among the less educated.

All chronic health conditions are combined into a single dichotomous variable and adjusted for age and sex differences among children. This is the dependent variable in the regressions reported in table 11, whether or not the condition led to a major activity limitation. Again the frequency is twice as high among children of natives than among children of two-immigrant parents. Mother's education is, as before, weakly associated with prevalence. Immigrants from low income countries, such as those from Mexico, for example, report

Table 10

Regressions on Adjusted Labor Force and Household Work Activity Limitation,

Children Age 18 to 29

Explanatory Variables	Labor Force Activity Limitation				Household Work Activity Limitation			
	Both Parents U.S. Natives (1)	Both Parents Immigrants (2)	Only Mother Is Immigrant (3)	Only Father Is Immigrant (4)	Both Parents U.S. Natives (5)	Both Parents Immigrants (6)	Only Mother Is Immigrant (7)	Only Father Is Immigrant (8)
Intercept	.758	.000	1.250	.857	.671	.000	1.30	-.328
Years of Mother's Education:	+				***			
0-8	.789	.073	-.349	-.372	1.24	.336	-.570	-.216
9-11	.684	-.394	.091	-.010	1.06	-.526	-.137	.657
13-15	-.007	-.017	-.672	-.966	-.166	.056	-.652	-.929
16	.038	.107	-.528	-.619	.423	-.278	-.224	-.900
17 or more	.216	-.510	-.155	.325	.431	-.666	.823	-.906
Year of Immigration:								
1974-76		.658	-.873	.505		1.800	-.777	.352
1970-73		.520	-.238	-.750		.635	.289	.660
1965-69		.571	-.627	-1.224		.652	-.761	.109
1950-64		.336	-.404	-.351		.754	-.035	1.075
1949 or before		.185	omitted	omitted		.337	omitted	1.156
Birthplace:		*						
Mexico		.430	-.211	.398		.143	-.210	1.417
Cuba		-.298	.013	-.377		-.470	-.791	-.808
Other Latin America		.528	-.286	-.397		.999	-.895	-.581
Canada and U.K.		.526	-.463	.290		.601	-.875	-.262
Other Europe		-.044	-.205	.276		-.423	-.430	.405
Asia (specified)		-.485	.018	.366		-.991	.330	.043
R^2	.0083	.0218	.0169	.0180	.0064	.0132	.6997	.0167
F statistic	4.64	1.00	1.05	0.63	3.54	0.59	0.78	0.53
Number of Observations	2779	735	929	528	2738	718	914	519

Categorical variables jointly statistically significant at the following levels:

* .10
** .05
*** .01
\+ .001

Table 11

Regressions on Adjusted Chronic Health Condition, Children Age 3 to 29

Explanatory Variables	Sample Composition: Both Parents U.S. Natives (1)	Both Parents Immigrants (2)	Only Mother Is Immigrant (3)	Only Father Is Immigrant (4)
Intercept	.778	.418	.614	.810
Years of Mother's Education:	+		***	
0-8	.598	.195	.116	-.043
9-11	.507	-.134	.534	.309
13-15	.033	.015	-.207	-.334
16	-.116	.165	-.105	-.112
17 or more	-.108	-.465	.541	.473
Years of Father's Education:	*		+	
0-8	.045	.2111	.623	.152
9-11	.234	.439	.894	-.532
13-15	.072	-.099	.313	-.110
16	-.159	-.215	.146	.035
17 or more	-.201	.119	.415	.335
Year of Immigration:				+
1974-76		-.203	-.377	1.171
1970-73		-.027	-.336	1.123
1965-69		.169	-.088	.536
1950-64		-.083	-.058	-.474
1949 or before		omitted	omitted	-.182
Birthplace:			*	
Mexico		-.202	-.590	-.143
Cuba		-.103	.035	.045
Other Latin America		-.267	-.138	.878
Canada and U.K.		.295	.010	.094
Other Europe		-.036	-.201	.414
Asia (specified)		-.055	.176	.381
R^2	.0064	.0090	.0146	.0206
F statistic	7.68	1.58	2.52	2.13
Number of Observations	11990	3523	3422	2145

Categorical variables jointly statistically significant at the following levels:

*	.10
**	.05
***	.01
+	.001

an unusually low rate of chronic health problems among their children, and this is also seen among other Latin American immigrants where the parents have not married native Americans.

The two functional limitations are the least frequent statuses analyzed: a third of a percent or less. They were not normalized for the age and sex of the child, since these technical relationships were only weakly evident in the data.[21] Both the personal care and mobility limitation linear probability models in table 12 suggest that the prevalance of these functional limitations among the children of native parents decreases as the mother's education increases. A quadratic relationship with mother's age is evident, implying that the optimal age for childbearing to minimize these conditions appears to be about 25.

In all of the above indicators of the health status of children, the father's education is not statistically significant as an explanatory variable at the 10 percent level; only in the case of the school work limitation does father's education approach this level. The mother's compensatory care of a child with health problems may be more efficacious as the mother's schooling increases. This possible "price effect" or technological effect, however, cannot be confidently separated from an "income effect" operating in the same direction, since the mother's education is also a proxy for the family's resources that are available to invest in care that would minimize the activity limiting effect of a child's chronic health condition. In general, immigrants report healthier children than do natives, whether or not one holds constant for the education of parents, duration of residence in the United States, or the immigrant parent's birthplace. This gap between prevalence rates of natives and immigrants often narrows, however, after the immigrants have resided in the United States for 15 to 20 years.

Table 12

Regressions on Whether the Child Needs Help in Personal Care and Hygiene or for Mobility, Children Aged 4 to 29

Explanatory Variables	Needs Help in Personal Care and Hygiene				Needs Help for Mobility			
	Both Parents U.S. Natives (1)	Both Parents Immigrants (2)	Only Mother Is Immigrant (3)	Only Father Is Immigrant (4)	Both Parents U.S. Natives (5)	Both Parents Immigrants (6)	Only Mother Is Immigrant (7)	Only Father Is Immigrant (8)
Intercept	.0281	.0005	.0018	.0021	.0223	-.0042	.0083	.0057
Years of Mother's Education:					*		*	*
0-8	.0021	.0027	.0004	.0011	.0036	.0061	.0044	.0089
9-11	.0007	-.0001	.0004	.0006	.0008	-.0011	-.0023	-.0003
13-15	.0005	.0016	-.0026	-.0006	-.0002	.0039	-.0045	.0000
16	-.0012	-.00003	-.0028	-.0015	-.0036	-.0010	-.0049	-.0008
17 or more	-.00007	-.0005	.0017	-.0012	-.0019	-.0016	.0044	-.0009
Mother's Age:	+				+			
Age in Years	-.0014	-.000024	.000036	-.00011	-.0011	.00021	.0000094	-.00026
Age Squared	1.8×10^{-5}	2.6×10^{-7}	-3.8×10^{-7}	1.3×10^{-6}	1.5×10^{-5}	-2.1×10^{-6}	-7.0×10^{-7}	2.8×10^{-6}
Year of Immigration:								
1974-76		.0013	-.0022	.0004		.0045	-.0084	-.0034
1970-73		.0012	-.0022	.0006		.0043	-.0075	-.0041
1965-69		.0007	-.0007	-.0003		.0023	-.0050	-.0037
1950-64		.0021	.0009	.0016		.0044	-.0023	-.0014
1949 or before		.0031	omitted	.0008		.0042	omitted	-.0004
Birthplace:								
Mexico		-.0009	-.0017	-.0015		-.0031	-.0046	-.0036
Cuba		-.0016	-.0021	-.0010		-.0041	.0060	-.0029
Other Latin America		-.0027	-.0017	-.0007		-.0016	.0026	.0007
Canada and U.K.		.0004	.0007	-.0001		.0001	-.0014	.0007
Other Europe		-.0034	-.0011	.0024		-.0078	-.0010	.0036
Asia (specified)		-.0025	.0006	.0006		-.0052	.0019	.0059
R^2	.0050	.0056	.0030	.0042	.0020	.0052	.0043	.0119
F statistic	9.24	0.98	0.70	0.45	3.81	0.90	1.01	1.27
Number of Observations	12986	3148	3965	1923	13010	3152	3971	1926

Categorical variables jointly statistically significant at the following levels:

* .10
** .05
*** .01
\+ .001

6. Conclusions

Data from the 1976 Survey of Income and Education have been examined to determine how the educational and health status of children of immigrants and natives differ. The primary objective was to determine whether any disadvantages that immigrants sustained on coming to the United States were transmitted to their offspring in terms of their children's measured educational and health status.

Between the two indicators of accumulated educational investment the number of grades a child has completed is viewed as better than the child's current enrollment status, even when both variables are normalized for the "technological" relationship between these outcomes and the child's age and sex. It was also concluded that the adjusted years of schooling completed would better approximate the child's adult status, if the analysis were restricted to older children, age 15 to 29.

Years of schooling completed by children of immigrants differ relatively little from that of children of natives, holding constant for the education of the parents. Nonetheless, the pattern of differentials confirms a process of convergence between these two groups that is replicated in the subsequent analyses of child health characteristics. The estimates from table 8 suggest that a child of two recent (1974-76) immigrants, both having only graduated from high school, could expect to have about 6 percent

fewer years of schooling than the child of two native parents having also high school degrees. In contrast, the children of immigrant parents who had resided in the United States for more than a decade receive somewhat more schooling than the children of native parents. Country of origin may not make a large difference to child schooling (or later health), but the lack of precise or stable estimates in this regard is probably more of a reflection of the small size of my sample than it is a confirmation that regional or country specific differences do not exist. On average, the children of two parents from Mexico or other Latin American countries tend to fare somewhat worse in terms of schooling, and children of two parents from specified Asian countries tend to fare somewhat better than average. Mixed marriages between immigrants and natives weaken these differences between the child schooling (and health) of two native and two immigrant parents.

Virtually every measure of child health limitation, condition, and disability is found less frequently among children of immigrant parents than among children of native parents. These differences often diminish with duration of U.S. residence of the immigrant parents. Mothers with more education report less frequent health problems for their children, and in the case of school work limitations due to a health condition, father's education is also weakly associated with decreased prevalence. Immigrant parents from low-income areas, such as Mexico and other Latin American countries, report lower rates of child disability and limitation, whereas parents from specified Asian countries report higher rates, approaching those from high income countries such as Europe and Canada.

The empirical findings of this study are not able to distinguish firmly between the hypothetical models of migrant behavior that stress

selectivity and adaptation. But given the limitations of a single cross sectional survey, the evidence suggests that children of immigrants converge toward the schooling and health status of children of natives. In the case of schooling, the children suffer an initial period of disadvantage, but overtake the children of native parents within a decade, on average. The adaptation process is thus clear. Since the evidence suggests that overtaking occurs, it is consistent with migrants having been selectively drawn from their origin populations and being more strongly inclined to invest in their children's schooling than are native American parents, holding constant for the educational attainment of the parents.

Measures of child health are unavoidably more subjective in nature. There are no cross-cultural studies known to the author to validate self-reported activity limitations, disability and chronic conditions among children. If these health conditions are being adequately measured by the SIE's "state of the art" questionnaire, the children of immigrants appear to be less frequently limited by health conditions than are children of natives. These findings indicate that the health status of children of immigrant parents exceeds the health status of children of natives as of 1976.

Appendix Table A

Percentage of Children by Age and Sex Reported as Having a Chronic Health Condition or Limitations by Whether Both of Their Parents are Native Born or One or Both of Their Parents Are Immigrants

Chronic Condition and Parent Group	AGE AND SEX GROUPS 4-9 Males	4-9 Females	10-14 Males	10-14 Females	15-19 Males	15-19 Females	20-29 Males	20-29 Females
Retarded								
Natives	.41	.34	.43	.44	.95	.80	1.31	1.90
Immigrants	.26	.35	.51	.27	.85	.53	1.83	.66
Hard of Hearing								
Natives	.41	.49	.29	.00	.20	.32	.22	.29
Immigrants	.51	.49	.32	.13	.35	.00	.12	.16
Deafness								
Natives	.09	.25	.19	.20	.10	.05	.11	.44
Immigrants	.32	.00	.06	.07	.14	.08	.00	.00
Speech Impairment								
Natives	1.44	.59	.57	.05	.45	.32	.77	.87
Immigrants	.77	.35	.32	.20	.21	.00	.49	.00
Difficulty Seeing or Blindness								
Natives	.23	.39	.53	.10	.40	.32	.33	.58
Immigrants	.06	.14	.19	.20	.21	.30	.49	.16
Seriously Emotionally Disturbed								
Natives	.14	.05	.29	.10	.30	.32	.33	.73
Immigrants	.13	.14	.19	.13	.07	.15	.62	.49
Crippled								
Natives	.45	.34	.71	.24	1.05	.32	.88	1.17
Immigrants	.26	.07	.45	.40	.49	.23	.37	.99
Arthritis/Rheumatism								
Natives	.14	.05	.05	.10	.10	.32	.33	.44
Immigrants	.00	.00	.00	.13	.14	.23	.37	.16
Heart Trouble								
Natives	.54	.29	.38	.34	.20	.32	.22	.15
Immigrants	.13	.21	.19	.74	.35	.45	.12	.00
Chronic Nervous Disorder								
Natives	.09	.00	.29	.10	.35	.37	.77	.73
Immigrants	.06	.07	.26	.13	.14	.08	.37	.16
Back or Spinal Trouble								
Natives	.00	.10	.29	.24	.35	.86	1.42	1.02
Immigrants	.00	.00	.00	.47	.14	.23	1.60	.49
Respiratory Disorder								
Natives	1.26	.93	1.62	.98	1.10	.96	1.31	.26
Immigrants	.77	.21	.89	.87	.99	.60	.37	.00
Digestive Disorder								
Natives	.00	.05	.14	.00	.10	.11	.11	.15
Immigrants	.00	.07	.00	.00	.00	.08	.37	.16
Any One or More of the Specified Conditions								
Natives	4.40	3.45	4.89	2.83	4.40	4.44	6.24	6.27
Immigrants	2.02	1.63	2.17	2.69	2.67	1.85	3.20	2.90
Any Other (not specified) Health Condition								
Natives	2.48	1.38	4.04	1.86	3.35	2.84	4.49	3.50
Immigrants	1.66	.77	1.98	1.47	2.33	2.63	3.45	3.94

Footnotes

[1] Households where the head or spouse was born in Puerto Rico or another U.S. territory are excluded, even though Puerto Ricans might be classified as immigrants for some purposes. They face no legal restrictions on entry or exit from the United States, however, and, therefore, constitute a distinct class of immigrant, selected on different characteristics and potentially responding differently to U.S. opportunities and public education and health services. It is also impossible in the file to distinguish (and delete) "immigrant" heads or spouses who were born abroad to parents who were then U.S. citizens, even though these individuals were, therefore, U.S. citizens by birth.

[2] Children are not considered to have yet entered school if they were reported to be attending nursery school or kindergarten.

[3] This is particularly clear among the children age 30-39. It should be noted, however, that the small qualifying sample of older children that remain in their parents' household after age 20 is undoubtedly unrepresentative of all children of these parents, most of whom are not living in 1976 in their parents' household. How unrepresentative these older qualifying children are, and why this bias should differ between immigrant and native households is unclear. Later regression analysis is limited to children who are less than 30 years old, living in the same household with their parents.

[4] After age 29, the reverse is true, but the sample sizes are then less than a hundred and probably quite unrepresentative. See bottom rows of table 1 for

the number of children enumerated in each age, sex, migrant-status group.

[5] For example, a girl in the tenth grade at age 17 is, say, one year behind the smoothed average for her age/sex group, of eleventh grade. This procedure projects that her adult educational attainment will be .91 of the average for her birth cohort, i.e., 10/11 = .91. There is relatively little diversity in this constructed measure of a child's educational attainment until the child reaches the age at which a substantial fraction of his birth cohort leaves school. When a youth is observed at age 19 who has completed only the tenth grade and left school, and his birth cohort's average has reached 12.5 grades, he is assigned an adjusted educational attainment index of .80, substantially below the average of 1.00, but probably upward biased, since some members of his cohort will continue in school while he is less likely to return to school.

[6] Current school enrollment status is an even less satisfactory indicator of accumlated investment in a child's schooling. Information on continuation rates are more sensitive than years completed to the age of entry into school and the frequency of repeating a year. Suppose the children of immigrants are more frequently held back in a school or miss a year while moving to the U.S. Even if the children of natives and immigrants are equally likely to finish high school and go on to college, we might expect to observe a larger fraction <u>in school</u> at the age when the nonrepeaters would have just graduated from high school. There is no obvious way to correct for this bias which may be particularly serious for the comparisons sought in this paper. Again the school enrollment rate indicator begins to differentiate strongly among children only after about age 15, and thus analyses are restricted to the older group of

children between the ages of 15 and 29. The enrollment status of the child is also normalized by the birth cohort's smoothed enrollment rate obtained from the estimated sex-specific relationship between age and enrollment for children of native born parents. These estimated age polynomial functions are reported in table 4 and analyzed further in Schultz (1981).

[7] For example, Haggarty (1975, p. 75), found that lower income whites and all blacks in his sample of Rochester households reported their children subject to fewer acute illnesses. But when these illnesses occurred, these groups reported that their children spent more days in bed, on average, than the higher income groups. Haggarty concludes that the threshold for illness is lower for upper income groups and whites in particular who are more inclined to treat a minor illness by holding the child out of school. But for more severe illnesses, the reporting rates are similar. See discussion of problem in Eisen et al. (1979).

[8] The thirteen separately distinguished conditions are the following: retarded, hard of hearing, deafness, speech impairment, difficulty in seeing or blindness, seriously emotionally disturbed, crippled, arthritis/rheumatism, back or spinal trouble, heart trouble, chronic nervous disorder, respiratory disorder and digestive disorder. See Appendix table A.

[9] A fourth small group of immigrants with children is not analyzed further. Because it was anticipated that the educational and health status of children might be associated with the mother's education, her educational attaiment is a necessary variable for the subsequent empirical analyses. Children living with

an immigrant father, without a "wife" present, are therefore eliminated from the working sample; this group included 121 children or about one percent of all children of immigrant parents. Throughout the report the terms "mother" and "father" do not necessarily denote a natural (biological) parent of the observed child.

[10] Again the overall pattern is clear(see for example, speech impairments and respiratory disorders) that children of immigrants are reported in better health than are children of native born parents. See Appendix table A.

[11] Where this effect is important, it is preferable to determine if the inclusion of mother's age as a control in the regression alters the effects of other variables. It is possible that improvements in the provision of family planning services to immigrant groups could assist them in adopting a pattern of childbearing that would be more similar to natives and thereby enhance the educational and health status of their children. In the results here, the inclusion of mother's age as a control does not appear to affect the estimates of the other partial effects.

[12] One might suspect that most migrants come to the U.S. because they anticipate large gains from work in the U.S. labor market and perhaps they also attach unusually high value to the public health and educational services provided citizens in the United States that are not available, or available at a higher cost, in their birthplace. Refugees are more likely to be selected according to what they have to lose under a new regime in their country of origin, and, thus, they might be selected according to their wealth, both in terms

of physical capital that they can try to liquidate and repatriate and human capital (professional skills) that the regime might not allow them to use freely. This argument suggests it may be useful to distinguish between immigrants that have come to the United States as part of regular immigration streams, and immigrants that entered the United States as part of major refugee streams.

[13] Chiswick (1978) has explored this hypothesis in his study of the earnings of immigrant men in the United States, and Ribe (1979) has studied male incomes of internal migrants and nonmigrants in Colombia, documenting strong selectivity effects in this low income country.

[14] When the "not-reporting date of entry" group was relatively small, it was combined with the group reporting entry before 1949, which tended to have similar child schooling and health characteristics. Both of these groups are then the suppressed category that is reflected in the value of the intercept.

[15] As one might expect, the mother's and father's origin and year of entry are highly correlated (in this first immigrant sample) and substitution of those characteristics of one parent for those of the other in the regression makes relatively little difference.

[16] The number of these highly educated and often professional mothers is relatively small, thus our estimates for this group are not precise. One interpretation of these findings is that the post-graduate trained mothers transfer their time from the household to the labor markets and the direct effect of

their time reallocation more than offsets any increased productivity of their time in child care activities, or the child's benefits from the mother's increased market income.

[17] The study of age and sex specific school enrollment rates should, therefore, be reappraised and perhaps less emphasis given to past studies based on this indicator of school investments among U.S. teenagers. See, for example, Edwards (1975) and Ehrenberg and Marcus (1979).

[18] Estimates of the standard errors of the coefficients in the unadjusted linear probability model would not be unbiased, and therefore statistical tests of significance would not be straightforward. The cost of computation prevented the estimation of all unadjusted relationships using logit or probit methods. Moreover, the adjusted health (and enrollment) indicators are not strictly dichotomous dependent variables and thus the linear regression methods used here may be slightly more defensible..

[19] The SIE asked whether the individual was usually able to attend school. Of those reporting that a health condition limits the ability to do school work, only about a tenth responded to the attendance question that either they cannot attend school, or they were frequently absent.

[20] The number of disabled male recipients under this program had risen to about 9 percent of the male population age 45 to 64 by 1975 (Parsons, 1980).

[21] Since the dependent variables in these regressions are dichotomous, the ordinary least squares estimates of the linear probability function are not appropriate for statistical hypothesis testing, because the standard errors of the coefficients are not consistent.

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