

ARE THERE CULTURAL EFFECTS ON SAVING? SOME CROSS-SECTIONAL EVIDENCE*

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Why are there such large differences in saving rates across countries? Conventional economic analyses have not been successful in explaining international saving differences, so economists have sometimes suggested that national saving differences may be explained by cultural differences. This paper tests the hypothesis that cultural factors influence saving by comparing saving patterns of immigrants to Canada from different cultures. Using data from the Canadian *Survey of Family Expenditures*, we find no evidence of cultural effects on saving.

I. INTRODUCTION

For most of the postwar period the American national saving rate has been low by international standards. From 1970 to 1985 the average gross national saving rate in the United States (about 14 percent) was the lowest of any industrialized country and was less than half that of Japan (31 percent).¹ Why are there such large differences in saving rates across countries?

Many explanations have been proposed, including the effects of demographics, varying levels and growth rates of national income, disparate social security systems, dissimilar tax systems, and housing price differentials. In a representative recent study Bosworth [1993] examines many of these hypotheses and concludes that, aside from the growth rate of income, the variables he examines “appear to do very little to explain variations in rates of saving across countries [p. 78].”² Of course, problems of measurement (what is the correct statistic for summarizing a nation’s social security system?), endogeneity (does growth cause saving or

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1. These saving rates are calculated using data from Summers and Heston [1988]. The figures cited are from Table I, which is described in Section I of the paper.

2. For a detailed discussion of the evidence on the determinants of cross-country saving rates, see Bosworth [1978], pp. 62–80.

does saving cause growth?), omitted variables (how does income uncertainty vary across countries?), and even accounting (see Hayashi [1986, 1989]) are formidable. But because he is unable to find a satisfactory economic explanation for international variation in saving rates, Bosworth echoes a suggestion that has often been made but rarely tested—that national saving disparities may partly reflect *cultural effects*: perhaps people in different countries simply have different intrinsic tastes for saving.

Because “national culture” is an unobserved variable, the hypothesis that national saving rates vary for cultural reasons is essentially untestable using cross-country aggregate data. This paper instead seeks evidence about whether cultural factors influence saving behavior by comparing saving patterns of immigrants to Canada from countries with different saving rates. For example, if the high Japanese saving rate is primarily a cultural phenomenon, and if Japanese immigrants to Canada retain part of their Japanese culture after moving to Canada, then Japanese immigrants might have higher saving rates than immigrants from countries with saving rates lower than Japan’s.³

Our analysis is limited by the available data. The ideal data set would contain saving and wealth data for a large sample of native-born citizens and immigrants and, for immigrants, information on the country of origin and the date of immigration. The best data we have been able to find is in the Canadian *Surveys of Family Expenditures* (SFEs), which contain data on saving for a representative sample of the Canadian population. For immigrants the country of origin is not specifically identified, but the region of origin is reported as one of the following: North and West Europe (with the United States), South and East Europe, China and Southeast Asia, other Asia, and other countries not contained in the preceding groups. We assume that there are cultural similarities among the countries in each of these groups, and examine whether saving patterns differ for immigrants from different groups.

We find that saving patterns of immigrants do not vary significantly by place of origin. Our findings thus provide no

3. A similar methodology is widely used in epidemiology to examine ethnic differences in disease patterns. For example, Hughes, Lun, and Yeo [1990] report that Indians have higher mortality rates from ischemic heart disease than Chinese and Malays in Singapore. Of course, culture is more mutable than ethnicity; we shall postpone until Section II a discussion of what we mean by culture and the extent to which immigrants might be expected to bring with them cultural attitudes formed in their host country.

support for the view that cultural effects are an important reason for the variation in saving rates across countries. However, we do find evidence that, independent of their origin, recent immigrants save less than Canadian-born citizens, and that over time the distinction between the behavior of immigrants and that of native-born citizens diminishes.

Our central methodological assumption is that immigrants bring with them at least some of the attitudes of their home culture. If immigrants to Canada are entirely unlike their compatriots who remained home, their behavior will not be illuminating about whether cultural effects explain international saving differentials. However, we do find evidence that immigrants differ from each other in characteristics other than saving behavior, and in ways that reflect attitudes often attributed to their cultures. For instance, we find that Asian immigrants spend considerably more on education. Given that some culturally based differences in behavior of immigrants do appear to exist, we believe that our test is reasonable *a priori*. And given that the immigration-selection bias (and the limited size of our sample of immigrants) should work to prevent us from finding an immigration effect, if we *had* found differences in saving by place of origin we believe that we would have been justified in attributing those differences to cultural effects. We therefore hope that our methodological approach can provide a useful framework for future research on cultural effects on saving and other behavior.

The rest of the paper is organized as follows. Section II demonstrates that aggregate saving rates do differ across the groups of countries distinguished in the SFE. Section III describes our theoretical model and derives the empirical estimating equation. Section IV presents the empirical results, and Section V concludes.

II. INTERNATIONAL SAVING DIFFERENTIALS

The SFE divides immigrants' countries of origin into the groups listed in the introduction.⁴ Although saving rates certainly differ across countries, there is nothing to guarantee that average saving rates are distinct across the country groupings chosen by the SFE. In this section we demonstrate that aggregate average

4. The Other Asia group includes the Philippines and South Asian countries (predominantly India). The immigrants in the SFE do not include temporary residents who might have different saving objectives.

saving rates do indeed vary significantly across SFE country groups.

Table I presents the gross national saving rates for the countries from which a large proportion of the immigrants in our data set came. Using data from Summers and Heston [1988], the national saving rate for each country is calculated as the ratio of gross domestic product minus private and public consumption expenditures to gross domestic product. The figures reported are the averages for the period 1970 to 1985. The second column reports the ratio of each country's average GDP per capita from 1970 to 1985 (measured in 1980 international prices) to average GDP per capita from 1970 to 1985 in the United States.

The table also reports the average saving rates for the groups of countries distinguished in the SFE, where each country is weighted approximately by the proportion of Canadians in our sample who are immigrants from that country.⁵ The weighted average saving rate for the Southeast Asian countries is 31 percent, while the average saving rates for the other groups are all around 20 percent, so at least the point estimates of saving rates diverge substantially between some of the SFE country groups.

The bottom panel of the table presents a formal test of whether saving rates are statistically distinct across the country groups in question, after controlling for economic variables that are known to help explain cross-country saving variations. Bosworth [1993] found that among the variables he considered, the growth rate of income was the most useful in explaining aggregate cross-country saving differentials. Carroll and Weil [1993] found that the growth rate and the initial level of income were both statistically significant. We therefore ran a regression of saving

5. Our exact procedure was as follows. From Census Canada [1988] we collected data for the number of immigrants from the United States. This source does not provide detailed data on the population of immigrants from most other countries. However, Census Canada [1989] provides data on the immigrant population by detailed ethnic group rather than country of origin. For example, an ethnically Pakistani immigrant who was born and raised in Great Britain is identified as Pakistani. One remaining problem is that immigrants from Hong Kong, Taiwan, and mainland China are all identified as of Chinese ethnicity, so this source does not contain sufficient information to provide weights for Hong Kong and Taiwan. For those two countries we calculated relative weights by summing the data on the flow of immigrants from Hong Kong and from Taiwan in the *Canada Yearbooks* from 1972 to 1988, a period during which the large majority of Hong Kong and Taiwanese immigrants in Canada arrived in the country. Our final weights were then adjusted so that the group weights in our aggregate data matched the proportions of households from those groups in the SFE data. The exact weights used, along with further details on their construction, are available from the authors.

TABLE I
GROSS NATIONAL SAVING RATES (1970–1985)

Country	$\frac{(GDP - C - G)^a}{GDP}$		Per capita GDP	
			U. S. per capita GDP	
Canada		0.23		0.94
North and West Europe and U. S.	0.19			
United States		0.14		1.00
United Kingdom		0.19		0.67
Denmark		0.18		0.83
Finland		0.26		0.69
Iceland		0.23		0.80
Norway		0.33		0.85
Ireland		0.18		0.35
Sweden		0.22		0.78
Germany		0.24		0.80
Austria		0.25		0.67
Belgium		0.21		0.76
France		0.22		0.79
Netherlands		0.22		0.75
Switzerland		0.25		0.88
South Europe	0.20			
Greece		0.15		0.35
Italy		0.22		0.57
Spain		0.22		0.50
Portugal		0.16		0.31
Southeast Asia	0.31			
Japan		0.31		0.67
Korea		0.23		0.19
Taiwan		0.30		0.22
Hong Kong		0.32		0.53
Other Asia	0.18			
Philippines		0.20		0.12
Pakistan		0.10		0.19
India		0.18		0.05
Saving rate panel regression results ^b				
Type	Y_i/Y_{US}	g_i	p -value	R^2
Unweighted	0.0008 (4.90)	0.2682 (3.24)	0.0001	0.3838
Weighted	0.0015 (7.24)	0.1859 (3.47)	0.0001	0.3088

Note. Figures in parentheses are t -statistics.

a. G denotes government consumption expenditures. In calculating saving rates, we used data valued in the countries' own domestic prices. In calculating the GDP gap, we used figures measured in 1980 relative international prices. (Source: Summers and Heston [1988]).

b. Y_i and g_i denote the level and growth rate of real GDP per capita for country i . The p -value is for the hypothesis that the coefficients for all four immigrant group dummies are equal.

rates on the GDP gap between the United States and the country in question, and on the growth rate of income over the 1970–1985 period, along with dummy variables indicating membership in each of the SFE country groupings. (Countries were again weighted by their proportion in Canadian immigration.) The table presents the p -value for the hypothesis that the coefficients on the dummy variables are all zero; that is, after controlling for growth experiences and national incomes, the saving rates are not statistically distinct across the country groups. The p -value is .0001, far below conventional significance levels. As one would suspect from examining Table I, the most important reason the dummy variables are significant is the strong positive coefficient on the dummy for membership in the Asian group.

We do not believe that regressions of this kind can provide conclusive evidence for cultural effects on saving. Many of the cross-country differences in the economic environment facing households are difficult to summarize in a single aggregate statistic, so it will always be possible to argue that the reason any particular cross-country regression fails is that the researcher mismeasured or omitted a critical variable. The appeal of our alternative approach, based on household-level data from a single country, is that all immigrants face the same tax code, social security system, and general economic environment.

III. OUR MODEL

In order to compare saving patterns across immigrant groups, we must specify a model of consumption and saving. The equation we estimate is

$$(1) \quad C_i = b_0 + \{b_1 + \sum_j (\alpha_j + \beta_j D_i) R_{ij} + b_2 X_i\} YP_i + b_3 W_i + e_i,$$

where C_i and YP_i are consumption and permanent disposable income of household i , respectively.⁶ X_i is a set of variables that measure the life-cycle stage of household i .⁷ R_{ij} is a dummy variable that is equal to one if household i belongs to immigrant

6. We also examined a more general model in which the coefficient on the wealth term was analogous to the coefficient on the permanent income term in equation (1). The qualitative conclusions from that model were similar to those for the model presented here; footnote 16 provides details. We present only results from the simpler model for clarity of exposition.

7. In our estimation, X_i contains age, age squared of the household head, the dependency rate, and dummy variables for location and marital status.

group j , and equal to zero otherwise. D_i denotes the duration of residence in Canada for household i since immigration.

Our definition of permanent income follows Friedman [1957]: permanent represents the expected total income in the current period, including both asset and labor income. This is a departure from recent terminology in which permanent income has often been taken to signify the annuity value of the present discounted value of the expected future stream of income. We justify our departure both by appeal to Friedman's original work and by noting that Carroll [1993] demonstrates that in a modern dynamic stochastic optimization model with income uncertainty and impatient consumers, consumption will on average be approximately equal to the Friedman definition of permanent income.

The structure of our model (1) is designed to match, at least roughly, the description of the behavior of immigrants in the sociology literature.⁸ In that literature immigrants are assumed to arrive with a set of cultural values and behaviors different from those of the "mainstream" culture; in our model this is reflected in the possibility of nonzero values for α_j . Over time, via "assimilation," the behavior of immigrants may become more similar to that of the mainstream. In our model this would imply that β_j 's sign is the opposite of α_j 's sign. If the sign of β_j is different from the sign of α_j , then after $-\alpha_j/\beta_j$ years in the country, the immigration and cultural effects will reach zero.⁹ The sociology literature clearly recognizes that the extent of initial difference and the speed of assimilation may vary across groups.

The parameters α_j can thus be regarded as the sum of a general *immigration effect* at the time of entry and country-specific *cultural effects* at the time of entry. By an immigration effect, we mean the effect on saving that is common to all immigrants. If the mean value of the α_j 's is significantly different from zero, we shall claim to have identified an immigration effect on saving at the time of entry. By cultural effects, we mean the part of α_j that differs

8. Much of the following description of the sociology literature is based on the summary by Thomas [1992].

9. Although models of this kind are standard in the literature on the labor economics of immigration (see Chiswick [1978] and Bloom and Gunderson [1989]), an unattractive feature of these models is that after $-\alpha_j/\beta_j$ years in the country, the behavior of immigrants begins *diverging* from that of the nonimmigrants again, at the same rate at which it was converging in prior years. We attempted to estimate several nonlinear models that did not have this unattractive property, but were unable to obtain satisfactory statistical results. This is probably because the estimated crossover dates typically were 25 to 30 years, and our sample contained only a very small number of immigrants who had been in Canada longer than this.

according to place of origin. If the α_j 's differ significantly across place of origin, we shall declare that we have found evidence for cultural effects on saving at the time of entry. Analogously, if all groups assimilate at the same speed, then β_j will be identical across groups, but if the β_j 's are significantly different, we shall have found cultural effects on the speed of assimilation.

If all α_j 's and all β_j 's equal zero, we can say that there is no evidence of either immigration or cultural effects on saving: immigrants do not appear different from native-born Canadians. If we can reject the proposition that all α_j 's and all β_j 's equal zero, but cannot reject the proposition that all α_j 's are identical and all β_j 's are identical, we can conclude that there is evidence for an immigration effect but no evidence for cultural effects on saving.

IV. ESTIMATION

Our sample, constructed by merging the 1982 and 1986 *Survey of Family Expenditures*, consists of 12,663 households, of whom 11,233 are Canadian-born, 625 North and Western Europeans, 478 South and East Europeans, 166 Chinese and Southeast Asians, and 161 Other Asians. Observations were deleted if the household is of a mixed group, if the head of household's age is less than 25 or greater than 60, or if the reported after-tax income is less than 3000 or greater than 150,000 Canadian dollars.¹⁰ All dollar values are expressed in 1986 Canadian dollars.

For each household we grouped expenditures (approximately 100 narrow categories) into three broad categories of services, nondurables, and durables, following the definitions used in Mace [1988]. Income is defined as after-tax income excluding deductions for social security. Saving is defined in two ways, depending on whether durables expenditures are included in consumption or not.¹¹

Compared with the detailed information on consumption expenditures, the information on wealth is limited. We were able to construct crude measures for three kinds of wealth: financial assets, housing equity, and pension wealth. Because the SFE does not report financial asset holdings, the financial asset variable is

10. Observations for households whose place of origin was "other" were also deleted, because the homogeneity of the members of this group is doubtful.

11. Housing rents and mortgage interest payments are treated as consumption. For homeowners without mortgage payments, we imputed implicit rents to their income and consumption. The paper reports the results without this imputation; its inclusion does not change our results.

TABLE II
DESCRIPTIVE STATISTICS*

	Total	Canada	NW Euro	SE Euro	SE Asia	Other Asia
No. of obs.	12,663	11,233	625	478	166	161
Income	32.8	32.5	34.6	34.0	34.9	38.4
SVR(I) ^a (%)	27.1	27.3	26.8	25.9	24.3	26.1
SVR(II) (%)	12.4	12.5	12.8	12.2	9.7	10.4
Total wealth	101.8	99.1	127.2	136.7	98.4	88.0
Financial assets	13.8	13.1	15.2	24.9	19.5	13.5
Housing wealth	34.8	31.9	53.9	69.4	51.4	39.3
Pension wealth	53.1	54.0	58.1	42.2	27.3	35.0
Age of head	40.7	40.2	45.8	45.8	41.0	38.4
Marriage (%)	70.9	71.2	56.4	78.4	78.9	80.1
Duration of residence			22.8	21.2	11.5	11.4
Educational expenses	311.6	285.8	460.5	413.8	1136.3	377.5
Educational attainment (%) ^b						
1	15.8	15.2	8.0	42.5	15.6	7.4
2	45.5	46.7	39.6	34.7	33.7	23.6
3	11.6	11.7	13.6	6.0	9.6	13.6
4	13.6	13.4	19.0	8.7	15.0	16.7
5	13.3	12.7	19.6	7.9	25.9	38.5

*Figures for income and wealth are in thousands of Canadian dollars, but educational expenses are in Canadian dollars.

a. SVR(I) denotes saving rate when durable expenditures are treated as saving. SVR(II) denotes saving rate when durable expenditures are treated as consumption.

b. Educational attainment is coded as 1 for "less than nine years of elementary education," 2 for "some or completed secondary education," 3 for "some postsecondary education," 4 for "postsecondary certificate or diploma," and 5 for "university degree."

constructed as the capitalized value of income from financial investments.¹² Following the method in Skinner [1985], equity in housing and pension wealth are calculated using the information on housing values and pension payments.¹³

Table II reports some descriptive statistics by group. The weighted average income and wealth of immigrant families are 7

12. We used interest rates of 13.64 percent for the 1982 SFE data and 8.97 percent for the 1986 SFE data. These are rates on medium-term Canadian government bonds.

13. We assume that homeowners younger than 31 have 20 percent equity in housing. From age 31, equity is assumed to grow linearly until age 65, at which point 100 percent equity is assumed. Pension wealth is estimated in the following way. If the individual is still working, pension wealth is estimated as the accumulated social security and pension payment from age twenty to the head of household's current age at 2.5 percent interest rate. For immigrants it is accumulated from the immigration arrival year. There are not many retirees in our sample due to the exclusion of households over age 60, but if the individual is retired, the present value of pension wealth is calculated by assuming that the current receipts would continue until age 85, and discounting at the same rates.

and 23 percent higher than those of natives, respectively. Without adjusting for other economic factors, average saving rates seem similar across groups. Interestingly, there are large differences in the duration of residence, educational expenses, and educational attainment across immigrant groups. The average duration of residence for the China and Southeast Asian group is only about half that of other immigrants, and that group spends considerably more on education and their average educational attainment is higher.¹⁴ The European group's older age and the Asian group's greater education explains part of the income and wealth differentials.

We now turn to econometric issues. Because we do not observe disposable permanent income for households, we must construct an estimate. Carroll [1994] argues that it is appropriate to treat observed disposable income as equal to permanent disposable income plus a transitory error term. In that case, equation (1) can be estimated using standard instrumental variables techniques if instruments can be found which are correlated with permanent disposable income but uncorrelated with transitory income. This is convenient: we would have had to estimate equation (1) using instrumental variables techniques in any case because the wealth variable is measured with error.

Our instruments include a set of dummy variables indicating the educational attainment, occupation category, and sex of the household head, interactions of these dummies with age (to allow different age profiles of income for different education and occupation groups), dummy variables for location and marital status, and of course all the other household characteristics included in X in equation (1). We allow for immigration effects and cultural effects on income in a manner that exactly parallels the treatment in equation (1).

The model in Carroll [1993] which we used to justify equation (1) contains only a single, perfectly liquid, asset. It is not obvious how to translate such a model to the real world of multiple assets of varying degrees of liquidity. As noted above, we construct estimates for three broad categories of wealth: financial wealth, housing equity, and pension wealth. The measure of wealth in

14. This finding remains true after controlling for the number of children and other household characteristics in the regression analysis. Also, we find that the North and West European group has relatively more mixed group marriages. The exclusion of these mixed group couples from our sample explains the low percentage of married couples reported in that group in Table II.

regressions we report is the sum of all three kinds of wealth; it always receives a small and insignificant coefficient. We experimented with a variety of strategies for entering the three measures of wealth in the regression equations, with little difference in results. This is not especially surprising, both because our wealth measures are poor and because Carroll [1994] also found in similar regressions that the coefficient on wealth was usually insignificant.

The consumption regressions are presented in Tables III and IV: in Table III durable goods are included in consumption spending, while in Table IV durables are excluded. The reported t and chi-squared (χ^2) statistics are heteroskedasticity adjusted as in White [1980].¹⁵ For reference purposes the first column reports estimates of a consumption function in which no assimilation effects are allowed. When durable goods are included in consumption, the estimated α_j coefficients are positive but are not jointly significant at the 95 percent confidence level, indicating no significant evidence for a permanent "immigration effect" on the level of consumption. When durable goods are excluded from consumption, the α_j are positive but are jointly significant at the 95 percent level, indicating the possible presence of an immigration effect. However, for neither definition of consumption does our χ^2 test reject the hypothesis that there are no cultural effects on saving (all α_j 's are the same).

The regressions in the first column did not allow for assimilation effects (i.e., in equation (1), β was assumed to be zero). Column 2 reports the results of estimating a specification in which there are cultural effects on the level of the saving rate (the α_j 's are allowed to differ) but not on the speed of assimilation (β_j 's are constrained to be equal). The α 's are all positive, implying that immediately after entry immigrants consume more (save less) than native-born Canadians. The χ^2 test finds no evidence for cultural effects on the level of saving for either definition of consumption (the p -value for the hypothesis that the α 's are equal is .94 for total consumption and .51 for consumption excluding durables), but substantial evidence for immigration effects on saving (the α 's are now jointly different from zero at the 10 percent level of significance when durables are included in consumption, and at the 1 percent significance level when durables are excluded). Further evidence of an immigration effect is the fact that the assimilation parameter β is statistically significant at the 5 percent level and, as expected,

15. The results without adjusting for heteroskedasticity are similar.

TABLE III
CONSUMPTION REGRESSIONS

Consumption with durables				
Group dummies (α)				
Common dummy			0.0519 (2.75)	
NW Europe	0.0178 (1.49)	0.0618 (2.53)		0.0764 (2.44)
SE Europe	0.0117 (1.02)	0.0529 (2.56)		0.0009 (0.03)
SE Asia	0.0205 (0.77)	0.0493 (1.73)		0.0969 (2.62)
Other Asia	0.0258 (1.08)	0.0507 (1.93)		-0.0248 (-0.61)
Duration of residence (β)				
Common speed		-0.0019 (-2.18)		
NW Europe			-0.0017 (-2.08)	-0.0026 (-2.14)
SE Europe			-0.0015 (-1.59)	0.0004 (0.38)
SE Asia			-0.0032 (-1.77)	-0.0053 (-2.23)
Other Asia			-0.0012 (-0.55)	0.0042 (1.40)
<i>p</i> -values				
$\alpha(i) = 0$	0.3275	0.0638		
$\alpha(i) = \alpha(j)$	0.9457	0.9416		
$\beta(i) = 0$			0.2092	
$\beta(i) = \beta(j)$			0.7993	
$\alpha(i) = 0, \beta(i) = 0$				0.0311
$\alpha(i) = \alpha(j), \beta(i) = \beta(j)$				0.1036
R^2	0.4988	0.4976	0.4980	0.4988

Note. Figures in parentheses are *t*-statistics. Other independent variables included in the regressions are the income, the age and age squared of the household head, the dependency rate, and dummies for location, marriage, and the sum of housing, financial, and pension wealth.

has a sign opposite of that of the α 's, indicating that the behavior of immigrants becomes more similar to that of nonimmigrants over time. The implied catch-up periods are estimated to be around 25 to 30 years.

The third column estimates a specification in which the initial levels of saving rates are constrained to be the same (equal α 's), but immigrants from different countries are allowed to have different

TABLE IV
CONSUMPTION REGRESSIONS

Consumption without durables				
Group dummies (α)				
Common dummy			0.0621 (4.14)	
NW Europe	0.0266 (2.70)	0.0744 (3.74)		0.0881 (3.53)
SE Europe	0.0197 (2.00)	0.0643 (3.63)		0.0287 (1.18)
SE Asia	0.0265 (1.19)	0.0577 (2.51)		0.0817 (2.95)
Other Asia	0.0181 (1.20)	0.0450 (2.52)		-0.0020 (-0.07)
Duration of residence (β)				
Common speed		-0.0020 (-2.84)		
NW Europe			-0.0017 (-2.63)	-0.0027 (-2.75)
SE Europe			-0.0017 (-2.24)	-0.0004 (-0.37)
SE Asia			-0.0028 (-1.72)	-0.0038 (-1.78)
Other Asia			-0.0028 (-1.86)	0.0017 (0.83)
<i>p</i> -values				
$\alpha(i) = 0$	0.0111	0.0011		
$\alpha(i) = \alpha(j)$	0.9413	0.5140		
$\beta(i) = 0$			0.0928	
$\beta(i) = \beta(j)$			0.7650	
$\alpha(i) = 0, \beta(i) = 0$				0.0005
$\alpha(i) = \alpha(j), \beta(i) = \beta(j)$				0.2085
R^2	0.4953	0.4905	0.4912	0.4921

Note. Figures in parentheses are *t*-statistics. Other independent variables included in the regressions are the income, the age and age squared of the household head, the dependency rate, and dummies for location, marriage, and the sum of housing, financial, and pension wealth.

speeds of assimilation (different β 's). We find no evidence of cultural effects on the speed of assimilation, and only weak evidence (when durables are excluded from consumption) of any assimilation effect at all (β 's jointly different from zero).

The final column presents our central test. When both α 's and β 's are allowed to differ across groups, we find that the hypothesis that all α 's and all β 's are zero (no immigration or cultural effects)

can be rejected at the 5 percent significance level when consumption includes durable goods and at considerably better than the 1 percent level when consumption excludes durables. However, the hypothesis that all α 's are equal and all β 's are equal (immigration effects but no cultural effects) cannot be rejected at the 10 percent level regardless of the definition of consumption. Furthermore, if there are any cultural differences, the point estimates suggest that Southeast Asians have a *higher* marginal propensity to consume (lower propensity to save) than the other groups—precisely the opposite of the findings using aggregate data.¹⁶

V. CONCLUSION

Because cross-country studies have typically found that national saving differentials are poorly explained by traditional economic variables, economists have often hypothesized that cultural factors are responsible for much of the international variation in saving rates. That hypothesis is untestable using cross-country aggregate data, because it amounts to attributing a residual to an unmeasurable variable. Instead, we test for cultural effects on saving by comparing the saving behavior of immigrants to Canada from different cultures. We find no evidence in these data that cultural factors influence saving behavior.

However, a conclusion that cultural factors do not affect national saving behavior must be viewed as tentative, both because of data problems (our small sample of immigrants and our poor measures of wealth), and because of our potential methodological problem (the possibility that those who immigrate do not adequately reflect the national culture that they left behind). Given that we did find some plausible cultural effects on behavior (Asians spend more on education than other immigrants, for example), we believe that our underlying methodology is sound. Future progress in obtaining a more decisive conclusion may therefore hinge on finding an appropriate data set with a larger sample of immigrants and better data on wealth.

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16. Earlier we noted that we also estimated versions of equation (1) that allowed for cultural effects on the marginal propensity to consume out of wealth. When this more general model was estimated, the evidence for cultural effects on saving was even weaker than for the model whose results we present here. Those results are available upon request from the authors.

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