Status Attainment of Costa Rican Males: A Cross-Cultural Test of a Model

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Status Attainment of Costa Rican Males: A Cross-Cultural Test of a Model[1]

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ABSTRACT The Wisconsin model is a concise and seemingly effective system of antecedent and intervening variables in status attainment. Founded upon research in the U.S.A., it holds that occupational status is largely a function of educational status and is substantially influenced by intellectual capacity and socioeconomic status. Effects of these variables appear to be transmitted through a number of intervening social psychological and performance variables. This paper provides a test of the adequacy of the Wisconsin model in another culture. It was found that the model had to be altered to provide a parsimonious explanation of attainment for a sample of middle-class, small-town Costa Rican males. Reasons for the alteration are discussed. Suggestions are made regarding several of the more vexing research problems in studying the attainment process in other countries.

Building on a general status attainment model proposed by Blau and Duncan (1967:165–171) and upon social psychological research on the subject (Alexander and Campbell, 1964; Bohlen and Yoesting, 1968; Bordua, 1960; Duncan, Haller and Portes, 1968; Haller and Butterworth, 1960; Harrison, 1969; Herriott, 1963; Kandel and Lesser, 1969; Kuvlesky and Bealer, 1967; Sewell, Haller and Straus, 1957; Sewell and Shah, 1967, 1968a, 1968b; Slocum, 1967), Sewell, Haller and Portes (1969) and, later, Sewell, Haller and Ohlendorf (1970) have identified important intervening variables between socioeconomic status of origin and levels of educational and early occupational status.

For the United States, this "Wisconsin model" appears to work quite well (Haller and Portes, 1973). However, the extent to which that model is cross-culturally valid has not been examined. It is our problem. Using data on adolescents from rural Costa Rica, we will assay the Wisconsin model's effectiveness in explaining attainment and, more generally, consider several theoretical and practical problems of status attainment research in developing countries.

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The sample utilized in our study was originally interviewed in 1959. It numbered 118 rural high school boys in Turrialba County, Costa Rica. The respondents ranged from the first to the last grade in high school, and consisted of all who were in school on the day data were collected. Data were gathered by use of questionnaires administered to them while they attended school. Family background information, their educational and occupational aspirations, and information on significant others were obtained. During the summer of 1968 we located and reinterviewed 103 members (89 percent) of the original sample. Data on their levels of educational attainment and occupational history were gathered through personal interviews. Scholastic performance was obtained from official school records.[2]

Variables and their indicators

Occupational attainment—Scores were assigned to the prestige of occupations which respondents indicated they held during the summer of 1968. We assigned scores according to Duncan's socioeconomic index for all occupations (Duncan, 1961) because this measure provided predetermined scores for a maximum number of occupations.[3]

Educational attainment—The indicator was the actual number of formal schooling years completed successfully.

Occupational aspirations—An occupational aspirations scale developed by Haller and Miller (1971) was administered to the sample in 1959. A principal components factor analysis of the items in the scale indicated that five of them defined one basic underlying dimension. We summed the raw scores for each of them to operationalize the variable.

Significant others' influence—A principal components factor analysis of eight test items indicated that one of the underlying dimensions in the factor matrix was defined by perceived encouragement for post-secondary education coming from: 1) father, 2) mother, and 3) teachers. An index was constructed by combining factor weighted scores for each of these encouragement sources.[4]

[2] Three respondents were residing outside of the country in 1968 and were not interviewed, but rather filled out and returned mailed questionnaires. Also, three respondents were in their last year at the university and were assigned prestige scores for occupations they projected they would have upon terminating. They were: philosophy (university professor), law (lawyer) and normal school (grade school teacher).

[3] A ranking of the prestige of a number of occupational titles by this sample correlated at .89 with a similar ranking by a comparable sample in the U.S. (Haller and Lewis, 1966).

[4] A standard factor weighting procedure was used. The square of the factor loadings of each item was multiplied by its standardized score and then summed to provide a score for each respondent.

Educational aspirations—Operationalization was by the number of years of post-secondary education to which the respondent aspired in 1959.

Academic performance—The grade point average for all courses taken during the 1959 academic year was used as a measure of this variable.

Socioeconomic status—Nine items on occupation, education, and level-of-living were available. A principal axis factor analysis showed the items to be composed of two equal factors: one loaded with estimated income, occupational status, occupational satisfaction, and tenure status; the other loaded with the education of both parents, with house construction, and possession of a power washer and an automobile. Conceptually and empirically, the two factors are from the same domain, and our preference was to interpret the nine items as a whole.[5] For certain purposes, however, we used the sets of factor weights to describe two separate indices, one of occupational status consisting of the first four items and another of consumption status consisting of the last five.

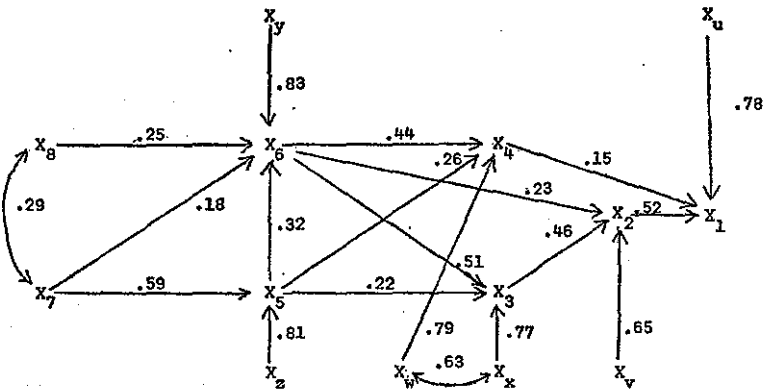
The Wisconsin model

The original Wisconsin model is reproduced in Figure 1. There it was found that mental ability had a large direct effect on academic performance ($p = .59$) and also affected significant others' influence ($p = .18$). Parental socioeconomic status also had an effect on significant others' influence ($p = .25$), as did academic performance ($p = .32$). The latter variable also explained partially the aspiration variable and had an independent effect on levels of educational attainment. In turn, significant others' influence was an important determinant of level of educational aspirations ($p = .51$) and level of occupational aspirations ($p = .44$). It had an additional direct effect on level of educational attainment ($p = .23$). Finally, the aspiration variables are the most important immediate antecedents of attainment, occupational attainment also depending on level of educational attainment ($p = .52$).

Testing the adequacy of the Wisconsin model

Two distinct ways of determining which paths should be retained in a path model have been suggested. The researcher may arbitrarily select a minimum level of magnitude for the coefficients, or he may use a statistical test of significance (Land, 1968). Heise (1968:59–61) suggests that there is no one criterion to use for determining when

[5] Persons who are highest on the combined (single) index are, obviously, high on both factors and those who are lowest are low on both.



X_8 - Socioeconomic origin
X_7 - Mental ability
X_6 - Significant others' influence
X_5 - Academic performance
X_4 - Level of occupational aspirations
X_3 - Level of educational aspirations
X_2 - Level of educational attainment
X_1 - Level of occupational attainment

Figure 1. Path model of status attainment process for Wisconsin high school boys (Sewell, *et al.*, 1970)

a path coefficient is small enough to be excluded. He does note, however, that small path coefficients must be "minute" and that when model parameters are reestimated, deleting apparent nonexistent paths, the new model should reproduce the empirical correlation matrix with very little error. In our case, an arbitrary criterion of a t-test significance level of .10 or less was adopted. Paths not meeting this criterion were dropped unless they were found important in reproducing the correlation matrix.

One further point needs to be noted. No adequate measures for mental ability were available for our Costa Rican study. An intelligence test was administered to the sample in 1959. It consisted of multiple choice questions and was timed. Both the multiple choice format and the idea of timing were foreign to the boys. The strangeness of the test literally frightened a number of them, and it turned out to be useless. Thus, this aspect of the Wisconsin model could not be tested.

Table 1 presents the correlation matrix for all variables included in the Costa Rican data. It is important to note that the majority were not statistically significant. The significant others' variable correlated significantly only with socioeconomic status. Further, SES correlated significantly only with the aspiration variables. The

Table 1. Correlation matrix of the Costa Rican data

		X_1	X_2	X_3	X_4	X_5	X_6	X_7
Level of occupational attainment	X_1	—						
Level of educational attainment	X_2	.58*	—					
Level of occupational aspirations	X_3	.21*	.15	—				
Level of educational aspirations	X_4	.10	.20*	.19	—			
Level of significant others' influence	X_5	.00	—.03	.12	.03	—		
Academic performance	X_6	.28*	.36*	.05	.08	—.14	—	
Socioeconomic status of origin	X_7	.02	.13	.21*	.20*	.38*	.01	—

* Significant at $p \leq .05$

strong association expected between family background and individual attainment was lacking for the Costa Rican sample.

Of greater interest are the standardized partial regression coefficients, Table 2. They, of course, confirm that no direct links were apparent between socioeconomic origin and the attainment variables. There are no significant paths from the former to the latter. Rather, it appears that any effect of socioeconomic origin on attainment levels is indirect, finding expression only through its relationship to the aspiration variables which, in turn, affect attainment levels.

One possible explanation for our finding of how SES relates to

Table 2. Standardized partial regression coefficients in the Costa Rican data for all possible causal relationships

		X_1	X_2	X_3	X_4	X_5	X_6	X_7
Level of occupational attainment	X_1	—						
Level of educational attainment	X_2	.54*	—					
Level of occupational aspirations	X_3	.15*	.09	—				
Level of educational aspirations	X_4	—.03	.14*	—	—			
Significant others' influence level	X_5	.05	—.03	.06	—.03	—		
Academic performance	X_6	.09	.34*	.06	.08	—.14	—	
Socioeconomic status of origin	X_7	—.09	.09	.20*	.21*	.38*	—	—

* Significant at $p \leq .10$

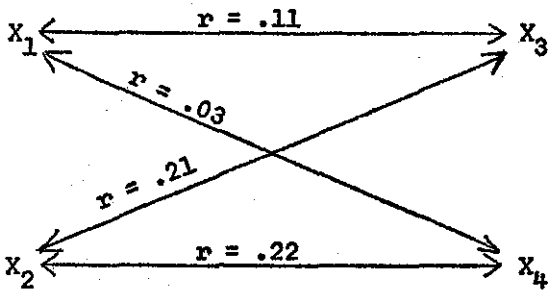
attainment may be the relative homogeneity of occupational status. Particularly in rural areas, a crucial factor determining who receives even a secondary education is the ability of the student's immediate family to support him while in school. It is true that public primary and secondary education is free in Costa Rica. It is also true that anyone who aspires to an education theoretically is able to receive it. However, until recently, the reality of rural life in Costa Rica afforded a secondary education to only a privileged few. Primary schools located in the rural areas allowed access to all rural youth. Secondary schools were located in the county seats. Since no public transportation was supplied for rural youth to attend high school, only those living in the county seat, those living within walking distance, and those whose families had sufficient resources to provide a pension for them to live in town while attending school, could take advantage of the facilities. Hence, few of the poorer rural families sent their children to high school. In contrast, among the wealthiest families of rural Costa Rica, going away to private high schools in the city has been preferred always. In spite of the newfound presence of public secondary schools in the more remote regions, they continued to send their children there. Both the poor and the wealthy are, thus, probably underrepresented.

Since our analysis of the SES index indicated that it consisted of two subdimensions, we decided to examine their possible separate effects on the intervening variables. If the lack of direct causal paths between SES and attainment were due to the homogeneity of fathers' occupational niche, then the major effect of SES on aspirations would be through consumption status. Homogeneity of occupational status would preclude any great perceived differentials in future parental financial support, but would not necessarily preclude differences due to consumption status.[6] That is, occupational status homogeneity implies a corresponding homogeneity of resources. The consumption status variable, particularly because it loads highly on the education levels of each parent, may reflect a difference in subcultural values which affects the youth's educational and occupational aspirations.

The correlations between each SES component and the aspiration variables are presented in Figure 2. They support the above rationale. Statistically significant correlations were found only between the aspiration variables and consumption status.

As already noted, the expected association between academic performance and significant others' influence did not appear for the sample. Indeed, the path coefficient was negative. Several possible

[6] The importance of consumption in defining status in Latin America has been argued by Greenfield (1969) among others. Indeed, he argues that, for Brazil at least, consumption is a more salient status determinant than is productive activity.



X_1 - Occupational status

X_2 - Consumption status

X_3 - Level of occupational aspiration

X_4 - Level of educational aspiration

Figure 2. Correlations between the aspiration variables and SES components

reasons may be given for this finding. First, the significant others' influence index is not a direct measure. Perceived encouragement is an *estimate* on the part of the respondent (Woelfel and Haller, 1971). Perceptions may be faulty. Or, actual encouragement may be based on variables other than grades. The relatively strong path between SES and the significant others' variable indicates that SES may be one such variable.[7]

The paths between academic performance and levels of educational and occupational aspirations were not statistically significant. Several factors may contribute simultaneously to this finding. The major step within the Costa Rican educational system is not between high school and college. Rather, it is between grade school and high school. Most adolescents who enter high school intend to go on to college. The high mean and relative lack of variation evident in the aspiration variables (see Appendix) support this contention. Another partial explanation may be that grades are simply less important in determining levels of aspiration in Costa Rica. We have already noted the significant paths between SES and the aspiration variables.

[7] A study by Warren (1968) indicates that cultural definitions of parent-student-teacher interaction in Germany are not conducive to the teacher's expressing encouragement to the student on the basis of achievement potential. He argued that access to occupational roles in that context was culturally determined by social origin.

On the other hand, the significant path between academic performance and educational attainment is consistent with the Wisconsin model (Sewell, *et al.*, 1970).

Perhaps the most surprising anomaly was the failure of significant others' influence to explain aspiration levels and level of educational attainment. The beta weights for all paths were negligible. Why this may be so is not clear. It is plausible to suggest that parents in the Costa Rican sample personify traditional values and are viewed as unsuitable models for those individuals who strive for the rewards of the modern sector. By their very recruitment into high school, the students are a select set and may display attitudes not congruent with traditional parental values. Thus, family background may operate selectively at the primary school level, but afterward actual performance eclipses family background as a major influence. In short, the choice of parents as significant others may be appropriate only at the presecondary level; hence, for this study the true relevant others may not have been correctly specified.

Conclusions

It should be clear that the Wisconsin model cannot be simply transferred to our Costa Rican data. A path model which best explains the status attainment processes for our sample is found in Figure 3. It deviates from the Wisconsin model in several ways. First, the significant others' influence variable was omitted since it was not found to transmit any presumed effects of socioeconomic status and academic performance on attainments. Second, as a consequence, the number of paths included in Figure 3 was reduced substantially. The figure shows that what little association existed between socioeconomic status and attainments was mediated by the aspiration variables. Academic performance affects educational attainment directly. As in the Wisconsin model, only educational attainment and occupational aspirations were found to have direct effects on occupational attainment.

One apparent conclusion to be derived from our analysis is the probable existence of other important variables explaining attainment in Costa Rica. Only 36 percent of the variance of occupational attainment was explained by the antecedent variables, and all but 2 percent of this quantity was due to educational attainment. Further, only 17 percent of the variance in educational attainment was explained by its antecedent variables. In the Wisconsin data, about 57 percent of the variance in educational attainment was explained by its antecedents.

Contrary to our expectations, achievement variables were more important in allocating occupational roles among our sample than were ascription variables. The most significant paths were between

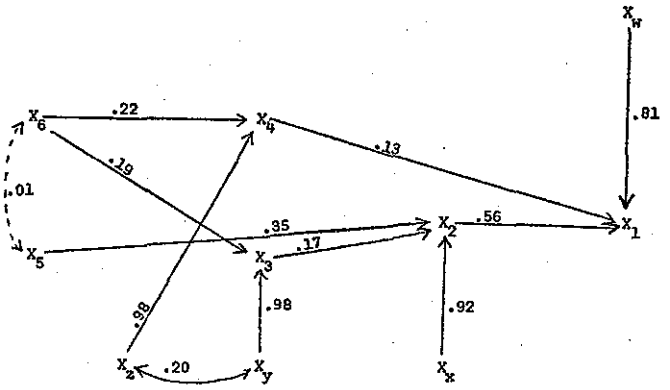


Figure 3. Path model explaining attainment for Costa Rican sample

academic performance and educational attainment and, from the latter, to occupational attainment. We suggest that this finding is due largely to the highly selective nature of our study sample. It is probable that family background operates selectively at the primary level by greatly determining who terminates elementary schooling and who continues to secondary school. Once in secondary school, however, actual performance may be a greater determinant of attainment levels. If true, it indicates one way in which the two sets of variables may operate independently in the total process. Whereas it is evident that candidates for educational positions at the secondary level are in a sense sponsored according to family background, it is also evident that once past this threshold, a considerable amount of competition occurs in the early allocation of occupational roles.

Our study also indicates that aspiration levels may be the result of processes other than those found important in the U.S. for high school boys. No significant correlations were encountered between academic performance and significant others' influence and the aspiration variables. On the other hand, it was noted that SES did correlate significantly with them, largely through the effect of consumption status. It is possible that the selective nature of the sample depressed the correlations by reducing the variation in SES due to fathers' occupation and income. Were this true, we would expect them to be increased by including the sons of upper-class families usually found in the private schools. In any case, within our data, the expected effects were found not to operate. Whether they operate

within other strata or between various class strata is a topic for future research in Latin America.

Discussion

Developing reliable and valid cross-cultural measures is not easy. Among other things, one has the difficult choice to make between measures which are formally equivalent and those which are functionally equivalent (Marsh, 1966:271–280). For example, does the rating of encouragement received from the same interaction partners in Costa Rica actually measure significant others' influence? It may be that there are other important roles fulfilling this function in that culture, such as friend's father, grandfather, or uncle (Woelfel, 1972:87). Where the emphasis is on comparing relationships between variables rather than their empirical distributions or parameters in distinct populations, it may be more appropriate to use functional equivalents. The choice of operationally equivalent measures, as in our case, may reduce the reliability of the measure in the alternative culture.

Again, the individual attainment process may differ from country-to-country. For example, self-perception variables such as self-concept (Super, 1957:80–100) and self-image (Rosenberg, 1965) may be of great importance in Latin America where "face" and appearances are judged critically. These variables may simultaneously transmit the effects of other variables on attainment and contribute independently to the definition of its levels. For our analysis we simply focused on those variables found to be important in the United States and examined their appropriateness for Costa Rica. Some were found to be superfluous. Particularly for the socioeconomic strata represented by our sample, achievement variables appeared more important in explaining Costa Rican attainment than was expected. From this perspective, there is a possibility that achievement motivation may be an intervening variable, although Featherman (1971, 1972) suggests that this does not hold in the United States.

Besides variables at the individual level, our study suggests that it may be important to study differences in the parameters under which they operate in different societies. In developing countries the boundaries of mass education are often found at the primary level. Therefore, it may be more meaningful to work at the grade school level should the focus of interest be on the "drop-out" process as well as on the "continuation" process. Comparisons of interplays among the variables at the individual level between grade school and high school samples would better enable us to gauge their overall importance as well as that of ascription and achievement processes.

In keeping with the idea of redefining parameters and determining their influence on the shape of the individual attainment model, it

may be appropriate to examine community and societal contextual variables in comparing developed and developing countries. Physical access to educational institutions at the higher levels is not necessarily "given" in developing countries, since there are so few and transportation services usually do not facilitate commuting long distances to school. Moreover, contact is much less frequent since university extension activities, which might otherwise increase country people's awareness of higher education, are rare. Similarly, levels of mass media exposure are considerably lower in developing countries.

Access to nonfamilial sources of financial support would also appear to affect the influence of individual motivation and attitudinal variables on attainment levels. Where the financial means to obtain an education are absent, it may be that the social psychological variables have no effect (Gasson, *et al.*, 1972). For the developing countries, it may be important to test this notion. Realization of a person's potential contribution may depend on whether he is afforded opportunities to continue his studies.

In sum, our discussion suggests that there may be a number of differences in attainment processes among cultures and between developed and developing countries, and that their identification is of considerable import in explaining how human resources may be optimally developed. Specifically, in studying the attainment process in Latin America, it may be important to incorporate other variables into the analysis. In comparing developed and developing nations, two suggestions are made. First, it may be important to carry out studies at the grade school level in developing nations in order to assay the true effects of several variables on attainment. Second, the variables of the attainment model need to be respecified and their effects on the model tested.

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Appendix: Means and standard deviations of variables in model

Variable	Mean	Standard deviation
SEI scores (sons)[a] (OCAT)	55.42	19.44
Years of schooling (EDAT)	11.46	2.20
Years of college aspired (LEA)	2.74	1.06
0—zero		
1—one or two		
2—three or four		
3—five or six		
4—seven or more		
OAS scores[b] (LOA)	25.89	8.04
High school grade point average (AP)	7.45	0.76
Significant others' influence[c] (SOI)	0.00	1.14
a. father's enouragement	3.51	0.92
b. mother's encouragement	3.57	0.87
c. teacher's encouragement	3.20	0.84
(weights for degree of encouragement)		
1—discouraged further education		
2—neither encouraged or discouraged		
3—encouraged a little		
4—highly encouraged		
Socioeconomic status[c] (SES)	0.00	1.71
1. occupational status[c]	0.00	1.54
a. estimated income of family	0.74	0.41
0—less than average or low		
1—average or high		

Appendix (continued)

Variable	Mean	Standard deviation
b. parental satisfaction with father's occupation (score a sum for father and mother) 0—very poor 1—not good enough 2—good enough 3—fairly satisfactory 4—completely satisfactory	4.32	2.79
c. father's occupation 1—unskilled labor 2—skilled labor 3—sales work 4—office, clerical work 5—semiprofessional 6—professional	2.43	1.07
d. tenure status 0—laborer 1—renter 2—owner	1.29	0.61
2. consumption status		
a. father's education 0—less than six grades 4—six grades 6—seven or eight grades 8—nine grades 10—some college 12—college degree	1.31	1.62
b. mother's education 0—less than six grades 4—six grades 6—seven or eight grades 8—nine grades 10—some college 12—college degree	1.14	1.54
c. construction of family house 3—all frame, artificial brick 5—brick, stucco, block	3.11	0.43
d. family possesses power washing facility 3—no 6—yes	3.31	0.43
e. family possesses automobile 2—no 5—yes	2.46	0.99

[a] Duncan Socioeconomic Index for all Occupations (Duncan, 1961).

[b] Sum of raw scores of five items taken from Occupational Aspiration Scale (Haller and Miller, 1971).

[c] Final score equal to:

$$\text{Score} = \sum p_j^2 \frac{x_{ij} - \bar{x}_j}{\sigma_j}$$

where x_{ij} = score i for item j
$\bar{x}_j$ = mean for item j
p_j^2 = square of factor weight of item j