

lge pamph
HM131
.K44
1980

A THEORY OF SOCIAL MOBILITY, WITH DATA
ON STATUS ATTAINMENT IN A PEASANT SOCIETY*

Jonathan Kelley
Institute of Advanced Studies
The Australian National University

Robert V. Robinson
Yale University

Herbert S. Klein
Columbia University

1980

Working Papers in Sociology

HM131 K44 1980

1439781



A.N.U. LIBRARY

The Australian National University

P.O. BOX 4, Canberra 2600, Australia.

A THEORY OF SOCIAL MOBILITY, WITH DATA
ON STATUS ATTAINMENT IN A PEASANT SOCIETY*

Jonathan Kelley
Institute of Advanced Studies
The Australian National University

Robert V. Robinson
Yale University

Herbert S. Klein
Columbia University

1980

* In Research in Social Stratification and Mobility,
Vol. I (Donald J. Treiman, editor), Greenwich, Conn.:
JAI Press (in press). We thank William J. McEwen,
Donald J. Treiman and George Farkas for their comments,
the National Science Foundation for support under
grant SOC74-21514, and the National Institute of Mental
Health for support under grant R01-MH-26606-01.

A THEORY OF SOCIAL MOBILITY,
WITH DATA ON STATUS ATTAINMENT IN A PEASANT SOCIETY¹

Abstract We present a theory of comparative social mobility, arguing that status is passed from one generation to the next by the transfer of scarce and valuable resources, primarily physical capital (land, wealth, etc.) and human capital (education, skills, language, etc.). Our theory implies that, other things being equal, status inheritance will be lower in those societies with a more unequal distribution of physical or human capital; that educational attainment and wealth will be more dependent on family background in such societies; and that status inheritance will generally be low in primitive societies, rise to its maximum in advanced agrarian and early capitalist societies, and then decline in advanced industrial societies. These predictions differ from those made by functionalist theories, the main alternative. We test them by comparing Bolivia, a society with great inequality in physical and human capital, to the relatively equalitarian United States and by comparing primitive Aymara Indian villages within Bolivia to the more modern rural Bolivian towns. The results are clearly consistent with our predictions but not with the functionalist alternative. In pursuing this line of analysis we describe the process of status attainment in Bolivia, one of the poorest, least developed societies in the world with one of the most unequal distributions of income. The U.S. and other societies well known in the quantitative literature, in contrast, are at the opposite extreme, among the most developed and equalitarian in the world. Our analysis thus provides a much needed perspective, especially since the majority of the world's population still live in poor agricultural societies more like Bolivia than the United States.

The study of social mobility has narrowed greatly in recent decades, attaining unprecedented depth and rigor in the analysis of the American stratification system but at the cost of neglecting traditional theoretical concerns with the structural forces shaping social mobility and traditional empirical breadth of concern with pre-industrial stratification systems. This narrowing was necessary at the time and paid rich dividends with the technical and conceptual developments of the vigorous tradition of research springing from the Blau-Duncan (1967) paradigm. But these dividends have come at high cost. The neglect of comparative analyses makes it difficult to understand the structure and functioning of systems of social stratification since it gives no idea of what is unique to a particular society, what varies systematically from society to society (e.g., according to level of economic development), and what is common to all. Yet in recent years work has been limited largely to the United States and a few other industrial societies² although there are few reasons to suppose that other types of society in the modern world, or even the agrarian predecessors of industrial societies, are similar to them and many reasons to suspect that they are not (e.g. Cancian, 1976; Cipolla, 1976; Fallers, 1973; Lenski, 1966: Chs. 8 and 9).³

However, the time now seems ripe for a return to the broader and perhaps more important concerns of comparative analysis. There is little point in that unless it is based on the type of systematic data and rigorous measurement characteristic of work in the Blau-Duncan tradition, but that has now become possible. The basic difficulties are two. First, there are severe problems in establishing comparability in measurement (Treiman, 1975). In the past, measurement problems have been slighted but this made it difficult to establish any believable generalizations. For example, the claim of Lipset and Bendix (1959) that rates of social mobility are relatively invariant is countered by Fox and Miller's (1965) claim that they are higher in industrialized societies and other claims that they are

neither invariant nor systematically related to industrialization (Hazelrigg and Garnier, 1976). Building on Treiman's (1977) recent work, we will show how occupational status can be reliably and accurately measured in a way that is comparable across societies. A second difficulty has been the lack of appropriate data. Not only are careful and representative sample surveys needed, but reliable measurement also requires very detailed information on occupation. Such data are only now becoming available for pre-industrial societies.

In this paper we take advantage of these developments to return to the traditional and fundamental questions of comparative stratification. We have two specific aims. First, we reopen some of the old theoretical issues, developing and empirically testing a theory about some effects of social structure on patterns of status attainment. The theory is quite different from traditional functionalist analyses and, we show, much better supported by the evidence. Second, we present a rigorous analysis of the process of status attainment in a pre-industrial society based on unique new data from rural Bolivia -- one of the poorest, most inequalitarian and traditional agrarian societies in the contemporary world and one more than a little reminiscent of the 16th and 17th century agrarian precursors of modern industrial societies -- and compare these with standard materials for the U.S. We turn first to the theory.

THEORIES OF COMPARATIVE SOCIAL MOBILITY

Functionalist Theories

Despite its many virtues, recent stratification research based on the Blau-Duncan paradigm offers little theoretical understanding of the way structural characteristics of a society shape patterns of social mobility and, although much debated, functionalist analyses probably still provide the clearest, most coherent testable theory. Although the various functionalist analyses differ considerably

among themselves, they nonetheless agree that economic development requires relatively open recruitment into occupations with the emphasis on merit and achievement rather than the ascription and particularism of simpler and more traditional societies (e.g. Lipset and Bendix 1960:13; Smelser and Lipset 1966:12-14). Other analyses have reached the same conclusion on somewhat different grounds (e.g. Treiman 1970:218-221). In contrast, a number of other more eclectic analyses have reached quite different conclusions arguing on a variety of grounds that there is no general increase in mobility with economic development (e.g. Sorokin 1927:153-160; Lenski 1966: 110, 133, 181-184, 289; Cancian 1976). It is nonetheless fair to say that prevailing opinion agrees with the functionalists' conclusion, if not necessarily with the details of their argument.

A Resource Theory of Social Mobility

We offer here an alternative to the functionalist theory. Our theory is based on very different concepts and often leads to different predictions. We begin by asking a simple but fundamental question: how are high status parents able to confer advantages on their children, that is, how are they able to pass status on from one generation to the next? We argue that this comes about primarily because parents are able to give their children scarce and valuable resources, concrete and tangible advantages that help the children in the competition for desirable jobs and desirable spouses. These are of two main kinds: human capital (education, knowledge, skills in crafts, war, language and the like) and physical capital (wealth and income, land, family businesses, cattle, etc.); as a first approximation, we assume that other resources can reasonably be ignored.

The Model We assume that high status jobs are on the average more desirable than low status ones so that workers would choose them if they could; that, as a reasonable approximation, all forms of physical capital can be aggregated into a

single composite (e.g. total market value); and that all forms of human capital can analogously be aggregated (e.g. into training time, or possibly costs of training [Mincer, 1974]). The crucial assumption is that workers compete for jobs on the basis of their physical capital, their human capital, and various other things unrelated to their parents' status. A few workers are able to use their physical capital to buy occupations (e.g. absentee landlords, rentiers) and many more are able to advantageously combine skills and wealth (e.g. by buying farms, prosperous businesses, or professional practices). Those with appropriate investments in human capital can perform complex jobs (e.g. blacksmith, clerk, army officer, lawyer) while those without it cannot do these jobs as well if at all. Of course many other factors are important (e.g. motivation, appearance, intelligence, honesty) and there is a great deal of luck and confusion; we may for simplicity think of these as being combined into a single omnibus "all other" factor. The job market is then very much like a marriage market with a simultaneous matching of workers and jobs; workers prefer the highest status jobs available while employers prefer to hire the most skilled workers (since they perform better) and owners prefer to sell to those who offer the most physical capital. The result is that workers with the most wealth, human capital or other advantages get the best jobs. Workers with middling levels of capital and other advantages get middling status jobs since they cannot get better (because of competition from more advantaged workers) but need not take worse. The least advantaged workers are left with the worst jobs. The result is that a worker's occupational status is some monotonically increasing function of his physical capital, human capital, and luck and other advantages, each appropriately weighted. We assume that the function is to a reasonable approximation additive, giving

$$\text{STATUS} = f(b_{sh} \text{ HUMANCAP} + b_{sw} \text{ WEALTH} + \text{OTHER}_1) \quad (\text{Eq. 1})$$

where b_{sh} and b_{sw} reflect the relative importance of human and of physical capital

in the job competition. We assume that having either form of capital always confers at least some small advantage (b_{sh} and $b_{sw} > 0$). Luck and various other advantages that are not consequences of parents' status are combined as $OTHER_1$.⁴ The function f is a monotonic transformation sorting workers into jobs and we assume that in the short run the nature of the economy determines which jobs are available so, since that changes only slowly, the supply of jobs is to a reasonable approximation fixed regardless of the workers' characteristics.

To understand how status is passed from one generation to the next, we need to know where a child gets his or her physical capital, human capital and other advantages.⁵ Physical capital, we argue, comes in part from gift, inheritance or loan from his parents and through loans on the surety of his parents' wealth or good name. In addition to capital from his parents, a child may acquire capital from his own exertions, inherit it from distant relatives, borrow it from banks, partners, or friends and acquire it in diverse other ways. Assuming that these effects are approximately linear and additive, we have argued:

$$WEALTH = b_{ww_p} WEALTH_p + b_{wh_p} HUMANCAP_p + OTHER_2 \quad (Eq. 2)$$

where $WEALTH_p$ is parents' physical capital, b_{ww_p} the fraction of that which they pass on to their child, $HUMANCAP_p$ is parents' human capital, b_{wh_p} represents the wealth (if any) that a child gets from that (e.g. because well educated parents can better serve as surety for loans to their children), and $OTHER_2$ are various other factors independent of parents' status. We assume that having wealthy parents is always an advantage ($b_{ww_p} > 0$) and that having educated parents is either advantageous or irrelevant ($b_{wh_p} \geq 0$).

A child's human capital depends on his parents' wealth since they can use it to pay school fees, hire tutors, buy books, and the like. Perhaps more important, prosperous parents can more easily afford to forego the income the child

would otherwise contribute to the household by quitting school and going to work; this can be an important consideration in circumstances where young children's labor is valuable (e.g. on farms), for very poor families where even a small increase in income is important, and in any society where children live at home and contribute to the family budget after they finish schooling (as in many socialist societies). Crucially, a child's human capital depends on his parents' human capital; throughout the world well educated parents are able to get their children more schooling by teaching them linguistic and academic skills, by example, motivation, and encouragement, and by other familiar means (e.g. in socialist societies: Lane 1971; in capitalist societies: Treiman and Terrell 1975). And of course a variety of other factors unrelated to family background are also important. So, again assuming things are approximately linear and additive, we argue:

$$\text{HUMANCAP} = b_{hw_p} \text{WEALTH}_p + b_{hh_p} \text{HUMANCAP}_p + \text{OTHER}_3 \quad (\text{Eq. 3})$$

where b_{hw_p} and b_{hh_p} express the effect of parents' physical and human capital, respectively, on their child's human capital and various other factors unrelated to parents' status are lumped together as OTHER_3 . We assume that there is always some advantage in having wealthy or well educated parents (b_{hw_p} and $b_{hh_p} > 0$).

We can now derive an approximate expression for the correlation between parents' and child's status, r_{ss_p} , the conventional measure of status inheritance:⁶

$$r_{ss_p} \approx \{ a r_{s_{wp}} \sigma_{w_p} + c r_{s_{hp}} \sigma_{h_p} \} \frac{1}{y} \quad (\text{Eq. 4})$$

where $a = (b_{sh} b_{hw_p} + b_{sw} b_{ww_p})$, $c = (b_{sh} b_{hh_p} + b_{sw} b_{wh_p})$, and

$$y = (a^2 \sigma_{w_p}^2 + b^2 \sigma_{h_p}^2 + 2ab r_{h_{wp}} \sigma_{w_p} \sigma_{h_p} + b_{sw}^2 \sigma_{o_2}^2 + b_{sh}^2 \sigma_{o_3}^2 + \sigma_{o_1}^2)^{1/2}.$$

Here "a" reflects the occupational status that accrues from coming from a wealthy home because of the advantage it confers in human capital (first term) and physical capital (second term) while "c" reflects the corresponding advantages in coming from a highly educated home and y is the standard deviation of all the factors that affect a worker's position in the competition for jobs. By previous assumptions, all three of these are positive. The OTHERS have dropped out of the numerator because we have assumed that, to a reasonable approximation, the only way parents can provide their children with advantages is by providing physical or human capital; although luck and change, ability, aid from friends and teachers, and a variety of other factors are important in and of themselves, they are not correlated with parents' status and hence do not influence status inheritance except by adding random variance to the denominator, y.

Inequality of Wealth Our theory implies that inequality in the distribution of physical capital creates status inheritance, i.e. reduces social mobility. We measure inequality by the standard deviation, a familiar measure reflecting the average size of differences between one parent and another. This is closely related to a variety of other seemingly different measures of inequality, including the Gini coefficient, so conclusions based on it can readily be extrapolated.⁷ In our model the correlation between parents' and child's status is larger whenever there is more inequality in physical (or, analogously, human) capital:⁸

$$\frac{d r_{ss_p}}{d \sigma_{w_p}} > 0 \quad \text{and} \quad \frac{d r_{ss_p}}{d \sigma_{h_p}} > 0$$

The size of the predicted increase depends on what the society is like, as reflected in the other parameters of Eq. 4. In general with plausible assumptions about the other parameters, increasing inequality in a society where it was previously modest causes a substantial increase in status inheritance while an equal increase

in an already highly stratified society has less effect. By way of illustration consider an hypothetical society, perhaps not dissimilar to the U.S., where human capital is noticeably more important than wealth and the correlation between parents' and child's status is .35.⁹ The effect of doubling inequality in wealth is to increase status inheritance by .08 but further increases of the same (absolute) size increase status inheritance by progressively smaller amounts, .06, .05, and .03 respectively.

Since we claim that inequality in the distribution of wealth leads to status inheritance, anything that increases inequality should have the same effect. So we predict that, other things being equal, the emergence of private property rights where they were previously limited or absent will increase status inheritance (e.g. in much of tribal Africa before the recent growth of the market economy), as will the growth of efficient police and legal institutions to protect property. Conversely, the diminuation of property rights in socialist societies will decrease status inheritance. Anything that facilitates saving over the life cycle allows those with persistent advantages (e.g. fertile land, valuable skills) to cumulate their year by year advantages into one large advantage. Thus the introduction of a secure store of value (e.g. cowrie shells, money, bank accounts) into a society without them increases inequality and so status inheritance. If goods can be accumulated at interest, the effect is much greater (e.g. Kelley and Klein, 1977: 94), so there will be more status inheritance in societies where interest rates are high. The effect of accumulation is, of course, greater when people save a larger fraction of their income, hence the Protestant ethic leads to greater status inheritance. Conversely, inflation reduces the value of accumulated wealth and so, we predict, reduces inequality and status inheritance.

Although there are exceptions, opportunities for accumulating wealth seem to be less common in primitive hunting and gathering societies and in simple agri-

cultural societies. But with the expansion of private property rights, the growth of the market economy, and the development of effective financial and police institutions, inequality reaches its peak in certain (although not all) advanced agrarian and less developed modern societies only to fall somewhat under the impact of government power and other as yet not well understood forces in advanced industrial and socialist societies (Lenski 1966; Paukert 1973). We therefore predict that status inheritance, insofar as it reflects inequality of wealth, will in general be low in primitive societies, reach a maximum in advanced agrarian and early capitalist societies, and decline again in advanced industrial and socialist societies.

Human Capital The predictions for inequality in human capital parallel those for physical capital. Our theory implies that, other things being the same, increasing the variance in parents' education, linguistic skills, or culture; or increasing differences between the most and least skilled workers (or warriors, or singers, or writers) will lead to more status inheritance; and these effects will be greater in societies that previously had a more equal distribution of human capital. Thus, other things being equal, a society where there are differences in language or accent between upper and lower classes will have more status inheritance than monolingual societies and a society where acquiring skills in work or war requires a long apprenticeship will have more status inheritance than one where skills are rudimentary or where an advanced division of labor has broken skills up into narrower, more easily learned specialities. Increasing literacy in a backward society from, say 10% to 30% will increase the variance in human capital and therefore increase status inheritance but increasing it in an already developed society, say from 80% to 90%, will decrease the variance and therefore reduce status inheritance; similarly, introducing schools into a society where they did not exist before (e.g. tribal Africa) is likely to increase status inheritance while introducing them to previously disadvantaged sections of an already highly

educated society (e.g. in isolated rural areas in industrial societies) is likely to have the opposite effect. These arguments imply that, as far as status inheritance reflects the influence of human capital, primitive hunting and gathering societies and simple agrarian societies based on subsistence agriculture, with relatively simple technologies, no formal schooling and minimal cultural and linguistic differences between upper and lower classes, are likely to have more open and fluid stratification in systems with less status inheritance than in advanced agrarian and in industrial societies. We will later see substantial evidence for this prediction from our analysis of communities within Bolivia.

Other Implications These predictions apply not only to the correlation between parents' and child's status, the conventional measure of status inheritance, but also to the corresponding metric regression coefficients expressing the advantages of birth in metric terms. We have assumed that the jobs available are, in the short run and to a reasonable approximation, fixed by the nature of the economy and not by the characteristics of workers seeking jobs. The variance in occupational status is thus fixed so that the metric regression coefficient will be the same as the correlation (if the variance in parents' and child's occupational status is the same) or at least some fixed multiple of it (if the variance has changed).

These predictions can be extended with some modifications to all the variables in the model. In general any increase in inequality among parents leads to a more rigid stratification system with family background more closely correlated with a child's education and wealth (as well as occupational status), as can be seen by appropriate substitutions into Eqs. 2 and 3. Other things being equal, we predict that in a society with more inequality in physical capital a child's physical and human capital will depend more heavily on his parents' wealth and status (since both b_{ww_p} and $b_{hw_p} > 0$). Analogously, in a society where inequality in human

capital is greater, a child's human capital will depend more heavily on his parent's human capital (since $b_{hh_p} > 0$) although his wealth may be unaffected (as $b_{wh_p} \geq 0$). These predictions apply to correlations and standardized partial regression coefficients but, unlike those for occupational status, not to the corresponding metric coefficients.

Our theory also implies that the links through physical and human capital are the only means by which status is passed from one generation to the next. So in a regression equation with appropriate measures of physical and human capital, parents' status would have no direct effect on child's status, as is apparent from Eqs. 1-3. In a conventional Blau-Duncan model where education is measured but wealth is not, our theory implies that father's education should have no direct effect on son's status but only an indirect effect through his education. Evidence from a number of societies supports this prediction (e.g. Kelley, 1978; Treiman and Terrell, 1975).

Finally, our model implies that, other things being equal, there will be more status inheritance in societies where status crystallization is high, i.e. where the correlations between parents' status on the one hand and their physical or human capital on the other, are higher.¹⁰ This follows directly from Eq. 4. By way of illustration, for a hypothetical society of the sort described earlier with status inheritance initially just above .4, increasing status crystallization by .10 increases the predicted status inheritance by .03 or .04, respectively. So there are, we predict, two fundamental links between stratification in one generation and mobility between one generation and the next: societies that are more highly stratified in one generation, either in the sense of having a more unequal distribution of resources or in the sense that inequality in occupational status is more closely tied to inequality in other dimensions, have more inheritance of status

from one generation to the next.

Summary The predictions from our model which can be tested with the data at hand are set out below. In all cases they are subject to the qualification that all other things specified in Eq. 4 are equal. (The predictions apply to both metric and standardized coefficients except for Hypotheses 1, 2 and 4 which apply only to standardized ones). We predict:

Inequality of Wealth: Other things being equal, in a society where physical capital is more unequally distributed:

(Hypothesis 1) physical capital will depend more heavily on parents' wealth;

(Hypothesis 2) human capital will depend more on parents' wealth; and

(Hypothesis 3) status inheritance will be greater, i.e. pure mobility less.

Inequality in Human Capital: Other things being equal, in a society where human capital is more unequally distributed:

(Hypothesis 4) human capital will depend more heavily on parents' human capital, and

(Hypothesis 5) status inheritance will be greater.

Economic Development (Hypothesis 6) By and large, status inheritance will be least in traditional, technologically simple hunting and gathering societies and in simple agricultural societies; will increase to a maximum in the most inequalitarian of the advanced agrarian and less developed modern societies; and will decline in advanced industrial and socialist societies.

Status Crystallization (Hypothesis 7) Other things being equal, in a society where there is a higher correlation between occupational status and physical or human capital, there will be more status inheritance.

Indirect Effects of Status (Hypothesis 8) Parents' occupational status has no direct effect on their child's occupational status but only indirect effects through physical or human capital.

SPECIFIC PREDICTIONS

To test this theory, we first work out its implications for a comparison of the process of status attainment in Bolivia and the U.S. and then test these

predictions. We begin with a brief description of Bolivia, as a prelude to the theoretical analysis and an introduction to the data with which we test the theory.

Bolivia: Background

Bolivia, a country twice the size of Texas with some three million inhabitants at the time of our study,¹¹ is one of the poorer and more backward nations in the world. With a per capita gross domestic product of only \$132, it ranks in the lowest fifth of nations worldwide (Paukert 1973). Half the population never attended school and another tenth attended for only a year or two and are functionally illiterate. Almost two-thirds of the economically active population is in agriculture. In the small town and rural areas covered by our survey, houses average only two and a half rooms, two-thirds have earthen floors, and only a quarter have electricity, running water, or even the most rudimentary sanitary facilities. The occupational status of adult males averages only twenty-seven on a scale on which Americans average sixty.

Bolivia is ecologically and socially highly diverse.¹² The traditional center, still with two-thirds of the population, is the altiplano, a cool, windy, barren, treeless, plateau in the Andes between 12,000 and 13,000 feet above sea level, flanked on the east and west by awesome snowcapped ranges rising to 23,000 feet. It is dotted with small villages of dirt floored, thatch roofed, adobe houses, without electricity, running water, or the most rudimentary sanitary facilities and inhabited by poor, illiterate, Aymara speaking peasant farmers. We have data on two of these communities. One, San Miguel, is an isolated village of some 1200 persons situated at 13,000 feet in the province of Oruro. It is inaccessible during the wet season, although during the dry season trucks driving cross-country stop twice a week. There are no telephones or newspapers. Mainly subsistence farmers, the villagers plow the barren land with oxen (or harness themselves to the plows when working small fields), planting mainly potatoes, wheat, beans and oka; every

family has a few chickens and guinea pigs in the house and herds llamas and sheep. Land is privately owned and a few prosperous peasants rent land for cash or a half share in the harvest, although most are dirt poor. The other village, Compi, has a population of about 1400 and is less isolated, with an all weather dirt road to the outside world. There are no telephones, no regular supply of periodicals, and fewer than ten percent of the men speak Spanish but many have transistor radios and some go into the capital, La Paz, once or twice a month on business. Cash crops are more important than elsewhere on the altiplano, with onions and some pigs grown for sale in the capital, but standards of living are no higher because landholdings are very small, few peasants having more than two and a half acres.

A second major ecological zone, with about twenty percent of the population, is the Yungas, a series of pleasant, verdant and highly productive valleys on the eastern slope of the Andes, separated from the altiplano by some of the most rugged mountains in the world. In appearance the towns are colonial Spanish, laid out in a grid pattern, typically with two plazas and narrow, often cobblestoned streets; the buildings are plastered adobe or brick, with tiled roofs and iron railed balconies. The culture of the towns is predominantly Spanish, although the peasants and the poor are mainly Aymara. The towns were established in the sixteenth and early seventeenth centuries but were accessible only by foot or horseback until the 1920's or 1930's. They are now connected to the altiplano by dirt roads, bulldozed out of the side of vertical mountains. Newspapers from the capital are now regularly available and there are radio broadcasts and a telegraph. The area has always been important agriculturally, growing coffee, bananas, fruit and coca (the source of cocaine, long chewed on the altiplano). The occupational structure is diversified with subsistence farmers, many cash crop farmers (some prosperous), unskilled laborers, skilled craftsmen (who have difficulty competing with machine made goods), merchants and prosperous traders, the usual compliment of clerks, officials,

and professionals. There are sharp differences between educated and illiterate, rich and poor, Spanish and Aymara speaking--categories that generally coincide. We have data from two such towns. One, Coroico, located about 6000 feet, has a population of 2200, and is mainly agricultural with coffee and bananas the main crops. It was long a trade center as well but that, and the town itself, is now in decline. We also have data on Sorata, a town at 5000 feet with some 1800 inhabitants, which is mainly a commercial gateway to the tropical region below.

The third major ecological zone is the lowlands, a vast tropical plain at some 700 feet above sea level, extending endlessly eastward from the edge of the Andes; it is a sparsely settled frontier. Toward the north the lowlands are humid, covered with alternating patches of grassland, tropical forest and marsh. We have data from one town there, Reyes, which is connected with the rest of Bolivia only by air and radio, and then only in good weather. The town has some 2100 inhabitants and is laid out in standard Spanish grid pattern with two plazas. The houses are generally one story, made of adobe, wooden poles or even palm leaves, and set in large plots with a garden and fruit trees. Reyes was founded by Jesuit missionaries around 1705 as a communal, utopian community that was destroyed half a century later as a result of the Jesuit expulsion. The Indians were soon despoiled and a system of debt peonage was established, remnants of which persist to the present. The town, now entirely Spanish speakers, has gone through periods of boom and bust depending on the international market for rubber and cinchona bark and is now dominated by cattle ranching (meat being exported by air), with some trading, craft production, and cash crop farming for local markets. Land is plentiful and many people make their living, albeit a poor one, by subsistence farming and odd jobs.

In the far south is a lightly settled area of barren mountains interspersed with fertile river valleys with a sunny and dry Mediterranean climate, populated entirely by Spanish monolinguals. Socially this is a quiet, almost Mediterranean

backwater. We have data from one town in this traditional region, Villa Abecia, situated in a small valley at 6500 feet with a population of 600. The town, built around a small plaza, has cobbled streets and mostly single storied adobe houses with cane roofs. It is on a relatively busy all weather dirt road connecting the altiplano and Argentina; mail and newspapers come once a week and a few people have radios. Although sheep and goats are raised on neighboring hills and some fruit is grown, the economy depends primarily on 270 acres of irrigated vineyards. Both the land and the crucial water rights are privately owned by small and medium landowners who generally work their own land with help from skilled farmhands, who are long term employees living on the land.

Predictions: Bolivia versus the U.S.

It is worth noting that the theory was developed several years before the data were available to us (identifying references 1971, 1974) and the analysis in fact undertaken explicitly to test the theoretical predictions.

Physical Capital Bolivia has a much more unequal distribution of economic resources than the U.S. The distribution of income is one of the more unequal in the world with a Gini coefficient, the conventional measure of inequality, of .53. This is about one standard deviation above the worldwide mean while the U.S. is one standard deviation below it at .34 (Paukert, 1973: Table 6), a difference significant at $p < .001$ (using a lognormal approximation [Allison, 1978:875]).¹³ Differences in standard of living are very marked, as can be seen in Table 1.¹⁴ About half of all rural Bolivians are small farmers or herders living in abject poverty. Fewer than one in ten of these agriculturalists have electricity, sanitary facilities of any sort (the rest use the fields), floors made of anything other than dirt, or more than one bedroom in their house; virtually none have servants.

Table 1 Various variables by son's occupation for employed males, 20 or over, in Bolivia and the U.S.¹

Dependent Variable & Society		Professional	Administrative & managerial	Clerical & sales	Large farmers	High production	Medium production	Low production	Medium production	Small farm & farm labor	Eta ²
1. % of population	Bol.	4	2	8	4	3	18	3	5	53	--
	U.S.	12	14	15	--	19	24	9	6	2	--
2. % homes w. electricity.	Bol.	69	63	51	47	65	35	7	5	6	.52
3. % w. sanitary facilities.....	Bol.	62	72	40	61	30	27	23	22	7	.46
4. % without dirt floors.	Bol.	84	72	55	50	67	45	15	43	12	.49
5. % more than one bedroom.....	Bol.	51	52	23	60	19	12	12	23	11	.36
6. % have domestic servants.....	Bol.	25	22	9	26	4	3	2	10	1	.35
7. Mean Standard of Living ³	Bol.	1.6	1.2	.7	1.0	.7	.2	-.3	0	-.4	.60
	U.S.	.7	.7	.1	--	0	-.3	-.6	-.7	-.9	.44
8. Mean Education (in years).....	Bol.	11	8	5	4	4	3	1	3	1	.66
	U.S.	15	12	12	--	10	10	9	9	7	.60

1. N=1130 for Bolivia and 16,018 for the U.S. See text and footnote 15 for details on the occupational classification.

2. For comparison with later results, this is based on the full 16 category occupational classification rather than the simplified one used in the body of the table.

3. Standard of living scale for Bolivia and income for the U.S., in both cases scored with a mean of zero and standard deviation of one.

(lines 3 to 6). In contrast, at the top of the hierarchy most professional and managerial workers have electricity, sanitary facilities, wooden or concrete floors in their houses, and a separate bedroom for the children; almost a quarter have servants. In the middle of the hierarchy, clerical and sales workers, large farmers, and high level production workers fare relatively well while below them middle level farmers and production workers at least do not do badly compared to small farmers.¹⁵ By constructing a standard of living scale out of these, we can make a rough comparison with the distribution of income in the U.S. the results of which suggest a considerably greater difference in living standards between the top and bottom of the occupational hierarchy in Bolivia than the U.S. (line 7; $p < .01$ using Fisher's r to z test and a two tailed t test). In fact Bolivia is hauntingly reminiscent of Europe three centuries ago in poverty, inequality, and the dominance of agriculture (e.g. Cipolla 1976: 12-13).

The ways in which property is passed from one generation to the next in Bolivia and the U.S. are quite similar so there is little reason to expect any systematic differences on that account. Wealth in Bolivia, mainly in the form of land, houses and commercial property, is privately owned and is routinely passed from one generation to the next by gift or inheritance with little taxation or restraint. Since farms and family businesses are common, a good fraction of the population can look forward to some inheritance; law and custom dictate that a father can dispose of no more than a third of his estate freely and must leave the rest to his children, to be evenly divided among them.

Because physical capital is more unequally distributed in Bolivia than in the U.S. while the mechanisms by which it is passed from one generation to the next are broadly similar, our theory implies that physical capital will depend more heavily on parents' wealth in Bolivia (Hypothesis 1), and that education and human capital generally will depend more on parents' wealth (Hypothesis 2) and finally

that status inheritance will be greater, i.e. pure mobility will be less in Bolivia than in the U.S. (Hypothesis 3).

Human Capital Bolivia has a more unequal distribution of human capital than the U.S. with a Gini inequality measure of .69 compared to .50 for the U.S. ($p < .001$)¹⁶. Moreover in Bolivia, unlike the U.S., linguistic differences are crucial; Spanish is the sole language of education and government and the dominant language in the economy but only a third of the population are native Speakers. Half of all Bolivians never go to school and eighty percent of the remainder go no further than primary school, so the levels are quite different from the U.S. But the motivations involved and the role of family background in shaping education are strikingly similar. Motivations are frankly instrumental, as in the U.S. As in the U.S., economics is important not because of school fees (primary schools and some secondary schools are free in Bolivia) but because of income forgone while in school; in an agrarian economy like Bolivia's, children's labor is valuable and the family may not be able or willing to forego the income.

Because human capital is more unequally distributed in Bolivia than in the U.S., our theory predicts that a child's education will depend more heavily on parents' human capital (Hypothesis 4) and that status inheritance will be greater (Hypothesis 5).

Status Crystallization Status crystallization is somewhat more marked in Bolivia than the U.S. The correlation between father's occupational status and his education is noticeably higher in Bolivia (.66 versus .37, a difference significant at $p < .001$). We do not have data on the correlation between father's occupation and wealth but the analogous correlation for sons is somewhat higher in Bolivia than in the U.S. (.56 to .41, $p < .001$), so there is probably more status crystallization in that respect too. Because status crystallization is greater in Bolivia

than in the U.S., our theory implies greater status inheritance in Bolivia for this reason, (Hypothesis 7) as well as for others.

Predictions: Modern versus Traditional Settings in Bolivia

We have predicted that Bolivia as a whole will have more status inheritance than the United States since it has greater inequality and status crystallization. This is the same prediction functionalists would make on the very different ground that Bolivia is a less developed, more traditional society, so we cannot distinguish the two theories on that basis. But we can distinguish quite clearly on another basis. Bolivia, like many other developing societies is internally heterogeneous with modern and traditional sectors existing side by side. The Aymara Indian villages of the altiplano are on every count less developed and more traditional than the Spanish and ethnically mixed towns (e.g. McEwen, 1975). The Aymara villages are in many ways little changed since the Spanish conquest four centuries ago and show strong continuities with pre-Columbian times. Levels of education and standards of living are very much lower (1 year compared to 3; standard of living scores of 24 compared to 56; see Table 4 for further details). On a functionalist analysis, these differences imply that the Aymara villages will be more rigid and ascriptive and have greater status inheritance than the towns.

Our theory makes exactly the opposite prediction. Physical capital is more unequally distributed in the towns, where the differences between rich and poor are striking, than in the Indian villages, where almost everyone is poor with some a little less poor than the others (see Table 4 and McEwen, 1975). There is also much more inequality in human capital in the towns, with their university educated elite and illiterate masses, than in the Aymara villages where almost everyone but the local school teacher (if any) is illiterate (Table 4). Status crystallization is also much higher in the complex, highly organized and differentiated economies

of the towns than in the villages, where effort, luck, and the vagaries of the soil and part time employment make for a more random pattern (correlations between occupation on the one hand and education and standard of living on the other average .54 in the towns and .11 in the Indian villages). According to our theory, all of these imply that family background will be more important, and social mobility less, in the towns than in the Aymara villages (Hypotheses 1 to 5, 7). This is exactly the opposite of the functionalist prediction, so a clear test of the two theories will be possible. We turn now to a description of the data used in the test.

DATA AND METHODS

The RISM Bolivia Project

These data are from a large (N=1130), representative sample survey of male heads of households conducted by Vera Rubin, Lambros Comitas and William J. McEwen for the Research Institute for the Study of Man under a grant from the Peace Corps. After a three month field reconnaissance, the six towns described earlier were chosen to represent Bolivia's various social and ecological zones and diverse experiences in the 1952 revolution. Our data exclude residents of the large cities (although only 10% of the population lives in towns over a hundred thousand) and the more politicized Quechua Indians of the Cochabamba valley but is otherwise quite representative. While a national sample might have been desirable, it would have been impossible in practice and the actual design has the great advantage of being supported by detailed ethnographic surveys of each town. Anthropological field studies were conducted in each community during 1964-66. Approximately one hundred thousand paragraphs of field notes classified by topic, a comprehensive ethnography (McEwen 1975), a detailed epidemiological study, and numerous specialized papers (listed in McEwen) provide an unusually comprehensive ethnographic background for our analysis. The questionnaire was designed after the field work

was well underway and benefitted from an intimate knowledge of the population. After an extensive pretest, two carefully trained interviewing teams, one working in Aymara and the other in Spanish, obtained 81% of the interviews, the remainder coming from assistants recruited locally and trained by the survey team. Access and rapport were no problem since the project's anthropologists were still in the community or had only recently left, so we are confident that the questions were answered frankly and accurately, something that is not always true of surveys conducted in isolated and suspicious rural communities unused to this type of research. For various personal and financial reasons the survey data have not previously been analyzed and this is the first report on them.¹⁷

Sample At the beginning of the fieldwork a complete house-to-house census was taken of each town and the sample was drawn from it. Only adult male heads of household were sampled.¹⁸ The completion rate was a quite satisfactory 83%, ranging from a low of 64% in one Indian village to a high of 95% in the other. The great majority of the losses were people who could not be located at home, primarily farmers who stayed on their land some hours away, returning to their village homes only erratically; refusals were only some ten percent of the losses. The sample is large relative to the population, over two-thirds. The restriction to heads of household is not serious as 40% of all males between ages 20 and 24 and 86% of males 25 and older are heads of household (Republica de Bolivia 1955, pp. 66-67), although the restriction to men is unfortunate.¹⁹

The sample appears to be representative of the areas from which it was drawn, although illiterates and bilingual Indians are slightly underrepresented.²⁰ More crucially for present purposes, the regression estimates obtained with the sample appear to be, for all practical purposes, the same as those that would be obtained for the whole population of the areas studied.²¹ It is more difficult to say whether the sample is representative of rural Bolivia as a whole but in our

judgement it is probably representative of the Aymara, bilingual and Spanish speaking populations, the main weakness being the omission of the Cochabamba valley with its large Quechua Indian community. The only nationwide data yet available are from the 1950 census. These data do not allow an urban-rural distinction but the age distribution in the sample is nonetheless virtually identical to the national figures and the proportion Indian is very close (57% in the sample, 61% nationwide; Republica de Bolivia 1955, pp. 59, 100). Illiteracy is more problematic since it has been rapidly declining but we estimate that it is approximately 47% in the nation, 15% higher in the sample; however, for those who have attended school, the educational distributions are very close (78% primary only, 16% secondary and 6% university for the sample compared to 81%, 14%, and 6% in the population). To make the sample more representative we have weighted it to match the proportion Indian and the age-specific illiteracy rates for the nation, an adjustment which makes no difference to the correlations or regressions but makes the significance tests only approximate.²²

United States Data

For the United States, we have reanalyzed Blau and Duncan's (1967) definitive data from the U.S. Census's Current Population Survey for March, 1963. To maximize comparability with the Bolivian data, we report results for the 16,018 adult male heads of household, 20 or older, in the experienced civilian labor force.

Measurement

Occupational Status Our main technical problem is to measure occupational status in a way that effectively captures differences between occupations and is also comparable across cultures. This is extraordinarily difficult; it is, unfortunately, not an area where different but reasonable procedures will in practice give equivalent results (Treiman, 1975). We have therefore experimented with a variety of

ways of measuring status on the argument well known from measurement theory, that when a variety of seemingly reasonable indicators are highly correlated with each other and have similar correlations with other indicators, more confidence can be placed in any one of them. In both societies we assigned status scores to our (very detailed) occupational data in six different ways.²³ 1) We divided occupations into a modification of Treiman's (1977, pp. 202-208) classificatory scheme based on the International Labor Office's major groups with additional subdivisions by prestige. The 15 categories are high prestige professional, technical and kindred; low prestige professional; administrative and managerial; high prestige clerical; low clerical; high sales; low sales; high, medium, and low production; high and low service; high, medium, and low agricultural. The agricultural distinctions, crucial in Bolivia, are in practice between large cash crop farmers and cattle ranchers with hired help (high); specialized cash crop farmers without hired help (medium); and small farmers, tenant farmers, herders, and landless laborers (low).²⁴ We then assigned status scores to these categories by Klatzky and Hodge's (1971) canonical procedure which maximizes the correlation between father's and son's occupation without prior assumptions about the ranking of the categories. If the relation between father's and son's occupation is approximately linear when occupations are measured by their true status and if the categories are reasonably homogeneous, this procedure will locate the true ordering (further description, justification and cautions are given in identifying reference 1978; Duncan-Jones, 1972; Klatzky and Hodge, 1971). This gives one set of scores for father's occupation and another for son's but the two are in practice virtually identical, correlated .98 or higher in both Bolivia and the U.S., and we here consider only those based on son's. Scores are identified only up to a linear transformation and we adopt the conventional metric, scoring the lowest category zero and the highest one hundred.²⁵ However the crucial comparisons between Bolivia and the U.S. do not

depend on the intuitive appropriateness of this metric but only on the establishment of some procedure to get scores from the two countries in comparable metrics and we have experimented with other procedures, obtaining results identical to those reported here.²⁶ 2) We classified occupations according to ethnographically appropriate schemes and scored them by Klatzky and Hodge's procedure.²⁷ 3) We used traditional ethnographic measures of occupational status. For Bolivia we scored each category of our ethnographic classification according to the average standard of living. For the U.S. we used the standard Duncan SEI index (Reiss 1961, pp. 109-138), essentially an average of income and education for each detailed census occupation. 4) Following Duncan-Jones (1972, pp. 205-207), we created what is essentially an analogue to Duncan SEI scores by classifying occupations according to Treiman's classification and then scoring those categories on the basis of a canonical analysis with income and education as criteria. 5) We combined the logic of procedures one and four by scoring occupations on the basis of a canonical analysis with father's occupational categories, respondent's income and respondent's education as criteria. 6) We scored occupations by Treiman's (1977) standard international prestige scores.

Procedures one through five give results essentially interchangeable with each other both in Bolivia and in the U.S., as may be seen in Appendix A. In Bolivia, the correlations between the five scores are large, averaging .94, and the theoretically crucial correlation between father's and son's status is essentially the same with each, ranging from .56 to .63; furthermore, all have virtually identical correlations with education, standard of living, and father's education. The measures are equally interchangeable in the U.S.; correlations among them average .87, the crucial correlation between father's and son's status ranges from .37 to .43, and the correlations with education, income and father's education are essentially the same. Note that these procedures do not assume that occupations

have the same status in Bolivia as in the U.S. and there are reasons to think they would not (e.g. clerical occupations might reasonably have higher status in societies where literacy is rare than in societies where it is almost universal). Nonetheless, in practice the scores for Bolivia and the U.S. are very similar.²⁸ Furthermore, adopting exactly the same scores for Bolivia and the U.S. leads to the same results.²⁹ So in all, it seems reasonably clear that the differences we observe between Bolivia and the U.S. reflect genuine differences in the societies, since we get the same results using different classification schemes and scoring them in a variety of ways.

For the remainder of the analysis we adopt the scores from procedure one since their statistical properties have been well described elsewhere (Klatzky and Hodge 1971) and they are based on a common occupational classification, which facilitates comparisons between countries. To show that this does justice to local conditions, we also present results using the traditional ethnographic scoring of procedure three. Results using procedure six are not highly correlated with the others, nor with education and income, and are therefore omitted.³⁰

The relations between occupational status and the other variables in this analysis are for all practical purposes linear. The canonical procedure we have adopted scores occupations in a way that necessarily captures non-linearities with father's occupation. Non-linearities involving education and income are in principle possible but in practice negligibly small.³¹

Education We measured education in years of schooling. This implicitly assumes that a year at any level is equally valuable. However, an effect proportional measurement scheme which does not make this assumption (Treiman and Terrell, 1975) gives equivalent results. It is correlated .98 with years of schooling in Bolivia and .95 in the U.S. and has virtually identical correlations with all the other variables in the model, so we therefore report the more easily interpreted

and conventional measure, years of schooling.

Income and Standard of Living For the U.S. income provides a satisfactory measure of standard of living. But for Bolivia and other peasant societies with a large subsistence sector, reported cash income is poor measure of living, because most people are self-employed with incomes that vary unpredictably from week to week and year to year, and because many people do not accurately know, or would be fearful of revealing, their true incomes. Consumption measures are therefore generally preferred in such societies, since they tend to be more accurately reported and more reliable indicators of long term standards of living (van Ginneken, 1976). We have adequate data on a variety of aspects of consumption including characteristics of housing, servants, food consumption, and the like and have factor analyzed these items, choosing for our final scale five items measuring quality of housing and number of domestic servants.³² Under Bolivian conditions, this scale provides a rough but nonetheless adequate measure of standards of living. Correlations among the items average a satisfactory .36. Since there is no natural metric, for the regression analyses we transformed it so that each score represents the cumulative percentage of respondents with a standard of living at that level or lower; thus the poorest person gets a zero (no one is lower), someone in the middle gets 50 (half the population lives worse), and the person with the highest standard of living gets 100. In order to have comparable metrics, we transformed U.S. income scores in the same way. This transformation has little effect on the correlations, and so is of little consequence for the standardized coefficients (details are available on request).

RESULTS

Status Inheritance

Since physical and human capital were more unequally distributed in Bolivia than in the U.S., and status crystallization greater, we predicted on several

grounds that status inheritance would be greater in Bolivia, i.e. that ascriptive influences would be larger and occupational success more heavily dependent on family background (Hypotheses 3, 5 and 7). We are now in a position to test this prediction.³³

1) Let us look first at the correlation between father's and son's occupational status, the conventional measure of status inheritance. Measuring status by any one of our five very different measurement procedures leads to the same conclusion: status inheritance is substantially higher in Bolivia than in the U.S. (Table 2). However measured, the correlation is roughly .6 in Bolivia and .4 in the U.S., a difference which is statistically significant at the .001 level. For comparison, we also show the canonical correlations between father's and son's status in the last two lines of Table 2. These give the maximum possible correlation between father's occupation and son's occupation, with no assumptions about the ordering of occupational categories and (unlike procedure 1 scores) no restriction that father's and son's occupations have the same scores. No matter whether these are based on the Treiman classification of occupations or on the rather different schemes developed by local researchers, they tell the same story: the maximum possible correlation between father's and son's occupation is a shade over .6 in Bolivia and .4 in the U.S., a difference which is statistically significant at the .001 level. So it is clear that Bolivia has more status inheritance than the U.S. and that no alternative measurement scheme would lead to a different conclusion. And it is encouraging that our status measures capture virtually all the variance that can be captured, as indicated by the fact that the correlations using them are almost as high as the canonical correlations.

2) The regression coefficients show the same pattern (Table 2). In Bolivia, having a high professional father at the top of the occupational hierarchy instead of a farm laborer at the bottom is an advantage worth about sixty status points to the son, no matter what measurement procedure is used. In the U.S. coming from a professional instead of a farm laborer's family is not

Table 2 Status inheritance for employed men, 20 or over, in Bolivia and the U.S.: correlations and regression coefficients between father's and son's occupational status, as measured by various procedures.

Measurement procedure ¹	Bolivia	United States	Significance of difference ²
Procedure 1: correlation.....	.61	.40	p<.001
regression.....	.61	.32	p<.001
Procedure 2: correlation.....	.63	.43	p<.001
regression.....	.64	.33	p<.001
Procedure 3: correlation ³	.63	.40	p<.001
Procedure 4: correlation.....	.56	.37	p<.001
regression.....	.56	.32	p<.001
Procedure 5: correlation.....	.60	.45	p<.001
regression.....	.61	.38	p<.001
Canonical correlation based on Treiman's classification.....	.62	.42	p<.001
Canonical correlation based on ethnographic classifications.....	.64	.43	p<.001

1. See text for definitions. N=1,130 for Bolivia and 16,018 for the U.S.

2. Differences between correlations and canonical correlations are tested using Fisher's r to z transformation; however for canonical correlations the results should be regarded as only suggestive. Regression coefficients are tested by conventional F tests. All tests are one tailed.

3. Metrics in Bolivia and the U.S. differ, so the regression coefficients are not comparable.

is probably a reasonably satisfactory surrogate, although more certainly in the U.S. than in Bolivia.

Education We have predicted that family background will have a greater influence on education in Bolivia, where parents' human and physical capital is very unequally distributed, than in the U.S., where differences between one family and another are generally less dramatic (Hypotheses 2 and 4). 1) Taken alone, father's occupational status has a substantially greater influence on son's education in Bolivia than in the U.S. Using our preferred procedure 1 occupation scores, the correlation is .61 in Bolivia compared to .42 in the U.S., a difference statistically significant at $p < .01$. In metric terms, having a high professional father at the top of the Bolivian occupational hierarchy instead of being born into a farm laborer's family confers an advantage worth 6.9 years of education while the corresponding advantage in the U.S. is only 4.7 years. Using other occupation scores, or measuring in a way that makes no assumptions about ranking father's occupation, give virtually identical results.³⁴ 2) Taking father's occupation and education together, family background appears to be substantially more important in Bolivia, where it explains fully half the variance in son's education, than in the U.S., where it explains only a quarter (Table 3, line 3). Father's education is more important in Bolivia, where each year is worth just over a half a year to the son, than in the U.S., where each year is worth just over a quarter to the son; this difference is significant at the .001 level and the standardized coefficients tell the same story (line 1). However father's occupation is, net of his education, about equally important in both societies rather than more important in Bolivia as we had predicted (line 2). Having a father at the top of the occupational hierarchy is, net of the advantages provided by his human capital, worth a little over three years of education to sons in both societies. So in all, these results are generally consistent with our predictions, although the results on father's occupation when (but

Table 3 Status attainment in Bolivia and the United States. Unstandardized (b's) and standardized (B's) partial regression coefficients predicting education, occupation, and standard of living for Bolivia and the United States separately. Occupational status measured alternatively by procedures one and three.

	Procedure 1 occupation scores			Procedure 3	
	Bol. b	U.S. b	sig. of difference ¹	Bol. B	U.S. B
Panel A. Predicting Son's Education					
1. Father's education (years)....	.525	.284	$p < .001^b$	.51	.32
2. Father's occupation (1 to 100)	.032	.033	NS	.27	.29
3. (% of variance explained)				(52)	(26)
Panel B. Predicting Son's Occupation					
4. Father's education (years)....	1.50	0.77	$p < .05^b$	.17	.13
5. Father's occupation (1 to 100)	.493	.279	$p < .001^b$	.50	.36
6. (% of variance explained).				(39)	(18)
7. Father's education (years)....	0.03*	-0.07*	NS	.00*	-.01*
8. Father's occupation (1 to 100)	.404	.182	$p < .001^b$	.41	.23
9. Son's education (years).....	2.80	2.97	$p < .05^a$	.33	.43
10. (% of variance explained)				(45)	(31)
Panel C. Predicting Standard of Living					
11. Father's education (years)...	1.34	0.79	NS	.18	.12
12. Father's occupation (1 to 100)	.331	.223	$p < .001^b$	.39	.26
13. (% of variance explained)				(28)	(11)
14. Father's education (years)...	0.33*	0.08	NS	.05*	.01*
15. Father's occupation (1 to 100)	.150	.082	$p < .05^a$	.18	.10
16. Son's education (years).....	1.06	1.62	NS	.15	.22
17. Son's occupation (1 to 100).	.298	.314	NS	.35	.29
18. (% of variance explained)				(38)	(25)

1) F test. N=1,130 in Bolivia and 16,018 in the U.S.

* Regression coefficient not significantly different from zero at $p < .05$, two tailed.

a) Two tailed.

b) One tailed.

only when) father's education is controlled are not.

Occupational Status We have already seen that there is, as predicted, more status inheritance in Bolivia than in the U.S. when that is measured conventionally by the correlation between father's and son's occupational status. Similarly, considering both father's occupation and his human capital, family background is still enormously more important in Bolivia. The advantages of birth explain almost 40% of the variance in status compared to less than half that in the U.S. (Table 3, line 6). We also predicted that father's physical capital would have a larger influence in Bolivia since it is more unequally distributed than in the U.S. (Hypothesis 3) but, having no direct measure of physical capital we must content ourselves using the direct effect of father's status as a rough proxy. In the event, this effect is substantially larger in Bolivia in both metric and standardized terms (line 5). Net of his human capital, having a professional father in Bolivia is worth almost fifty status points -- half the entire status hierarchy or roughly the distance between production workers and professionals -- while the advantage in the U.S. is only half that, significantly less at $p < .001$.

Since human capital is more unequally distributed in Bolivia than in the U.S., we predicted that father's human capital would have a greater impact on son's status in Bolivia (Hypothesis 5). And, in fact, this appears to be true (Table 3, line 4). Each year of father's education gives a Bolivian son an advantage worth one and a half status points while a U.S. son gets only half that advantage, a difference significant at $p < .05$. In more concrete terms, having a father who completed secondary school is worth 18 status points to a Bolivian son, almost enough to get him from, for example, a clerical to a professional job while in the U.S. it would only be enough to get him from a clerical to an administrative job. Although the difference between Bolivia and the U.S. is less marked in standardized terms (line 4), it also supports our hypothesis.

These data also allow us to test a basic tenet of our model: that advantages are passed from one generation to the next only by the transfer of human and physical capital (Hypothesis 8). This implies that father's a human capital should affect his son's occupational status only indirectly through its influence on his son's human capital, i.e. coming from a well educated family should be advantageous only because it leads a son to get more education himself, not for any other reason. This prediction is easily tested and the data clearly support it; the effect of father's education is not significantly different from zero in either country (line 7).

The rest of the results when son's education is included in the model are straight-forward. 1) The direct effect of father's occupation of course declines but the clear and statistically significant differences between the countries remain (line 8). Even apart from the educational consequences, the advantage of having a father at the top of the occupational hierarchy is enough to get a Bolivian son 40% of the way to the top himself but less than 20% of the way for an American, a difference that is statistically significant at $p < .001$. We suspect that much of this direct advantage reflects the impact of physical capital, with sons from high status families inheriting large farms, going into family businesses, borrowing from their family to establish their own businesses, and the like. 2) Education is important in both societies, each year increasing a son's occupational status by just under three points in the U.S. and fractionally less in Bolivia (line 9). In standardized terms, father's occupation is more important than father's education in Bolivia while the U.S. shows a more familiar pattern with education the dominant influence and father's occupation a distant second.

Standard of living Consistent with our general argument that inherited advantage should be greater in Bolivia, the data clearly show that standards of living depend much more on family background in Bolivia than they do in the U.S.

In fact, family background explains fully 28% of the variance among Bolivian sons compared to only 11% in the U.S. (line 13). To put this in some perspective, it is worth noting that there is more inherited inequality in Bolivia than there is inequality due to both inheritance and achievement combined in the U.S.³⁵

Father's education seems to have a somewhat greater influence on son's standard of living in Bolivia than in the U.S., but the difference is not statistically significant (line 11). Father's occupation, although it matters in both countries, is significantly more important in Bolivia (line 12). Having a high ranking professional father is worth some 30 standard of living points in Bolivia compared to 20 in the U.S. (on a standard of living scale that ranges from zero to 100, with each point representing 1% of the population in the cumulative distribution).

These sharp differences in inherited privilege come about mainly because a son's education and occupation are much more dependent on his family background in Bolivia, and not because education and occupation per se are more closely tied to standards of living (lines 14 to 18). However in Bolivia, father's occupation has a substantial direct effect as well, possibly reflecting the direct inheritance of wealth, while the corresponding effect in the U.S. is noticeably smaller (line 15). Consistent with our argument that advantages are transmitted from one generation to the next only through physical and human capital, it appears that in both countries father's education affects son's standard of living only indirectly (line 14).

Qualifications and Extensions

Alternative Measures of Occupational Status To show that we have fully captured local idiosyncracies in the occupational structure of each country, results using the locally developed measures are presented in the last two columns of Table 3.³⁶ The results differ little from those based on our preferred scores, the only noticeable difference being that education appears to be slightly more important. Results using other measurement procedures, too extensive to present here,

are even closer to those based on our preferred procedure.³⁷ The fact that quite different measurement procedures lead to the same conclusions is strong evidence that our results reflect genuine differences between the two countries.

Farm Origins There are, of course, differences between Bolivia and the U.S. other than those central to our analysis. One of the most conspicuous is the much larger agricultural sector in Bolivia, something characteristic of less developed societies. But this does not explain the differences in the pattern of status attainment in the two countries. Details are given in Appendix B.

Rural versus Urban It has been suggested that we should compare our data on small town and rural Bolivia with data on small town and rural America, rather than with the entire U.S. In fact we do not think this conceptually appropriate but doing so would in any case lead to exactly the same substantive conclusions (see Appendix B).

Language Differences between Spanish and Aymara speakers are striking in Bolivia but are of little consequence for the issues at hand, as may be seen in Appendix B.

Modern versus Traditional: A Test of the Functionalist Theory of Stratification

Our data allow a clear test distinguishing functionalist theories of stratification from our own. As we have seen, functionalist theories predict that status inheritance will be greater in the backward and very traditional Aymara Indian villages than in the more modern and developed towns. Our theory leads to exactly the opposite prediction since physical and human capital are more equally distributed in the Indian villages than in the highly inequalitarian towns (Hypotheses 3, 5 and 6).³⁸ We have, then, a critical test of the two theories. The data are in Table 4.

In the event, the data clearly support our theory and conflict with func-

tionalist theory. 1) The correlation between father's and son's status is much lower in Indian villages than in the towns (line 5). The difference is large, the correlations averaging .13 in the Indian villages and .56 in the more inequalitarian towns. There is a similar pattern for human capital, with father's education uncorrelated with son's education in the Indian villages while it has very substantial correlations, averaging .50, in the towns (line 6). 2) Regression results follow the same pattern. Father's education has no statistically or substantively significant effect on his son's occupational status in the Indian villages but quite substantial ones in all the towns (line 7). Father's occupation has no effect whatsoever in one of the Indian villages although it does have a moderate effect in the other. By contrast, it has a noticeably larger effect in three of the four towns (although one of them, Coroico, does not follow the general pattern in this respect; see line 8). We tested the statistical significance of these differences by merging the data for the two Indian villages and comparing them to the merged results for the four towns using the conventional F test for interaction. Both father's education and father's occupation have significantly weaker effects in the Indian villages, both differences being significant at $p < .001$. 3) In all, family background explains much less of the variance in son's occupation in the Indian villages than it does in the towns, an average of only 3% in the villages compared to fully 36% in the towns (line 9). Exactly the same pattern appears for education, where family background explains an average of 7% of the variance in the villages compared to fully 55% in the towns, and for standard of living, where the corresponding averages are 1% and 26% (lines 10 and 11). Apparently, modernity does not always imply a more fluid system of stratification nor tradition a more rigid one, as functionalists argue. Instead the transmission of advantage from one generation to the next seems to be shaped by inequality in the distribution of physical and human capital, as we argued.

Table 4 Status attainment in different regions of Bolivia.¹

	Traditional Villages		Relatively Modern Towns			
	San Miguel	Compi	Coroico	Sorata	Reyes	Villa Abecia
<u>Panel A: Means and standard deviations</u>						
1. Mean standard of living..	23	25	57	60	59	47
2. Mean education.....	1.8	0.8	4.3	2.2	3.1	2.4
3. Inequality in standard of living (σ).....	18	17	25	23	21	23
4. Inequality in education (σ).....	2.0	1.8	4.1	3.8	3.9	4.2
<u>Panel B: Correlations</u>						
5. Father's occupation & son's occupation.....	-.01*	.26	.41	.61	.55	.65
6. Father's occupation & son's education.....	.21	.01*	.59	.69	.44	.57
<u>Panel C: Unstandardized regression coefficients predicting son's occupation</u>						
7. Father's education.....	-0.12*	-0.85*	2.09	1.55	1.12	2.17
8. Father's occupation.....	-.012*	.289	.146	.532	.429	.484
<u>Panel D: % of variance explained by family background</u>						
9. R ² predicting son's occupation.....	0	6	25	39	33	47
10. R ² predicting son's education.....	11	2	49	69	45	55
11. R ² predicting standard of living.....	1	1	16	26	26	37

1. The number of cases is 136, 160, 173, 300, 251, and 109 in the order listed.

* Correlation or regression not significantly different from zero at $p < .05$.

CONCLUSIONS

We have presented a theory of social mobility which focuses on the nature and distribution of scarce and valuable resources, principally physical capital (land, wealth, etc.) and human capital (education, knowledge, linguistic skills, etc.). We argued that status is passed from one generation to the next by the transfer of physical and human capital and we derived a substantial number of testable predictions for our model. Other things being equal, we predict that in a society where physical capital is more unequally distributed, a child's physical capital will depend more heavily on his parents' wealth; his human capital will depend more on parents' wealth; and status inheritance will be greater, i.e. pure mobility will be less. Analogously, we predict that in a society where human capital is more unequally distributed, a child's human capital will depend more heavily on his parents' human capital, and status inheritance will be greater, other things being equal. Status inheritance will generally be least, we predict, in traditional, technologically simple hunting and gathering societies and in simple agricultural societies; it will increase with growing inequality in physical and human capital to a maximum in the most inequalitarian of the advanced agrarian and less developed modern societies; and will decline in advanced industrial and socialist societies. In a society where there is greater status crystallization between occupational status and physical or human capital, we predict more status inheritance. Finally, we predict that parents' occupational status has no direct effect on their child's occupational status but only indirect effects through physical or human capital.

One aim of this paper was to test this theory empirically, first by comparing Bolivia, a society with dramatic inequalities in physical and human capital and substantial status crystallization, to the comparatively equalitarian U.S. and, secondly, by comparing the very traditional by relatively equalitarian Aymara Indian villages in Bolivia with much more modern but inequalitarian towns in other

parts of Bolivia. Our predictions were clearly confirmed while those of the competing functionalist theory were not.

A second aim of this paper was to describe stratification and the process of attainment in a peasant society very different from the societies heretofore described in the quantitative literature. Bolivia is one of the poorest societies in the world, its per capita gross domestic product ranking in the lowest fifth of all nations, and it has one of the most unequal distributions of income in the world, ranking in the highest fifth of all nations. The U.S. and other societies well known to the quantitative literature are the exact opposite, ranking among the richest and most equalitarian of the nations of the world. Our analysis of Bolivia thus provides a much needed perspective on the range of stratification systems to be found in the modern world, especially since the majority of the world's population do now, and have for millennia, live in societies more like Bolivia than like the United States.

We have thus raised once again questions of comparative stratification and the influence of social structure on the process of status attainment, questions long central to the study of stratification and social mobility but ones which have been slighted in recent years with the emergence of the Blau-Duncan paradigm and the concomitant focus on a few narrow questions treated in the context of a few highly developed industrial societies. These were valuable and necessary developments but we believe that it is time to return to the broader and more fundamental questions, using the now established techniques of the Blau-Duncan paradigm to address them with greater rigor than was possible in the past. This paper is a first step in that direction.

APPENDIX A. Correlations, means and standard deviations for various versions of occupational status for Bolivia (above diagonal) and the United States (below diagonal) separately. See text for definitions; decimals omitted.

Variables & scoring procedures		Father's occupation						Son's occupation						F's	S's	Wth
		1-F	1-S	2-F	2-S	Eth	Pst	1-F	1-S	2-F	2-S	Eth	Pst	Ed	Ed	or \$
<u>Father's occupation</u>																
Procedure 1, scores from Father			98	98	91	90	59	<u>61</u>	62	63	63	62	29	62	58	49
Procedure 1, scores from Son		99		98	94	93	64	59	<u>61</u>	62	63	62	30	65	59	51
Procedure 2, scores from Father		97	97		97	94	62	59	61	<u>62</u>	64	63	30	65	59	51
Procedure 2, scores from Son		95	97	98		95	63	55	57	59	<u>62</u>	60	29	64	58	50
Ethnographic procedure (Eth)		77	73	79	74		70	54	56	58	61	<u>61</u>	32	69	61	52
Prestige (Pst)		37	29	36	25	64		37	38	39	40	42	<u>33</u>	51	45	33
<u>Son's occupation</u>																
Procedure 1, scores from Father		<u>41</u>	41	41	40	36	18		98	97	91	88	40	45	53	53
Procedure 1, scores from Son		42	<u>42</u>	42	41	35	17	98		98	93	92	46	48	55	55
Procedure 2, scores from Father		42	41	<u>42</u>	41	37	18	95	93		97	94	42	48	55	55
Procedure 2, scores from Son		43	42	43	<u>43</u>	37	16	93	94	97		95	44	51	56	56
Ethnographic procedure (Eth)		39	38	40	38	<u>40</u>	23	82	80	83	82		58	55	61	60
Prestige (Pst)		29	27	29	26	33	<u>26</u>	71	67	66	62	80		37	44	37
<u>Father's education</u>		41	39	42	40	48	34	28	27	28	28	32	27		69	51
<u>Son's education</u>		43	42	43	42	42	24	53	52	53	54	60	52	43		57
<u>Wealth (Bolivia) or income (US)</u>		30	29	31	29	31	18	41	40	43	42	48	40	22	39	
<u>Means</u>																
	Bolivia	26	25	27	26	a	37 ^b	32	30	34	32	a	39 ^b	2	2	a
	U.S.	42	43	39	38	a	41 ^b	60	60	54	53	a	42 ^b	8	11	a
<u>Standard Deviations</u>																
	Bolivia	35	33	35	35	a	12 ^b	35	33	36	35	a	11 ^b	3.6	3.7	a
	U.S.	34	32	27	28	a	10 ^b	28	25	23	22	a	12 ^b	3.9	3.5	a

a. Not measured in comparable units.

b. Treiman's (1977) SIOPS prestige units, not comparable with other occupational scores.

APPENDIX B: QUALIFICATIONS AND EXTENSIONS

Farm Origins It might seem that the marked differences between Bolivia and the U.S. in the percent of the labor force in farm occupations has something to do with their very different patterns of status attainment but in fact it does not.

1) A simple way to adjust for this difference is to include farm origin explicitly in the analysis as an additional background variable and then look at the effects of other variables net of farm origins. In fact, farm origin has little effect on any of the variables we have been dealing with and including it in the analysis leads to results virtually identical to those already shown in Table 3. Full details are available on request, but for illustration we show below the standardized partial regression coefficients giving the effects of farm origin independent of father's education and father's occupation (coefficients marked with an asterisk are not significantly different from zero):

	Bolivia	U.S.
Predicting education.....	.01*	.06
Predicting occupation.....	-.09*	-.01*
Predicting standard of living.....	-.05*	-.04

It is clear that farm origins are not particularly important when included in the analysis in this simple way and so could not account for the differences between Bolivia and the U.S. 2) It is, however, possible to argue that farm origin might interact with the other variables in our model and so affect the United States-Bolivia comparison in some complex way, even if it has no simple additive effect. To check this possibility, we included in our analysis not only the simple farm origin variable described above but also various multiplicative terms reflecting the interaction between farm origins and our other independent variables and so allowed for all possible interactions involving this factor. This procedure allows us to test whether interactions involving farm origins have any appreciable effect.

In fact they do not. By way of illustration, adding all possible interactions involving farm origin and family background increases the variance explained in son's education, occupation, and income by an average of only about one-half of one percent in the U.S. and even less in Bolivia.

Rural versus Urban It has been suggested that we should compare our data on small town and rural Bolivia with data on small town and rural America rather than the entire U.S. In fact we do not think this is conceptually appropriate since we are interested in comparing two types of society, peasant and industrial, and the appropriate comparison is therefore between the whole of a peasant society (which characteristically includes both rural and small town elements) and the whole of an industrial society (which characteristically includes rural, small town and urban elements). Much of the stratification in a society is reflected in differences between its constituent parts, so comparing the whole of a peasant society to one part -- and hardly a central part -- of an industrial society does not seem the most appropriate procedure. Nonetheless, doing so would lead to the same substantive conclusions. It is well known that patterns of status attainment are relatively similar in both rural and urban sectors of the U.S. (e.g. Duncan, Featherman, and Duncan 1972, pp. 224-32) and when we reanalyzed our data for each sector separately, the contrasts between Bolivia and the U.S. were hardly affected. Family background, for example, explained 20% of the variance in son's education in the rural U.S. and 22% in urban areas, both far below Bolivia's 52%. Similarly, family background explained 18% of the variance in son's occupational status in the rural U.S. and 13% in urban areas, figures still far below Bolivia's 39%. Thus even compared to rural areas in the U.S., Bolivia still has a more rigid system of stratification.

Aymara versus Spanish Since language and cultural background play a major role in the Bolivian stratification system, it might seem that they confound the comparison with the U.S. In fact, however, the distinction between Aymara and

Spanish background is not very relevant to the issues at hand, although it is of great interest and importance in its own right and we have dealt with it at length elsewhere. It has little effect on education, occupation or standard of living once father's education and father's occupation are taken into account and including it in the analyses of Table 3 leaves the other results unchanged and the substantive conclusions unaffected. When included in a model with father's education and occupation, linguistic background has standardized partial regression coefficients predicting education, occupation and standard of living of .04 (not significantly different from zero), .07 and .12 respectively, with Spanish speakers of course favored in comparison with Aymara speakers. Further details are available by request.

FOOTNOTES

¹We are grateful for financial support from the National Science Foundation (grant SOC74-21514) and the National Institute of Mental Health (grant 1 R01 MH26606-01).

²There is some comparative work using detailed occupational data and modern analytic techniques (notably Sharda and Elder 1975; Kelley and Perlman 1971; Lin and Yaeger 1975). But even these few are limited by the enormous difficulty of comparably coding occupation, since use of ad hoc schemes can lead to erroneous conclusions (Treiman, 1975).

³The fragmentary quantitative data available support the impression of diversity in both India and Africa (Sharda and Elder 1975; Kelley and Perlman 1971).

⁴Without loss of generality we can assume that these are so scaled that their weight in Eq. 1 is unity.

⁵We assume that the argument about occupational mobility applies to both sexes; our use of the masculine pronoun is for stylistic convenience only.

⁶This is a theory of pure mobility (Yasuda 1964); it focuses on the extent to which a child's status is influenced by his parents' status -- on the amount of rigidity in the status system -- regardless of whether the child rises above his parents' status or sinks below it. If children of high status families always maintain their advantage over those from low status families, there has been complete status inheritance even when all children have higher (or lower) status than their parents. This is the aspect of social mobility that most interests us and is central in the Blau-Duncan tradition. To avoid confusion we will use the term "status inheritance" rather than the more general term "social mobility".

⁷Inequality is now often, and reasonably, defined in terms of the standard deviation or its relatives (e.g. Jencks et al. 1972; Mincer 1974), so that greater inequality increases the variance by definition. But, in practice, the traditional Gini coefficient of inequality is closely related to the standard deviation; like the standard deviation, the Gini is a measure of variance (based on the absolute value of the differences between individuals' scores rather than on the standard deviation's squared difference) and the two are comparable and monotonically related (Paglin 1975, p. 601). The correlation between the Gini and the corresponding measure based on the standard deviation, computed over the income distributions of 56 countries, is .84 (computed from Paukert 1973, Table 6) and other popular measures of inequality are highly correlated with the Gini and so presumably with the standard deviation (Alker and Russett 1964, report correlations .87 computed over various data of practical interest), so the choice of measure is of little practical consequence. In cross-cultural comparisons the relevant measures of inequality are those, like the Gini and the relative deviation, that reflect inequality within each society separately regardless of differences in the mean. The relevant question is whether one Bolivian is noticeably richer than another by Bolivian standards, since he is competing against other Bolivians, and it is irrelevant that the difference in wealth may be small by the standards of the United States, a much richer country, since he is not competing with Americans.

⁸Both partial derivatives are of the general form $(k_1 X + k_2) / (k_3 X^2 + k_4 X + k_5)^{3/2}$ where the k_i are various combinations of constants from Eq. 1-3 and X is the standard deviation of physical or human capital respectively; by earlier assumptions all these terms are positive and hence both derivatives are positive.

⁹This example assumes that the correlation between father's status and his

human capital is .7, that between his status and his physical capital is .6, and that between his physical and human capital .4; that half of his physical and human capital are passed on to his son ($b_{ww_p} = b_{hh_p} = .5$ and $b_{wh_p} = b_{hw_p} = 0$); that the variance of wealth and of the various random factors are equal ($\sigma_{w_p} = \sigma_{o_1} = \sigma_{o_2} = \sigma_{o_3}$); and that the variance in human capital, σ_{h_p} , is twice that of wealth.

¹⁰Note, however, that this does not apply to status crystallization between wealth and human capital; that has little effect and, such as it is, in the opposite direction. In the hypothetical example just described (footnote 9), increasing the correlation by .10 would decrease status inheritance by about .005.

¹¹Although we use the "ethnographic present" for convenience, our description refers to conditions circa 1966, when our data were collected, but little has changed since. There were dramatic changes 12 years earlier after the 1952 revolution, notably the partial destruction of the quasi-feudal hacienda system which existed in many parts of Bolivia and its replacement by a system which quickly became a classical small scale peasant agriculture. We have analyzed this change in great detail elsewhere (identifying references 1977a, 1977b). We show that the changes in the process of status attainment were surprisingly small, were confined to son's first job, and were temporary. By 1966 there were no substantially or statistically significant differences in the pattern of status attainment reported here so these matters can be safely ignored for present purposes.

¹²Our description draws extensively on McEwen's (1975) excellent account. Van den Berghe and Primov's (1977) insightful analysis of a neighboring region of Peru would apply with only modest changes.

¹³Note that there is no strong relation between development and inequality. Highly developed countries tend to have relative low inequality but less developed

countries are quite various.

¹⁴The data are from the survey described in detail later. We have based our description on occupational differences but looking instead at differences between well and poorly educated, between Spanish and Aymara speaking, or between rich and poor would provide the same picture since they are all very closely related to occupation and to each other.

¹⁵The occupational classification is described in detail later. The version shown in Table 1 is a condensation of the scheme used for the regression analysis with some groups combined and service workers counted as production workers. The U.S. data do not permit distinctions based on farm size, so we treat all as medium farmers.

¹⁶This is for the adult male population, based on our estimates for Bolivia and on comparable results from the OCG data for the U.S. Comparable data for other countries are not readily available. Other measures of inequality tell the same story (see footnote 7 above); for example, the relative deviation is 1.5 for Bolivia and 0.3 for the U.S.

¹⁷In addition to these data, one of the authors has extensive first hand experience in Bolivia, having spent several years in the field studying a variety of social and political topics (see identifying references 1965a, 1965b, 1966, 1967, 1968, 1969, 1971a, 1971b, forthcoming a, forthcoming b).

¹⁸In the three smaller towns all were included. In the three larger towns samples of between one and two hundred were selected randomly from the census list but the sample snowballed outward from them to include people named in sociometric questions (friends, relatives, people with power or influence, etc.). A few additional men identified as influential by the resident anthropologists were also included.

¹⁹Given the financial constraints and the original investigator's strong interest in community decision making in this male dominated society, the limitation is not unreasonable. Over two-thirds of the women are housewives or unpaid family farm workers.

²⁰Compared to household heads in the town census, the sample has 3% fewer illiterates. It appears to have 7% more monolingual Aymara speakers and 17% more monolingual Spanish speakers, with bilinguals correspondingly underrepresented. The overrepresentation of Spanish speakers is probably a genuine bias but the underrepresentation of bilinguals is probably not -- it is prestigious and easy to claim facility in Spanish on the single census question but impossible to exaggerate in the course of a two hour personal interview in which true bilinguals would invariably use Spanish. There is no difference in age.

²¹Using the town census, we are able to compare the regressions of education and language on occupation separately for the entire town census population and those also in the survey. Using the measures available in the census (which are different from and somewhat inferior to those used in the survey), the correlations are very close (that between education and occupation is .32 in the census and .30 in the survey; education and language .44 and .41; language and occupation .15 and .10 respectively). The standardized partial regression coefficients predicting occupation are even closer (.31 and .31 for education's effect and .01 and -.02 for language, with R^2 s of 10% and 9% respectively). Further details are available on request.

²²On the average, the correlations differ by less than .02 from the unadjusted figures and the standardized regression coefficients differ by .01. Exact significance tests for weighted samples are not readily available but since we kept the adjusted N equal to the true one and the unweighted regression results are

virtually identical to the weighted ones, the approximation should be very close.

²³For Bolivia we have detailed information on respondent's main, secondary, seasonal and past occupations and on father's occupation. The information includes land ownership and number of paid employees (crucial to distinguishing wealth and status among farmers), number of family employees, and whether or not self-employed. It was coded into an expansion of the International Labor Office's (1958) four digit classification with, among others, additional distinctions among farmers. Main occupation was distinguished from secondary and seasonal occupations using information on time worked. On the average, people worked 7.7 hours a day, 5.9 days a week, and for 11.0 months a year in their main occupations. Nonetheless half concurrently pursued secondary occupations and 16% had different full time occupations at some time in the year. For the U.S., information was collected with the usual census questions (Blau and Duncan 1967, pp. 446-447) and coded into the 1960 Census three digit classification.

²⁴Although the low agricultural group includes small farmers who own land and herders who own flocks as well as propertyless tenant farmers and landless laborers, in Bolivian conditions there is no real difference between them, since the land is so poor and the flocks so meager that they provide no real advantage. Making further distinctions among these groups makes no difference to the results reported here.

²⁵The scores used in subsequent analysis are:

	<u>Bolivia</u>	<u>U.S.</u>		<u>Bolivia</u>	<u>U.S.</u>
High professionals	95	100	Medium production	57	49
Low professionals	100	85	Low production	51	38
Administrative	87	82	High service	--	59
High clerical	--	73	Low service	--	38
Low clerical	76	69	High agricultural	72	--
High sales	72	90	Medium agricultural	40	--
Low sales	--	54	High & med. agricult.	--	0
High production	61	58	Low agricultural	0	9

There were too few Bolivians to permit reliable estimates for service, high prestige clerical, and low prestige sales workers (1.7% of the sample in all) so we borrowed their scores from procedure two; the U.S. data do not allow us to identify high prestige large farmers but they are surely a small fraction of the population. There are some minor anomalies (e.g., high professionals slightly lower than low professionals in Bolivia; high and medium agriculture slightly lower than low agriculture in the United States).

²⁶For comparative purposes, the metric for one country can be chosen arbitrarily and the problem is only to convert scores from the other country into a comparable metric. The most reasonable alternative procedures (see Treiman 1977, pp. 166-167 and Appendix 8.1) both give results identical to those reported in text; details are available on request.

²⁷In Bolivia we developed a thirteen category scheme based on theory and ethnographic knowledge, distinguishing large farmer, cattle rancher, specialized farmer, specialized farm worker, small farmer or farm worker, elite white collar, high white collar, small business, clerical and sales, skilled modern blue collar, skilled traditional blue collar, and unskilled non-farm. For the United States, we used Blau and Duncan's expansion of the census major group codes.

²⁸For our preferred procedure 1 scores, the correlation between scales is .93 and the correlation calculated over individuals is (coincidentally) also .93 when Bolivians are scored by the U.S. scale and .85 when Americans are scored by the Bolivian.

²⁹The scale is an average of procedure 5 scores for sixteen countries and is described elsewhere (identifying reference, 1978). Using this scale, the correlation between father's and son's status in Bolivia is .54, and that for the U.S. .35.

³⁰We are not sure why this is so but are currently investigating the matter in collaboration with Treiman. There are, however, suggestions in both these data and elsewhere that prestige is a relatively fallible measure of status (Featherman and Hauser, 1976).

³¹Compare the ordinary product-moment correlations used in regression analysis, which assumes linearity, with eta, which gives the value of the correlation if all non-linearities were taken into account. The relation between occupation status and other variables is then:

	<u>Education</u>		<u>Std. of living</u>	
	Bolivia	U.S.	Bolivia	U.S.
linear (r).....	.58	.52	.56	.41
non-linear (eta).....	.66	.60	.60	.44

The linear assumption is evidently reasonable.

³²The items are given in Table 1, lines 2 to 6. A principal components factor analysis with communalities estimated iteratively showed only one factor, which explained 49% of the variance. The scale was scored using the factor scoring weights.

³³While our theory dealt with parents and children, the data are more limited. We are forced to use father's occupation and education as a surrogate for both parents' characteristics, a reasonable approximation in Bolivia, and to deal only with sons, which is unfortunate.

³⁴Correlations using other procedures for measuring occupational status are given in Appendix A. Measuring the association between father's occupation and son's education by Eta, which makes no assumptions about the rank of various occupational groups but is otherwise analogous to the product-moment correlation, gives a figure of .65 for Bolivia and .44 for the U.S.

³⁵I.e., all the traditional stratification variables taken together (line

18) explain less of the variance in American standards of living than is explained by family background alone in Bolivia.

³⁶These are the procedure 3 scores described earlier, viz Duncan's SEI and scores for the U.S. scores we developed especially for Bolivia. They are not, of course, in comparable metrics so only standardized coefficients are presented.

³⁷Some results using these procedures are presented in Appendix A and full details are available on request.

³⁸Our analysis and predictions on this, as on the Bolivia-U.S. comparison, were made years before we saw the Bolivian data and, indeed, were a major motive for undertaking the analysis (see identifying references, 1971; 1974).

REFERENCES

- Alker, Hayward R., Jr. and Bruce M. Russett (1964) "On Measuring Inequality." Behavioral Science 9 (July): 207-18.
- Allison, Paul D. (1978) "Measures of Inequality." American Sociological Review 46 (December): 865-879
- Blau, Peter and Otis Dudley Duncan (1967) The American Occupational Structure. New York: Wiley.
- Cancian, Frank (1976) "Social Stratification." Annual Review of Anthropology, Volume 5, edited by B. J. Siegel et al.
- Cipolla, Carlo M. (1976) Before the Industrial Revolution: European Society and Economy, 1000-1700. London: Methuen.
- Duncan, Otis Dudley, David L. Featherman and Beverly Duncan (1972) Socioeconomic Background and Achievement. New York: Seminar Press.
- Duncan-Jones, P. (1972) "Social Mobility, Canonical Scoring and Occupational Classification." PP. 191-210 in The Analysis of Social Mobility: Methods and Approaches, edited by Keith Hope. Oxford: Clarendon.
- Fallers, Lloyd A. (1973) Inequality: Social Stratification Reconsidered. Chicago: University of Chicago Press.
- Featherman, David L. and Robert M. Hauser (1976) "Prestige or Socioeconomic Scales in the Study of Occupational Achievement?" Sociological Methods and Research 4: 403-22.
- Fox, Thomas G. and S. M. Miller (1965) "Economic, political and social determinants of mobility: An international cross-sectional analysis." Acta Sociologica 9: 76-93.
- Hazelrigg, Lawrence E. and Maurice A. Garnier (1976) "Occupational mobility in industrial societies: a comparative analysis of differential access to occupational ranks in seventeen countries." American Sociological Review 41: 498-511.

- International Labor Office (1958) International Standard Classification of Occupations. Geneva: International Labor Office.
- Jencks, Christopher, et al. (1972) Inequality: A Reassessment of the Effect of Family and Schooling in America. New York: Harper and Row.
- Kelley, Jonathan (1978) "Wealth and family background in the occupational career." The British Journal of Sociology 29: 94-109.
- Kelley, Jonathan and Herbert S. Klein (1977) "Revolution and the Re-birth of Inequality: A Theory of Stratification in Post-Revolutionary Society." American Journal of Sociology 83 (July): 78-99.
- Klatzky, Sheila R. and Robert W. Hodge (1971) "A Canonical Correlation Analysis of Occupational Mobility." Journal of the American Statistical Association 66: 16-22.
- Klein, Herbert S. (1969) Parties and Political Change in Bolivia, 1880-1952. Cambridge: Cambridge University Press.
- Krushchev, Nikita (1970) Khrushchev Remembers. Boston: Little, Brown.
- Kuhn T. S. (1962) The Structure of Scientific Revolution. Chicago: University of Chicago Press.
- Lane, David (1971) The End of Inequality? Stratification under State Socialism. Harmondsworth, Middlesex: Penguin.
- Lenski, Gerhard E. (1966) Power and Privilege: A Theory of Social Stratification. New York: McGraw-Hill.
- Lin, Nan and Daniel Yaeger (1975) "The Process of Occupational Status Attainment: A Preliminary Cross-national Comparison." American Journal of Sociology 81: 543-62.
- Lipset, Seymour Martin and Reinhard Bendix (1960) Social Mobility in Industrial Society. Berkeley: University of California Press.
- McEwen, William J (1975) Changing Rural Society: A Study of Communities in Bolivia. New York and London: Oxford University Press.

- Mincer, Jacob (1974) Schooling, Experience and Earnings. New York: Columbia University Press.
- Paglin, Morton (1975) "The Measurement and Trend of Inequality: A Basic Revolution." American Economic Review 65 (September): 598-609.
- Paukert, Felix (1973) "Income Distribution at Different Levels of Development: A Survey of Evidence." International Labor Review 108: 97-125.
- Psacharopoulos, George (1973) Returns to Education. San Francisco: Jossey-Bass.
- Republica de Bolivia. Direccion Gernerale de Estadistica y Censos (1955) Censo Demografico 1950. La Paz: Republica de Bolivia.
- Sharda, Bam Dev and Joseph W. Elder (1975) "Industrialization and the Process of Stratification in Rural Societies: A Comparison of Rural India and Rural United States." Paper read at the annual meetings of the American Sociological Association.
- Smelser, Neil J. and Seymour Martin Lipset (1966) "Social Structure, Mobility and Development." Pp. 1-50 in Social Structure and Mobility in Economic Development, edited by Neil J. Smelser and Seymour Martin Lipset. Chicago: Aldine.
- Sorokin, Pitirim A. (1927) Social and Cultural Mobility. Glencoe: The Free Press (1959).
- Thurow, Lester C. (1975) Generating Inequality: Mechanisms of Distribution in the U.S. Economy. New York: Basic Books.
- Treiman, Donald J. (1970) "Industrialization and social stratification." Pp. 207-34 in Social Stratification: Research and Theory for the 1970's, edited by E. O. Laumann. Indianapolis: Bobbs-Merrill.
- _____ (1975) "Problems of Concept and Method in the Comparative Study of Occupational Mobility." Social Science Research 4: 183-230

_____(1977) Occupational Prestige in Comparative Perspective. New York:

Academic.

Treiman, Donald J. and Kermit Terrell (1975) "The Process of Status Attainment in the United States and Great Britain." American Journal of Sociology 81: 563-83.

Van den Berghe, Pierre L. and George P. Primov (1977) Inequality in the Peruvian Andes: Class and Ethnicity in Cuzco. Columbia, Mo.: University of Missouri Press.

Yasuda, Saburo (1964) "A Methodological Inquiry into Social Mobility." American Sociological Review 29 (February).

IDENTIFYING REFERENCES

- Kelley, Jonathan (1971) Social Mobility in Traditional Society: Resources, Modernization and Mobility. Ph.D dissertation, University of California, Berkeley. Revised version to be published as The Birth of Privilege: A Resource Theory of Inequality and Status Inheritance. New York and London: Academic Press.
- Kelley, Jonathan and Herbert S. Klein (1974) "Social Change and Social Mobility in a Developing Society." National Science Foundation, research proposal for Grant SOC7421514.
- Kelley, Jonathan and Herbert S. Klein (1977) "Revolution and the Re-birth of Inequality: A Theory of Stratification in Post-Revolutionary Society." American Journal of Sociology 83 (July): 78-99.
- Kelley, Jonathan and Herbert S. Klein (1979) Revolution and the Rebirth of Inequality: The Bolivian National Revolution. Unpublished Monograph; revised version of a monograph that won the American Association for the Advancement of Science's Socio-Psychological Prize.
- Kelley, Jonathan (1978) "A Worldwide Measure of Occupational Status." MS.
- Klein, Herbert S. (1965a) "David Toro and the Establishment of 'Military Socialism' in Bolivia." Hispanic American Historical Review XLV (February): 25-2.
- _____ (1965b) "The Creation of the Patino Tin Empire." Inter-American Economic Affairs XXIX (Autumn): 3-23.
- _____ (1966) "Social Constitutionalism in Latin America: The Bolivian Experience of 1938." The Americas XXII (January): 258-276.
- _____ (1967) "German Busch and the Era of 'Military Socialism' in Bolivia." Hispanic American Historical Review XLVII (May): 166-84.

AA
fp HM 131
K44
1980

1439781



A.N.U. LIBRARY

THE AUSTRALIAN NATIONAL UNIVERSITY
The Library

This book is due on:

CANCELLED

