Social Inequality as a Determinant of Educational and

Occupational Expectations in Comparative Perspective

By

Joanna Sikora and Lawrence J. Saha

The Australian National University

Abstract

Social Inequality as a Determinant of Educational and

Occupational Expectations in Comparative Perspective

by

Joanna Sikora and Lawrence J. Saha

The Australian National University

Is the level of economic inequality in a country a good predictor of the educational and occupational expectations of its students? Prior research showed that these "life plan" expectations among 15 year olds were unexpectedly higher in less developed than developed countries, which prompted a number of interpretations (Saha 1992). To extend and further explore this earlier finding we use data from the 2000 and 2003 PISA surveys which collected information on these issues in many countries. Controlling for students' academic ability, gender and family background, comprising parents' education, occupation and the size of the home library, we find that inequality, operationalized by the Gini index, is directly related to educational and occupational expectations.

We consider a number of factors which might account for these counterintuitive findings, including school characteristics and enrolment ratios. Various theories are used to explain this pattern, for example, the tighter coupling of education with life plans in countries with higher levels of inequality. Other theories, such as the theory of relative deprivation and the "revolution of rising expectations" are also consistent with the findings. Finally, we discuss the implications of these findings for understanding the dynamics of how country level characteristics can affect individual behavior.

Social Inequality as a Determinant of Educational and

Occupational Expectations in Comparative Perspective

Introduction: The Origins of Aspiration Research

One of the longstanding topics in education research has been the link between the school and work. Over fifty years ago it was recognized that student social psychological factors played a part in the way that students approached both their schooling and their later entry into the workforce. Early writers varied in the ways that they conceptualized these social psychological orientations towards school and work. For example, Turner (1964) referred to them as ambitions [i], while McClelland (1961) identified a characteristic in individuals which he called the "need for achievement".[ii] On the other hand, some writers argued that through socialization young students develop "role maps" (Musgrave 1967) or "a rough sketch of some course of action" (Alexander and Cook 1979) which include information about occupations and the appropriate credentials needed for their attainment. Most of the early research into aspirations and expectations, both with respect to education and occupations, was directed to explaining eventual occupational, career or status attainment. The theories of socialization and structural inequalities were the usual context for these explanations.

This concern about social psychological goal/life orientations quickly developed into the use of more precise and empirically operationalized concepts, and the terms educational and occupational "aspirations" and "expectations" found their way into the research conceptual vocabulary. The distinction between the two was recognized early because researchers became aware that the former measured life plans which were relatively unaffected by perceived social restraints, while the second concept took into account the

recognition of social constraints.[iii] The first concept, then, could be seen as possibly "unrealistic", while the second was seen as more "realistic" (Caro and Pihlblad 1965; Desoran 1977/1978; Empey 1956; Han 1969; Saha 1983; Saha 1997)

Since the 1970s considerable research has focused on the aspirations or expectations of various social groups: men and women, migrants, and students from different socioeconomic backgrounds. Many of these studies produced counterintuitive results in that students from disadvantaged groups often had higher than expected levels of aspirations and expectations (Khattab 2003; Portes, McLeod, and Parker 1978; Saha 1983(Feliciano 2006).

However, underneath this body of research was a nagging question: What is the meaning of these aspirations and expectations for actual attainment behavior? Are they predictive of subsequent action and behavior, or are they mere "flights of fancy"? (Alexander and Cook 1979). Studies in Canada (Porter, Porter, and Blishen 1982), Australia (Carpenter and Fleishman 1987) and the United States (Haller, Luther, Meier, and Ohlendorf 1974) showed that students who had higher levels of aspirations and expectations tended to have significantly higher levels of educational and occupational attainments. This was also found to be the case in Costa Rica (Hansen 1973) and Brazil (Hansen and Haller 1973).

Life Plans and School-Level Contextual Effects

Early studies of educational and occupational aspirations and expectations were restricted, both methodologically and theoretically, to the individual level of analysis and attempted to identify the correlates or determinants of these goal orientations at that level. If the social context were taken into account, such as type of school, the variable was simply nested in other variables and treated as an individual level characteristic (Saha 1982; Saha 1992)

Later the already expected school-level effects on various educational outcomes came more into the focus. One proposition was that schools differ in many ways, but particularly so in terms of the institutionalized aspects of school culture and practices. Meyer called this "the school charter", and he contended that certain "institutionalized rites" in schools bestowed "new roles and statuses" on the students and graduates (Meyer 1977). Most recently the world-wide expansion of tertiary education has co-existed with a new global model of education, in which professional employment with international employers and university completion are increasingly taken for granted (Schofer and Meyer 2005). These "new roles and statuses" also impact on the life plans of students, including educational and occupational expectations. Therefore what follows is that with the educational expansion one should expect the rise of educational and occupational expectations over time.

Our data do not allow for testing any hypotheses about trends in educational plans. But we do expect that when data in two points of time are available, students from younger cohorts will have higher occupational expectations. Thus we hypothesize that:

> Hypothesis 1: The level of occupational expectations will show an increase over time.

A body of research, using more recent data sets: TIMMS and PISA and multilevel statistical techniques, has now emerged which can support the analysis of second-level (or school-level) affects on a wide range of school outcome variables. For instance Chiu and Kho, investigating the PISA 2003 data, found that inequality at the country level affects educational achievement above and beyond a wide range of individual and school level characteristics (2005). Buchmann and Dalton (2002) and Buchman and Park (2005) focused on exploring the effects of differentiated education systems on the formation of the expectations in a number of Western developed countries. Mortimer and Krüger (2000) also investigated the effects of the stratification on education systems. They found that the differentiation of educational institutions i.e. their standardization, stratification and vocational specificity (Mueller and Shavit 1998) within societies serve to maintain

stratified career pathways. The differentiation of educational and occupational aspirations is consistent with the ability/social class differences of the stratified institutions. What is important about these studies is that these second-level effects exist independently of the differences in educational and occupational plans at the individual level.

Life Plans and Society-Level Contextual Effects

There remains, however, a third contextual level which can exercise an impact on the relationship between expectations and academic outcomes, namely characteristics of the society itself. Using the same logic as that applied to contextual effects for the school level, it is plausible that there be contextual effects at the society level not only with respect to educational attainment (Chiu and Khoo 2005) but also expectations. Treiman (1970) foreshadowed the attempt to link social structures with educational processes, and he put forward several propositions as illustrations: 1) the more industrialized the society, the higher proportion of children attending school, and 2) the more industrialized a society, the smaller the influence of parental status on educational attainment. Moreover country-level contextual effects i.e. economic development and unemployment levels have been found to explain some of the systematic differences in subjective social class location between individuals in wealthy and poor countries (Evans and Kelley 2004). Finally, a comparative analysis of perceptions regarding just rewards for work, found that "people growing up in poor nations are much more accepting of inequality than are people growing in prosperous nations"(Evans and Kelley 2006). This acceptance, if shared by younger generations, may raise educational and occupational expectations in poorer nations, as legitimate pathways of upward mobility.

This interest in structural level effects was advanced when Little (1978), working with 14 year-old students from the first IEA science study, observed that students from less developed countries, such as Chile, India, Iran and Thailand, had higher levels of educational and occupational expectations, in spite of the fact that in these countries the "accommodation rate" (the ability to accommodate these expectations) in these countries was the lowest. She explained these apparent discontinuities in terms of the "…*different*

rationality of students in developed and developing countries" (p. 19), such that giving a high value to education for expected upward mobility in developing countries may appear rational to students in rapidly changing societies, even if such prospects are unlikely.

Saha (1982) tested Little's hypothesis in six countries from the opposite ends of the development spectrum of the countries participating in the first IEA science study (FISS). Using multivariate analytic techniques (LISREL), he found that the inverse relationship between level of development and educational and occupational expectations persisted. Later a more extensive test with the full FISS data set, namely the 18 countries which participated in that study, led to similar conclusions: students from the lesser developed countries had higher levels of career expectations than students from the more developed countries(Saha 1992). This persistent pattern leads to our second hypothesis:

> Hypothesis 2: All other things being equal, the educational and occupational expectations of students will be higher in countries which are lower in socio-economic development, namely with lower GDP.

Although GDP and within-nation inequality are known to be inversely related, it is possible that inequality affects aspirations above and beyond the level of economic development. The research on subjective social class indicates that people's self-perceptions are largely dependent on "actual location in the social structure" (Evans and Kelley 2004: 28) despite being distorted by the homogeneity of their reference groups. If subjective perceptions of class are partly accurate, so may be perceptions of the economic inequality which, combined with the ideology of global and democratic education, may create a climate in which the urge to move to the top and the fear of not making it unduly boosts expectations among the youth in countries where economic resources are particularly unequally distributed. Hence we expect that:

> Hypothesis 3: All other things being equal, economic inequality alone will be related to higher educational and occupational expectations of students.

Theoretical Explanations

The counterintuitive nature of the persistent findings concerning educational and occupational aspirations and economic development posed a challenge and produced several theoretical explanations.

Different Rationality: This argument, based on Little's (1978) findings assumes that in the face of poor employment prospects, the aspiration for higher levels of education in order to be competitive for the few jobs available makes sense rationally. Rather than regard high levels of aspirations and occupations as "flights of fancy", this theoretical approach acknowledges the possibility of the rational calculation of increasing the odds for obtaining a job. Therefore in economies with higher unemployment levels persisting over time or experiencing economic upheavals (i.e. transition periods in Eastern Europe), university participation rates and the expectations to achieve should be high. Although unemployment is known to be positively related to education participation rates, this explanation is less potent with regard to explanations of factors beyond the formation of occupational expectations.

Relative Deprivation Theory and the Revolution of Rising Expectations: This argument, put forth by Runciman (1966) and Davis (1966), refers to feelings of discontent when people feel they have less than they deserve, based on comparisons they make between themselves and others. This explains why people sometimes raise their aspirations and expectations at a time when their conditions are improving in absolute terms. Thus, school students in disadvantaged conditions will sometimes unduly raise their aspirations and expectations because their changing perceptions of their "fair share", even though the structural possibilities of attaining their goals are remote. Some theorists, like Gurr (1970) and Chandra and Foster (2005), have argued that this is why revolutions and other social disorders occur at a time when conditions are actually improving. It is likely that rising educational and occupational expectations are a part of this phenomenon.

A closely related application of relative deprivation theory is the "frog pond" effect, put forward by Davis (1966). Put simply, the "frog pond effect" occurs when one takes into account the self comparative context within which an individual behaves. Thus, to

borrow Davis' example, a high ability student in an elite university will not aim as high for a career as will a similarly high ability student in a non-elite university. Likewise, a student in a developed nation with a well-established educational system may be less ambitious than a student with similar ability in a developing nation with a less well-established educational system.   This counterintuitive pattern has been frequently supported by research in which individuals are found to be inversely affected by their peers and higher level educational contexts (Espenshade, Hale, and Chung 2005; Dryler 1999).

The Coupling between Education and Occupation : Since the 1970s many researchers have argued that there exists a world-wide expansion of education and the values relating to it (Meyer, Ramirez, Rubinson, and Boli-Bennett 1977). It has also been argued that in poorer, less developed societies with greater inequality, higher paying jobs are more strongly tied to education. Suda (1979) contended that in this context the perceptions of life chances are raised unduly resulting in what some have called "the diploma disease" (Dore 1976). But, as Irizarry (1980) argued, under the contradictions of capitalist development, ambitions are raised but with limited possibilities for their fulfillment. Conversely, in already developed societies where education is well institutionalized, the link between education and occupation is looser, above and beyond the effect of nation-specific differentiation in education systems, with the result that youth are given a wider range of opportunities and thus the expectations relating to them are more "realistic".

Differentiated Educational Systems: Not all educational systems are organized and structured in the same way (Hopper 1971). Taking his departure from Turner's notion of "sponsored" and "contest" mobility (Turner 1971), Hopper arrived at a typology of educational systems consisting of four dimensions: 1) Centralization and Standardization of Selection, 2) Timing of the Selection Process, 3) Universalistic versus Particularistic Selection, and 4) Collectivistic versus Individualistic Selection. These dimensions of educational differentiation can be included in the analysis at the individual, school or country level, and to the extent that these differentiated systems affect educational and occupational aspirations, they are important in explaining eventual occupational

9

attainment. In their study of vocational education in thirteen countries Shavit and Müller (2000) demonstrate how these differentiated systems result in differentiated attainments. Buchman and Park (2005) show how differentiation at the school level can affect individual educational and occupational expectations.

These theoretical perspectives all have merit and some level of documentary support. Although we cannot directly test all of the claims presented in them, we will discuss them in greater depth once the findings from our analysis are presented. We now turn to the description of our study design and methodology.

The Study Design

The purpose of this paper is to advance the study of the differences between countries in the individual educational and occupational expectations of youth. Like previous research, this study is based on the assumption that educational and occupational expectations are indicators of the ambition and motivation of youth. The specific focus of this paper is whether characteristics of a country with respect to general level of development are positively or negatively related to career expectations over and above those at the individual level. The logic of the research on the world-wide expansion of education points to common global features of educational ideology and economic contexts which are likely to affect occupational and educational expectations. It is also possible that cultural and economic contexts affect students' expectations in addition to individual and school-specific determinants. Thus we expect a universal rise over time in most countries in students' expectations in line with the progressing educational expansion (H1). We also expect that higher GDP levels will be indicative of somewhat lower i.e. more realistic expectations although economic development is positively related to higher educational achievement (H2) (Chiu and Khoo 2005). Finally, we also expect that economic inequality can affect expectations independently, boosting them in less egalitarian countries (H3). To test the robustness of these country effects, we control for characteristics found by prior research to be important determinants of expectations at

individual and school levels. Our goal is to test whether country effects can be explained away by these differences.

Data, measurement and methods

We use the 2000 and 2003 rounds of the OECD's Program for International Student Assessment (PISA), conducted in over 40 nations (OECD 2002). In 2000, students in 43 nations were asked a question about their occupational expectations:
What kind of job do you expect to have when you are about 30 years old?
Write the job title:_____

Three years later PISA surveys included a question about expected educational attainment:

Which of the following do you <u>expect</u> to complete?
(Please <tick> as many as apply.)
a) <ISCED level 2> .... ☐₁
b) <ISCED level 3B or C> .... ☐₁
c) <ISCED level 3A> .... ☐₁
d) <ISCED level 4> .... ☐₁
e) <ISCED level 5B> .... ☐₁
f) <ISCED level 5A or 6> .... ☐₁

22 countries replicated the earlier question about occupational expectations in 2003. We analyze both data sets. Although PISA's participants are primarily OECD countries, the participation of some lower-middle income nations, using the World Bank terminology, makes the analysis of this data a worthwhile attempt of investigating the link between national economic contexts and students' expectations.

Measurement

PISA data come with all occupational information recoded to the ISEI index of occupational status (Ganzeboom and Treiman 1996) . Our dependent variables are

students' expected occupation and the expected educational attainment. For the purpose of this preliminary analysis we treat educational expectations as continuous variable with Isced categories recoded into years, with the highest category equal to 16 years. In a later version of this analysis, we aim to model educational expectations as university (ISCED level 5a) completion, using the *GLLAMM* procedure for mulit-level models for binary response variables available in *STATA9* (Rabe-Hesketh and Skrondal 2005). Preliminary analyses showed that both estimations lead to similar results but *GLLAMM* is computationally complex in very large samples and without further transformations of the data set, we could only utilize a 20 per cent random sample.

Our independent variables at the country level are logged GDP per capita at purchasing parity power indexed, expressed as the proportion of the USA value and the Gini coefficient (World Bank 2005). At the school level we control for averaged parents' occupation, indicative of schools with higher proportion of socially privileged students, the school admission policy of using academic ability as an admission criterion[1] (coded 0 for schools that do not have such a policy and 1 for those that do) and regular assessment of students against either national or district standards (coded as a dummy variable). At the individual level in the 2003 data we control for the participation in either vocationally or pre-vocationally-oriented programs, where such a distinction is available. Moreover we include gender, parents' occupational status and educational credential recoded into years using the template provided by the 2003 PISA manual (OECD 2002). We also control for the size of home library, treating it as a proxy for scholarly capital (Evans, Kelley, Sikora, and Treiman 2005; Kelley, Evans, and Sikora 2006). In line with other research based on PISA (Buchmann and Park 2005), we include the combined reading scale as an indicator of prior academic achievement, as the actual data on prior academic achievement are not available. The standardized reading scale, with the mean of 500 and the standard deviation of 100 points, involves WLE estimates of students' ability to retrieve information, interpret, reflect on and evaluate texts. The details of the scale construction are available online (OECD 2002: Chapter 9). This scale is highly correlated

---

[1] These variables are not strictly comparable between 2000 and 2003 despite our recoding them into dummies, due to differences in answer categories between the two surveys.

(about r= 0.7) with scales measuring science achievement and mathematics achievement (Woessmann and Fuchs 2004: 7). The 2003 data contain no WLE estimates but 5 plausible values which we simply averaged, as others did (Buchmann and Park 2005), to create a control variable.

Method

For modeling expectations, we employ random intercept three-level linear models, as of STATA9 (the *xtmixed* procedure), in which students are clustered in schools and schools, are clustered in countries.

Eq 1

$ExpectedOccupation_i = constant_{ijk} + Gini_k + lnGDP_k + AverageParents'Occupation\_in\_school_j + Standard\_assessment\_students_j + Admission\_based\_academic\_performance_j + Male_{ijk} + Parents'education_{ijk} + Parents'occupation_{ijk} + Reading\_score_{ijk} + Home\_library\_size_{ijk} + v_{0k} + u_{0jk} + e_{0ijk}$

All variables in the analysis of occupational expectations have been standardized to a common metric to facilitate comparisons of relative importance of particular effects at each level (Jöreskog and Sörbom 1988:1-4;1-6).

Eq 2

$Expects\_University\_Completion_i = constant_{ijk} + Gini_k + lnGDP_k + AverageParents'Occupation\_in\_school_j + Standard\_assessment\_students_j + Admission\_based\_academic\_performance_j + Male_{ijk} + Parents'education_{ijk} + Parents'occupation_{ijk} + Reading\_score_{ijk} + Home\_library\_size_{ijk} + Vocationally\_oriented\_program_{ijk} + v_{0k} + u_{0jk} + e_{0ijk}$

Xtmixed does not enable weighted analyses, and *xtreg* and *xtlogit* procedures in which sample sizes can be weighted to be equal between countries enable estimations of only two level models. Therefore, here we must rely on the analyses of unweighted data. However, we have performed a number of additional sensitivity analyses with 1) equal weights (N=1000 in each nation) and two-level models and 2) using PISA recommended standardized weights, which weigh samples to student populations in each country, on a

sub-sample of cases, due to computational problems with large samples. The results, all leading to the same substantive conclusions, are available upon request.

Missing data

As all data sets, PISA has some missing data. Hence, to reduce the loss of information, we imputed some data at the individual level. For instance in 2003, 3 per cent of cases with no information on parents' education and 6 per cent with no parents' occupational status were imputed with the EM algorithm, which despite some criticisms (Hippel 2004) produces results comparable to multiple imputation procedures, e.g. (Raghunathan, Solenberger, and Hoewyk 2004). At this stage of the analysis we chose not to impute school level variables.

Results

The descriptive statistics for the main dependent and independent variables are given in Table 1. Occupational and educational expectations vary significantly between countries. Some of the differences within the OECD nations can be attributed to the operation of highly differentiated education systems (Buchmann and Park 2005), but as most poorer nations represented in this data set have no differentiated systems, other processes must be at work. Firstly, in all nations in which students were asked about their expected occupation average expectation rose significantly between 2000 and 2003. This increase is moderate, a couple of points on the ISEI scale in most cases, but it has occurred in all nations (Table 1 rows indexed with [3]). This is consistent with the worldwide expansion of tertiary education documented by Schofer and Meyer (2005) who argue that both the centers and the peripheries of the world embrace a global education model in which the prospect of professional employment in global markets and the commonality of the university experience are increasingly taken for granted.

Table 1. Description. Percentages and means. 44 societies, PISA 2000 and 2003 [1]

Nation (sorted by GDP per capita)	Career Plans						Country characteristics			School characteristics		Family characteristics	
	Occupational expectations 2000 Mean	N	Occupational expectations 2003 Mean	N	Expects to complete university 2003 %	N	GDP at PPP (Indexed: 2000/2003 USA=1)	Gini Coefficient (0-100)	% Secondary school enrolment	Academic achievement admission criterion %	School assesses students against national or district %	Parents' occupation ISEI Mean	Parents' education in years Mean
Albania	56	4929	-	-	-	-	0.11	28	77	77%	69%	42	11.2
Argentina	58	3605	-	-	-	-	0.36	52	81	34%	33%	42	9.5
Australia [3]	55	4530	58	10333	63%	12467	0.75	35	88	-	43%	46	11.9
Austria [3]	50	4099	51	3275	24%	4545	0.85	30	89	77%	9%	44	11.0
Belgium [3]	48	6542	55	6544	35%	8392	0.81	25	97	69%	7%	43	12.0
Brazil	60	4893	-	-	60%	4320	0.22	59	75	29%	36%	38	7.4
Bulgaria	61	3383	-	-		-	0.18	32	88	93%	61%	46	12.6
Canada	59	26552	-	-	62%	26575	0.80	33	98	52%	44%	45	13.1
Chile	61	4294	-	-	-	-	0.27	57	81	67%	36%	41	11.4
Czech Republic [3]	48	4540	52	4724	37%	6076	0.45	25	91	76%	46%	44	12.9
Denmark	33	4190	-	-	25%	4179	0.84	25	96	13%	5%	43	12.9
Finland	49	4532	-	-	51%	5788	0.75	27	95	20%	56%	44	11.3
France [3]	51	3604	55	3413	35%	3976	0.76	33	94	64%	36%	44	11.2
Germany [3]	44	4567	52	3015	19%	4445	0.75	28	88	61%	12%	44	12.6
Greece [3]	57	4426	60	4073	64%	4600	0.51	35	86	19%	10%	45	11.2
Hong Kong	59	3400	58	3129	52%	4459	0.76	43	74	98%	21%	41	8.7
Hungary [3]	50	4432	54	3823	53%	4739	0.39	24	94	98%	58%	44	11.5
Iceland [3]	55	2782	58	2592	36%	3323	0.84	25	86	7%	78%	46	12.6
Indonesia [3]	55	6832	60	7821	42%	10630	0.09	34	54	84%	78%	41	7.9
Ireland [3]	55	3442	56	3191	53%	3839	0.89	36	83	22%	36%	43	10.8
Israel	45	3662	-	-	-	-	0.70	36	89	77%	44%	46	12.4
Italy [3]	56	4565	59	9420	52%	11530	0.74	36	91	-	21%	44	10.6
Republic of Korea [3]	58	4302	60	5090	78%	5433	0.48	32	88	76%	32%	40	10.9
Latvia [3]	48	3893	58	2242	25%	4608	0.23	32	88	88%	68%	43	13.0
Mexico [3]	61	4293	63	21865	49%	29715	0.27	55	63	80%	56%	40	8.1
Netherlands	52	2195	-	-	41%	3902	0.85	33	89	98%	68%	46	11.3
New Zealand	52	3398	-	-	39%	4425	0.58	36	93	43%	94%	45	13.1
Norway	53	3566	-	-	26%	3983	1.01	26	96		59%	48	13.5
Peru	55	4429	-	-	-	-	0.14	50	69	55%		39	10.4
Poland [3]	48	3654	58	3254	30%	4378	0.31	32	83	98%	38%	38	11.9
Portugal [3]	58	4282	61	3675	51%	4566	0.54	39	85	30%	18%	41	9.2
Romania	57	4372	-	-	-	-	0.18	30	81	99%	66%	44	11.4
Russia	54	5735	-	-	63%	5963	0.21	31	-	62%	79%	43	12.7
Slovakia[2]	-	-	55	5164	43%	7297	0.36	26	88			44	13.0
Spain	56	5475	-	-	48%	10761	0.63	33	96	15%	20%	42	9.4
Sweden	53	3744	-	-	33%	4594	0.76	25	100	2%	76%	45	12.5
Switzerland	47	4969	-	-	18%	8385	0.89	33	87	77%	13%	43	11.2
Tunisia	-	-	-	-	52%	4673	0.19	36	65	63%	73%	36	7.6
Turkey[2]	-	-	-	-	77%	4795	0.18	47	42	53%	58%	46	7.5
Thailand[2]	-	-	55	4284	58%	5232	0.20	43	-	84%	58%	35	8.4
Macedonia	55	4229	-	-	-	-	0.18	28	81	100%	69%	43	11.4
United Kingdom [3]	54	8102	57	2249	31%	9243	0.78	36	95	28%	93%	44	12.2
United States [3]	54	3695	62	4602	64%	5394	1.00	41	88	49%	95%	41	12.3
Uruguay	-	-	-	-	54%	5729	0.22	45	73	-	-	42	10.9
(N)		192134		117778		247491							

[1] Data are for 2000 unless otherwise noted, PISA estimates weigthed, samples size shown unweighted

[2] PISA 2003 used as this variable not available for this country in PISA 2000

[3] Average occupational expectations signficantly different between PISA 2000 and 2003

Yet, although the rise of occupational and educational expectations appears widespread and steady in our limited observation window of three years, the baseline continues to differ not only between the differentiated and undifferentiated education systems in richer nations but also between the richer and the poorer countries (Table 1).

Multivariate analyses

We begin our analysis, reported in Table 2, from fitting baseline models in which the variance in occupational and educational expectations is partitioned within particular clusters. Country level differences emerge as only a small component of variation in career plans. For instance in PISA 2000[2] only 5 per cent of variance can be attributed to differences between countries, another 6 per cent to differences between schools with 89 per cent attributable to individual differences between students. In PISA 2003 only 3 per cent of the differences in occupational expectations can be attributed to between-country differences, 8 per cent to variation between schools and 89 per cent to individual differences. As the number of countries in which occupational expectations were measured in 2003 is barely over 20, and they are more similar than the 2000 sample, we treat the results primarily as a test of pattern stability. Overall both the country and school contexts appear relatively unimportant, but they are consistent between data sets in this analysis and other comparative analysis. Other than economic development and inequality we also explored links between expectations and unemployment or the occupational composition of the parent population within the country the first of which does not add explanatory power while the second is highly correlated with the level of development.

Country and school differences have been shown to matter significantly more for educational achievement both in the analysis of the PISA data (Chiu and Kho 2005) and other student surveys. Our analysis suggests that career plans are to large determined by individual factors and family characteristics.

---

[2] In PISA 2000 we left out the schools with less than 21 students to reduce the number of clusters with uninformative data Rabe-Hesketh, Sophia and Anders Skrondal. 2005. *Multilevel and Longitudinal Modeling Using Stata* Stata Press. p. 22. This only matters for the information at the school level. Country level effects are unaffected regardless of these specifications.

Girls have higher expectations compared to boys. The children of more educated parents in higher status occupations are more ambitious. Academic performance is the strongest predictor at the individual level and the size of the home library, which we treat as an indicator of the family scholarly culture, further boosts career expectations. All these findings are as in prior research and thus are not surprising. Moreover, vocationally oriented programs in both differentiated (e.g. Germany) and undifferentiated (e.g. Australia) educational systems lead students to adjust downwards their occupational and educational expectations (Appendix 1 Table 2 and 3). In line with research emphasizing the importance of institutional contexts, students who study in vocationally oriented programs have lower expectations.[iv]

At the school level we have tested a number of school characteristics indicative of inequality. Selecting out students with lower achievement scores boosts career plans in the 2003 analysis but does not seem to make a difference in 2000, which may be due to the difference in the question wording. Attending a school in which parents' tend to have higher occupational status boosts occupational expectations in the 2000 analysis but not in 2003. External accountability of the school has a positive effect on students' occupational expectations only in 2000.

While individual differences strongly differentiate occupational expectations (Table 2, Panels A and B) and the institutional context matters in its own right, differences in levels of economic development and the amount of economic inequality explain a small but noteworthy proportion of the variation at the country level. The effects of GDP and Gini coefficients are significant in all our models and relatively robust in light of various sensitivity analyses we have performed. This, given the history of the same association in a number of previous studies, leads us to believe that the broader economic context in which educational systems, differentiated or undifferentiated, and family class differences operate, matters in individual expectations to some degree in its own right.

Table 2. Occupational and educational expectations. Coefficients from three-level linear models. Variables standardized to a common metric

	A. Occupational expectations PISA 2000				B. Occupational expectations PISA 2003				C. Educational expectations PISA 2003			
	Coeff	Standard Error	95% confidence intervals		Coeff	Standard Error	95% confidence intervals		Coeff	Standard Error	95% confidence intervals	
Fixed effects												
Country characteristics												
Gini	0.18	0.034	0.12	0.25	0.19	0.040	0.11	0.27	0.20	0.07	*0.07*	*0.33*
logged GDP per capita at PPP USA=1	-0.17	0.038	-0.23	-0.09	-0.12	0.035	-0.19	-0.06	-0.19	0.06	-0.31	-0.06
School characteristics												
Parents' occupation averaged by school	0.07	0.004	0.06	0.08	-0.01	0.005	-0.02	0.00	*0.00*	*0.00*	*0.00*	*0.01*
School assesses students against national or district standards	0.02	0.004	0.01	0.02	*-0.01*	*0.005*	*-0.02*	*0.00*	*0.01*	*0.00*	*0.00*	*0.01*
Academic achievement used as admission criterion	*0.00*	*0.00*	*-0.01*	*0.01*	0.05	0.01	0.04	0.06	0.04	0.00	0.04	0.05
Individual characteristics												
Male	-0.06	0.002	-0.06	-0.05	-0.03	0.003	-0.04	-0.03	-0.05	0.002	-0.05	-0.04
Parents' education	0.03	0.003	0.02	0.03	0.04	0.004	0.03	0.04	0.09	0.002	0.08	0.09
Parents occupational status	0.10	0.003	0.09	0.10	0.08	0.003	0.08	0.09	0.06	0.002	0.05	0.06
Reading score (proxy for academic ability)	0.25	0.003	0.25	0.26	0.29	0.004	0.28	0.30	0.36	0.002	0.36	0.37
Home library size	0.05	0.003	0.05	0.06	0.05	0.003	0.04	0.06	0.08	0.002	0.07	0.08
Studying in vocationally oriented program	-				-0.14	0.00	-0.15	-0.13	-0.09	0.00	-0.10	-0.08
(constant)	*-0.03*	*0.036*	*-0.09*	*0.04*	*-0.06*	*0.033*	*-0.12*	*0.01*	*-0.05*	*0.06*	*-0.16*	*0.06*
Random effects												
Variance & [explained variance] at country level	0.043	5%	[39%]		0.021	3%	[31]%		0.10	13%	[15]%	
Variance & [explained variance] at school level	0.047	6%	[60%]		0.066	8%	[64%]		0.07	9%	[66%]	
Variance & [explained variance] at student level	0.74	89%	[7%]		0.73	89%	[7%]		0.61	78%	[14%]	
[Per cent total explained variance]			[16%]				[18.0%]				[24%]	
Number of countries	36				21				35			
Number of schools	6135				5013				9142			
Number of students	156823				108382				240656			

[1] Coefficients in small print and italics not statistically different from zero at p=0.05, Coefficients in italics statistically different from zero at p=0.05

Coefficients in normal print statistically different from zero at p=0.01

Table 3. Occupational and educational aspirations: Coefficients from multilevel-level linear models. Top students (top 20% if 100% 15 yo enrolled) in each country. All predictors from Table 2 model included in estimations. Only country level effects shown.

	A. Occupational expectations PISA 2000				B. Occupational expectations PISA 2003				C. Educational expectations PISA 2003			
	Coefficient	Standard Error	95% confidence intervals		Coefficient	Standard Error	95% confidence intervals		Coefficient	Standard Error	95% confidence intervals	
Fixed effects: individual and school characteristics controled for as in Table 2 but not shown												
Gini	0.14	0.04	0.06	0.22	0.07	0.031	0.01	0.14	0.11	0.05	0.01	0.22
GDP per capita USA=1	-0.15	0.04	-0.24	-0.06	-0.13	0.022	-0.17	-0.08	-0.12	0.05	-0.21	-0.03
(constant)	0.09	0.04	0.01	0.18	0.03	0.029	-0.02	0.09	0.22	0.04	0.14	0.31
Random effects												
Variance at country level	0.062	7%			0.007	1%			0.052	16%		
Variance at student level	0.043	5%			0.041	6%			0.038	11%		
Variance at student level	0.733	87%			0.630	93%			0.247	73%		
Number of countries	36				20				33			
Number of schools	5313				3064				6494			
Number of students	37034				22213				47541			

[1] Coefficients in small print and italics not statistically different from zero at p=0.05

Coefficients in italics statistically different from zero at p=0.05, Coefficients in normal print statistically different from zero at p=0.01

Students in less prosperous economies, characterized by somewhat higher levels of economic inequality, expect to achieve higher occupational status and are more likely to aim for university education. For instance in 2000 students' expected average occupational attainment in a country like the Czech Republic or Belgium would be equal to about 48 on the ISEI scale, while a country where the Gini index is about 43 i.e. Hong Kong or Thailand, the expected occupational score will be approximately 58 and 65 in countries like Argentina. This is despite the fact that for many the economic reality is unlikely to create conditions conducive to actually fulfilling these expectations.

The effect of economic inequality measured by the Gini and the level of economic development are independent although the two variables are correlated at $r = -.47$. Thus both hypotheses 2 and 3 find support.

Selectivity hypothesis

It is possible, however, that the effect of country characteristics in these models is a product of PISA's selectivity within the population of 15 year olds. Table 1 lists secondary school enrolment rates in each country. Clearly, countries with greater inequality and lower GDP most likely would have a lower proportion of the age group in school, because of lower retention rates (Keeves and Saha 1992). Thus the students in these countries are simply a more elite group than in countries with less inequality and higher GDP. To examine such a possibility we tried including the proportion of eligible student population enrolled in secondary school as a control, which, although consistently negative, turned out to be insignificant. Therefore we repeated our analysis limiting the sample to elite students in both developing and developed countries (Table 3). Our underlying assumption was that because academic performance is closely related to expectations it can be used to identify elites in student populations. In a country in which 100 per cent 15 year olds are enrolled in high school, we included the top 20 per cent in our analysis. In a country where only 63 per cent students are enrolled we take 32 per cent (i.e. 20/63) top students. The analysis limited to "elite" students only is in Table 3. The effects of country's economic characteristics remain unchanged even when we

compare more elitist groups of students in wealthier countries with less elitist groups in poorer nations.

Discussion

The findings for the educational and occupational expectations at the individual and the school level for 2000 and 2003 are consistent with the mainstream literature. Students from home backgrounds where parents have more education and higher prestige jobs, and in which there are more books, have been found to have higher levels of both expected education and occupation. Similarly, students with higher reading scores have higher education and occupational expectations. In 2003, again as we would expect, students enrolled in vocational education curricula have lower levels of education and occupational expectations. These individual net effects are consistent with the stratification and mobility literature which document the transmission of the inequality of expectations through home background.

At the school level, we find that students in schools with a higher level aggregate parental occupation score also have students with higher level education and occupation expectations. In 2000, PISA schools that indicated that they assessed students against outside standards also had students who planned to achieve more in terms of occupational status. Finally, from the 2003 PISA data, schools where prior achievement was used as an entry criterion also had students who, at the aggregate level, had higher occupational and educational expectations. All of these second level effects are consistent with what we would expect given the relationship between characteristics of schools and of the expectations of the students within them.

At the third level of analysis, the country level, we find a different and counterintuitive pattern, and one that again is similar to that found in earlier research. Contrary to what may be expected, inequality at the country level is related to higher educational and occupational expectations, and more economic development is related to lower educational and occupational expectations. As in most three-level models, the third level

does not explain much of the total variance. For example, in the analysis of occupational expectations for the 2000 PISA data, 16 per cent of the variance is explained. Of this 89 per cent is explained at the student level, 6 percent at the school level, and 5 per cent at the country level.

This pattern at the country level of analysis seems to go against the relationships found at the individual and school levels, but it is consistent with the studies discussed earlier which focused on country-level differences (See Little 1978, and Saha 1982 and 1992.). The fact that these counterintuitive findings persist, even after the use of larger data sets and more powerful statistical techniques, make it even more necessary to provide a plausible and useful explanation.

One obvious possible explanation is that countries with greater inequality and lower GDP would have a lower proportion of the age group in school, because of lower retention rates (See Keeves and Saha 1992.). However we believe that we have controlled for this possibility by including the variable "Secondary School Enrolment" in preliminary analyses and then by repeating our analyses only on "elite" students after selecting out non-elites proportionately to secondary enrolment levels in each country. It appears that irrespective of what proportion of the 15-year-olds in each country were in the schools at the time of the PISA surveys, this pattern persists.

It might be possible to argue, as Little did, that the students in these lesser developed countries follow a different rationality in forming their life goals (Little 1978). However, we have direct indicator by which we could measure why, under these circumstances, students articulated the life expectations that they did.

If we consider the notion of relative deprivation, and along with it, the so-called "frog pond" effect, it might be argued that students in lesser developed countries aim higher because, from their perspective they are big frogs in little ponds.
Does this mean that similar theoretical concepts, such as relative deprivation, or the "revolution of rising expectations", also are not useful in explaining the higher level of

educational and occupational expectations among the lesser developed countries with more economic inequality? It might be possible to argue that with the world educational expansion since the early 20th century (Meyer 1977; Schofer and Meyer 2005), the extent to which education is valued creates undue educational expectations on the part of students in those countries which have lower levels of development indicators. In one respect, the notion of a "revolution of rising expectations" might explain the higher educational expectations of students in these countries. However, this explanation does not easily help us understand why these conditions should explain higher levels of occupational expectations.

Ultimately, the most plausible explanation would appear to be a combination of these theoretical explanations, namely the effects of rapid global educational expansion, a sense of relative deprivation which leads to a kind of "revolution of rising expectations". In this context, a tighter coupling also likely exists between education and occupation. As Dore (1976) argued over 30 years ago, during periods of rapid educational expansion, the expectation of jobs, which students perceive are the natural outcomes of a particular level of educational attainment, far outstrips the availability of jobs. The result in this context is that students will have narrow, inflexible and unreasonable (at least objectively speaking) occupational expectations for the educational levels that they expect that they will obtain. Given that our measure of educational expectation is entry to university, it is plausible that students, who expect to attend university in countries where there are high levels of inequality and low levels of GDP, will have unreasonable and perhaps fanciful expectations about the job a university degree will make it possible for them to attain. These expectations appear unreasonable only when compared to students in the countries with lower levels of inequality and higher levels of GDP, where the coupling between educational and occupational attainments is looser, and a greater range of occupational attainments is recognized for a given level of educational attainment.

Conclusion

Our study has shown that the relationships between educational and occupational expectations at the individual and school level are consistent with those of the body of cumulative research during the past several decades at these two levels. But at the country level the macro contextual factors related to educational and occupational expectations are counterintuitive. In developing countries with more inequality high occupational expectations are not likely to be fulfilled. Some writers regard this as problematic, and have suggested that some dysfunctional outcomes might occur. Unmet expectations and the growing levels of inflated occupational expectations in less developed countries, but where educational expansion is occurring, have been linked to various forms of discontent and frustration (Evans and Kelley 2004; Geo-Jaja 1990; Post 1990; Wober 1975). Therefore, there are some relevant and practical policy considerations to which our study might contribute. However, these are not issues that we set out to address in this paper, nor do the PISA data sets contain the variables which would make this possible.

Finally, we must give a word of caution about our findings. Although our results are consistent with those of previous research, and our data include more countries and our statistical techniques are more powerful, we still need further research to confirm and build on these results. Firstly we need to repeat our analyses using random coefficient models to allow for country-specific slopes rather than just random intercepts. Moreover, compared to the IEA data which formed the basis for earlier research, the PISA data provides both advantages and disadvantages. With respect to the first, the PISA data sets include more countries and also provide an opportunity for some restricted comparisons over time. This latter advantage will grow as the PISA project continues. However, unlike the IEA data sets, the PISA project is more restricted to OECD countries (with few exceptions), and thus the range in country level variables, particularly those related to socio-economic development, is more constrained. The possible effects of this constraint can be seen in the results for the analysis of occupational expectations in 2000 and 2003 (see Table 2). The decline in the amount of variance explained at the country level (from

5% to 3% in occupational expectations) is probably due to the drop in countries from 36 to 21, and the attenuation in the range of countries. On the other hand, it should be noted that the strength of the country-level effects on the dependent variables remains the same, and we argue that the amount of variance explained at the country level is sufficient to warrant attention.

Therefore, our study has advanced our awareness and understanding of the unusual, albeit moderate in size, country-level effects on the life plans of students. The data still do not exist to fully explain these effects, or to explore their consequences. Nevertheless, we believe we have contributed to the research on the various contextual and multilevel dimensions of the relationships between education and stratification in a cross-structural and cross-cultural perspective. In light of our analysis it may be worthwhile to reanalyze the older IEA data sets to investigate whether the effects of economic development on students' career plans weaken as tertiary education continues is worldwide expansion.

References

Alexander, Karl L. and M. A. Cook. 1979. "The Motivational Relevance of Educational Plans: Questioning the Conventional Wisdom." *Social Psychology Quarterly* 42:202-213.

Buchmann, Claudia and Ben Dalton. 2002. "Interpersonal Influences and Educational Aspirations in 12 Countries: The Importance of Institutional Context." *Sociology of Education* 75:99-122.

Buchmann, Claudia and Hyunjoon Park. 2005. "Stratification and the Formation of Expectations in Highly-Differentiated Educational Systems." in *ISA Research Committee 28 (Stratification)*. Los Angeles.

Caro, F. G. and C. T. Pihlblad. 1965. "Aspirations and Expectations: A Re-examination of the Bases for Social Class Differences in the Occupational Orientations of Male High School Students." *Sociology and Social Research* 49:465-475.

Carpenter, Peter G. and John A. Fleishman. 1987. "Linking Intentions and Behavior: Australian Students' College Plans and College Attendance." *American Educational Research Journal* 24:79-105.

Chandra, Siddharth and Angela Williams Foster. 2005. "The "Revolution of Rising Expectations", Relative Deprivation, and the Urban Social Disorders of the 1960s: Evidence from State-Level Data." *Social Science History* 29:299-332.

Chiu, Ming Ming and Lawrence Kho. 2005. "Effects of Resources, Inequality, and Privilege Bais on Achievement: Country, School, and Student Level Analyses " *American Educational Research Journal* 42:575-603.

Davis, James A. 1966. "The Campus as a Frog Pond: An Application of the Theory of Relative Deprivation to CAreer Decisions of College Men." *American Journal of Sociology* 72:17-31.

Desoran, Ramesh A. 1977/1978. "Educational Aspirations: Individual Freedom or Social Injustice?" *Interchange* 8:72-87.

Dore, Ronald. 1976. *The Diploma Disease: Education, Qualification and Development*. London: Routledge and Kegan Paul.

Dryler, Helen. 1999. "The Impact of School and Classroom Characteristics on Educational Choices by Boys and Girls: A Multilevel Analysis." *Acta Sociologica* 42:299-318.

Empey, Lamar. 1956. "Social Class and Occupational Aspiration: A Comparison of Absolute and Relative Measurement." *American Sociological Review* 21:703-709.

Espenshade, Thomas J., Lauren E. Hale, and Chang Y. Chung. 2005. "The Frog Pond Revisited:High School Academic Context, Class Rank, and Elite College Admission." *Sociology of Education* 78:269-294.

Evans, M D R and Jonathan Kelley. 2004. "Subjective Social Location: Data from 21 nations." *International Journal of Public Opinion Research* 16:5-38.

Evans, M. D. R., Jonathan Kelley, Joanna Sikora, and Donald J. Treiman. 2005. "Scholarly Culture and Educational Success in 27 Nations." Canberra: Australian National University.

Evans, M D R and Jonathan Kelley. (2006). "Economic Development and Inequality Attitudes: The Long Shadow of the Past " presented to *The annual meeting of the American Sociological Association*, vol. 16. Montreal Convention Center, Montreal, Quebec, Canada: American Sociological Association.

Feliciano, Cynthia.(2006). "Beyond the Family: The Influence of Premigration Group Status on the Eductaional Expectations of Immigrants' Children." *Sociology of Education* 79:281-303.

Ganzeboom, Harry B. G. and Donald J. Treiman. 1996. "Internationally Comparable Measures of Occupational Status for the 1988 International Standard Classification of Occupations." *Social Science Research* 25:201-239.

Geo-Jaja, M. A. 1990. "Information Assymetry, Education and Occupational Choice." *International Journal of Educational Development* 9:79-90.

Gurr, Ted Robert. 1970. *Why Men Rebel*. Princeton: Princeton University Press.

Haller, Archibald O., Otto B. Luther, Robert F. Meier, and George W. Ohlendorf. 1974. "Level of Occupational Aspiration: An Empirical Analysis." *American Sociological Review* 39:113-121.

Han, Wan Sang. 1969. "Two Conflicting Themes: Common Values Versus Class Differential Values." *American Sociological Review* 34:679-690.

Hansen, David O. 1973. "Age Variations in the Formation of Educational and Occupational Career Goals of Brazilian Youth." *Comparative Education Review*.

Hansen, David O. and Archibald O. Haller. 1973. "Status Attainment of Costa Rican Males: A Cross-Cultural Test of a Model." *Rural Sociology* 38.

Hippel, Paul T. von. 2004. "Biases in SPSS 12.0 Missing Value Analysis." *The American Statistician* 58:160-64.

Hopper, Earl. 1971. "A Typology for the Classification of Educational Systems." Pp. 91-110 in *Readings in the Theory of Educational Systems*, edited by E. Hopper. London: Hutchinson University Library.

Irizarry, R. 1980. "Overeducation and Unemployment in the Third World: The Paradoxes of Dependent Industrialization." *Comparative Education Review* 24:338-352.

Jöreskog, Karl G and Dag Sörbom. 1988. *Prelis. A Program for Multivariate Data Screening and Data Summarization*. Chicago: Scientific Software International.

Keeves, John P. and Lawrence J. Saha. 1992. "Home Background Factors and Educational Outcomes." Pp. 165-186 in *The IEA Study of Science III: Changes in Science Education and Achievement: 1970 to 1984*, edited by J. P. Keeves. Oxford: Pergamon Press.

Kelley, Jonathan, M.D.R Evans, and Joanna Sikora. 2006. "Scholarly culture and academic performance in 42 nations " in *RC 28 Spring Meeting*. Nijmegen: Radboud University Nijmegen.

Khattab, Nabil. 2003. "Explaining educational aspirations of minority students: the role of social capital and students' perceptions." *Social Psychology of Education* 6:283-281.

Little, Angela. 1978. "The Occupational and Educational Expectations of Students in Developed and Less-Developed Countries." Sussex University, Institute of Development Studies, Sussex.

McClelland, David C. 1961. *The Achieving Society*. New York: The Free Press.

Meyer, John W. 1977. "The Effects of Education as an Institution." *American Journal of Sociology* 83:55-77.

Meyer, John W., Francisco O. Ramirez, Richard Rubinson, and John Boli-Bennett. 1977. "The World Education Revolution." *Sociology of Education* 50:242-258.

Mortimer, Jeylan T. and Helga Krüger. 2000. "Pathways fro School to Work in Germany and the United States." Pp. 475-497 in *Handbook of the Sociology of Education*, edited by M. T. Hallinan. New York: Kluwer.

Mueller, Walter and Yossi Shavit. 1998. "The Institutional Embeddedness of the Stratification Process: A Comparatie Study of Qualifications and Occupations in Thirteen Countries." in *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations*, edited by Y. Shavit and W. Mueller. Oxford: Oxford University Press.

Musgrave, Peter M. 1967. "Towards a sociological theory of occupational choice." *Sociological Review* 15:33-46.

OECD. 2002. *PISA 2000 Technical Report*. Paris: Organization for Economic Co-operation and Development.

Porter, John, Marion Porter, and Bernard R. Blishen. 1982. *Stations and Callings: Making it Through the School System*. Toronto: Methuen.

Portes, A., S. A. McLeod, and R. N. Parker. 1978. "Immigrant Aspirations." *Sociology of Education* 51:241-260.

Post, D. 1990. "The Social Demand for Education in Peru: Students' Choices and State Autonomy." *Sociology of Education* 63:258-271.

Rabe-Hesketh, Sophia and Anders Skrondal. 2005. *Multilevel and Longitudinal Modeling Using Stata* Stata Press.

Raghunathan, T. E., Peter W. Solenberger, and John Van Hoewyk. 2004. *IVEware: Imputation and Variance Estimation Software*. University of Michigan: Survey Methodology Program, Survey Research Center, Institute for Social Research.

Runciman, Walter Garrison. 1966. *Relative Deprivation and Social Justice: A Study of Attitudes to Social Inequality in Twentieth-Century England*. Berkeley: University of California Press.

Saha, Lawrence J. 1982. "National Development and the Revolution of Rising Expectations: Determinants of Career Orientations Among School Students in Comparative Perspective." Pp. 241-264. in *The Sociology of Educational Expansion: Take-Off, Growth and Inflation in Educational Systems*, *Sage Studies in International Sociology*, edited by M. A. Archer. London: Sage Publishers.

—. 1983. "Gender, School Attainment and Occupational Plans: Determinants of Aspirations and Expectations Among Australian Urban School Leavers." *Australian Journal of Education* 26:247-265.

—. 1992. "The Effects of Socio-Economic Development on Student Academic Performance and Life Plans: A Cross- National Analysis." *International Journal of Educational Development* 12:191-204.

—. 1997. "Aspirations and Expectations of Students." Pp. 512-517 in *International Encyclopedia of the Sociology of Education*, edited by L. J. Saha. Oxford: Pergamon Press.

Schofer, Evan and John W. Meyer. 2005. "The Worldwide Expansion of Higher Education in the Twentieth Century." *American Sociological Review* 70:898-920.

Shavit, Yossi and Walter Müller. 2000. "Vocational Secondary Education, Tracking, and Social Stratification." Pp. 437-474 in *Handbook of the Sociology of Education*, edited by M. T. Hallinan. New York: Kluwer.

Suda, Z. 1979. "Universal Growth of Education Aspirations and the Over-Qualification Problem: Conclusions from a Comparative Data Analysis." *European Journal of Education* 14:113-164.

Treiman, Donald J. 1970. "Industrialization and Social Stratification." in *Social Stratification: Research and Theory for the 1970s*, edited by E. O. Laumann. Indianapolis: Bobbs-Merrill.

Turner, Ralph. 1964. *The Social Context of Ambition*. San Francisco: Chandler Publishing Company.

Turner, Ralph H. 1971. "Sponsored and Contest Mobility and the School System." Pp. 71-90 in *Readings in the Theory of Educational Systems*, edited by E. Hopper. London: Hutchinson University Library.

Wober, M. 1975. *Psychology in Africa*. London: International African Institute.

World Bank. 2005. "World Development Indicators." vol. http://devdata.worldbank.org/dataonline/.

Appendix Table 1: Occupational expectations in each nation separately: two-level random intercepts models .

Nation	Average parents' occupation in school	Students' performance judged against national standards	Academic achievement used as admission criterion	Occupational expectations PISA 2000							
				Male	Parents' education	Parents's occupation	Reading score	Number of books (ln)	(Constant)	Variance at school level	N
Albania	.03	.02	.01	-.16	.03	.09	.35	.08	.55	.11	4389
Argentina	.05	-.03	.11	-.12	.03	.08	.25	.05	.37	.09	2766
Australia	.03	-.05	-	.00	.06	.10	.29	.05	-.14	.02	4064
Austria	.15	.04	-.14	-.02	.02	.09	.13	.01	-.35	.12	3510
Belgium	.12	-.05	.03	.00	-.03	.07	.25	.04	-.36	.12	6351
Brazil	.01	.03	-.03	-.11	.02	.18	.23	.00	.62	.00	1385
Bulgaria	.09	.03	.13	-.14	.04	.16	.16	.05	.38	.16	3259
Canada	.05	.01	-.02	-.11	.04	.11	.26	.05	.05	.02	23103
Chile	.04	.02	-.01	-.03	.08	.04	.25	.04	.53	.06	4119
Czech Republic	.19	.05	.06	-.04	.07	.09	.25	.07	-.37	.11	3962
Denmark	.00	.04	-.04	.01	.06	.04	.08	-.02	-.99	.00	3786
Finland	.02	.01	-.01	.03	.07	.10	.32	.05	-.43	.01	4331
France	.18	.00	.01	-.05	-.01	.10	.27	.07	-.21	.07	3051
Germany	.14	-.05	-.02	.01	.01	.05	.23	.02	-.51	.02	3604
Greece	.08	.06	.03	-.04	.04	.10	.22	.04	.19	.06	3194
Hong Kong	.01	.01	.00	.00	.03	.04	.18	.06	.25	.01	3042
Hungary	.10	.06	-.12	-.06	.03	.11	.23	.02	-.33	.11	4344
Iceland	.04	-.05	.02	.05	.07	.10	.31	-.01	-.08	.01	2247
Indonesia	.09	.02	-.02	-.09	.04	.09	.19	.05	.31	.11	6047
Ireland	.02	-.01	-.01	-.06	.05	.09	.34	.07	-.10	.01	3269
Israel	.11	.04	.03	-.05	-.02	.18	.17	-.04	-.29	.06	2788
Italy	.21	.02	-	-.11	.00	.07	.11	.05	.05	.11	4403
Korea	.06	.07	.06	.10	.04	.07	.24	.06	.14	.04	3997
Latvia	.07	.01	-.01	-.07	-.01	.09	.25	.08	-.27	.02	3184
Mexico	.02	.03	.02	-.01	.01	.13	.16	.04	.52	.05	4057
Netherlands	.07	.03	-.06	.10	.01	.09	.34	.02	-.33	.03	2016
New Zealand	.02	.11	.00	-.07	.04	.10	.25	.03	-.36	.02	3182
Norway	.02	.00		.01	.08	.15	.30	.03	-.25	.02	3326
Peru	.05			.00	.04	.09	.31	.04	.53	.03	4198
Poland	.13	.06	-.10	-.04	.00	.08	.24	.06	-.38	.11	3627
Portugal	.12	.00	-.09	-.08	.04	.14	.04	.10	.15	.02	4086
Romania	.12	.00	-.09	-.08	.04	.14	.04	.10	.15	.12	4138
Russia	.11	-.02	.09	-.16	.04	.09	.26	.09	.01	.09	5079
Spain	.03	.00	-.04	-.07	.08	.08	.34	.08	.14	.03	5195
Sweden	.02	-.02	-.18	-.03	.05	.12	.26	.06	.04	.02	3552
Switzerland	.13	.04	-.02	.00	.04	.13	.24	.03	-.35	.05	3898
Thailand	.07	-.01	.00	-.03	.06	.05	.23	.07	-.04	.05	4524
Macedonia	.14	.02	.21	-.07	.04	.10	.34	.08	.60	.12	4031
United Kingdom	.03	.04	-.06	-.01	-.02	.10	.32	.09	-.14	.02	7131
United States	.02	-.02	.05	-.14	.07	.07	.25	.06	.02	.06	2579
Uruguay											

[1] Coefficients in italics are statistically signficant at p =0.05

small print in italics denotes coefficients not different from zero at p = 0.05

Appendix Table 1: Occupational expectations in each nation separately: two-level random intercepts models .

Nation	Average parents' occupation in school	Students' performance judged against national standards	Academic achievement used as admission criterion	Male	Parents' education	Parents's occupation	Reading score	Number of books (ln)	Vocationally oriented program	(Constant)	Variance at school level	N
				Occupational expectations PISA 2003								
Australia	-.01	-.02	.05	-.02	.08	.06	.38	.02	-.18	-.36	.03	10254
Austria	.04	-.10	.16	.02	.04	.07	.22	.01	-.23	-.31	.17	3161
Belgium	.07	-.05	-.01	.01	.04	.10	.29	.01	-.26	-.18	.08	6418
Czech Republic	.04	-.03	.12	-.02	.07	.10	.39	.03	-.17	-.44	.10	4558
Germany	.09	-.06	.09	.02	-.02	.15	.28	.05	-.33	-.66	.13	3104
Greece	.07	-.01	-.02	-.04	.08	.10	.18	.06	-.18	.00	.06	3877
Hong Kong	.03	-.01	.01	.03	.06	.11	.25	.05	-.05	-.07	.01	3104
Hungary	.01	.03	.32	-.04	.01	.05	.23	.05	-.19	-.53	.22	3680
Iceland	.05	-.05	-.03	-.05	.23	.19	.24	.00		-.26	.01	2313
Indonesia	.03	-.01	.05	-.16	.03	.09	.16	.06	-.14	.28	.08	7384
Ireland	.00	.00	-.04	-.02	.05	.09	.48	.09	-.04	-.37	.01	2929
Italy	.02	.02	.05	-.06	.02	.10	.17	.03	-.23	.18	.17	9175
Korea	.02	.01	.01	.09	.07	.03	.29	.04	-.10	-.13	.01	4784
Latvia	-.02	-.04	.07	-.03	.09	.11	.40	.02		-.16	.01	2204
Mexico	.01	.00	.01	.01	.03	.04	.11	.03	-.05	.46	.03	19744
Poland	-.03	-.01	-.01	-.10	.05	.11	.43	.12		-.11	.01	3254
Portugal	.01	-.01	.04	-.05	.06	.03	.34	.05	-.08	.18	.02	3642
Slovakia	.06	.04	.15	-.11	.07	.14	.37	.05	-.18	-.22	.13	4933
Thailand	.03	.01	.00	-.03	.04	.07	.31	.09	-.02	.07	.05	4256
United Kingdom	.02	-.03	-.03	.01	.01	.12	.47	.10		-.29	.02	2225
United States	.03	-.07	.00	-.07	.06	.06	.23	.01		.17	.02	3784

[1] Coefficients in italics are statistically signficant at p =0.05

small print in italics denotes coefficients not different from zero at p = 0.05

[i] Ambition manifests itself, in part, in the expectations that young people have with respect to education and occupational attainments later in life. The research literature contains many debates about the size of the relevance of expectations for predicting ultimate behaviour (See Saha, 1997), but no one argues that expectations are completely unimportant in long-term career attainments. Although the correlations between educational and occupational expectations and ultimate occupational attainments vary,

we also know that as young people approach entry into the workforce, the correlations increase.

[ii] One of the early theories about the difference between developed and less-developed countries was that the former countries were comprised of individuals with higher levels of ambition-based modal personalities than the latter. He called this characteristic the achievement motive, or the need for achievement. (n=Ach) (McLelland, 1961). This social-psychological explanation has found its way into a number of theories of development (particularly modernization theory), and during the past 30 years, there has been an assumption that students in less-developed countries lacked ambition, and that this was, in part, an explanation for the country's underdeveloped condition.

[iii] The relationship between expectations and attainments becomes more interesting when there is a mismatch between the two. This mismatch is particularly of interest in a comparative perspective. One would expect, for example, that expectations are related with perceived opportunity. Thus, the greater the perception of opportunity in the job world, the greater should be the level of expectations that will lead to that job. This would include both educational and occupational expectations. But in fact, there is evidence that this is not the case.

[iv] We used a PISA-provided variable indicating whether students study in vocationally oriented programs. This variable is only an imperfect indicator of particular education system's stratification, for instance it in Germany it does not differentiate between students in different types of school. However, it identifies some students in vocationally oriented programs, who even in undifferentiated education systems, expect to attain lower occupational status than students in academically oriented streams.