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The Measurement of Socioeconomic Status and Social Class in the LSAY Project Technical Paper No. 14

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LSAY longitudinal surveys of Australian youth

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There is little doubt that soocioeconomic background is an important concept among social researchers and policy developers. First and foremost, the relationships between socioeconomic status with educational and labour market outcomes is an important indicator of the degree of social equity and the success of policies aimed at reducing social inequality. Although there is almost universal agreement on the importance of socioeconomic status there is little agreement on its conceptualisation and measurement.

There are a variety of issues relating to socioeconomic status which have produced considerable debate. These include the explicit or implicit theoretical approach, whether continuous or categorical measures are used, the assignment of occupations and occupational groups to measures of socioeconomic status, and the relative importance of father's and mother's occupation in the construction of socioeconomic status measures. In this brief discussion paper we address these issues and provide rationales for the decisions taken for analyses of data in the LSAY project.

Theoretical Approaches

There are several theoretical approaches to the conceptualisation of socioeconomic status and social class. A common starting point is the distinction between Weberian and Marxist approaches. Weber emphasised the labour market, by focusing on the market value of skills and other attributes that individuals brought to the labour market. Three attributes are important to Weberian approaches: the ownership of wealth producing materials and enterprises; skills (including credentials and qualifications); and social prestige. Measures developed from Weberian approaches can be either categorical or continuous. In contrast, Marxist approaches emphasise the ownership and non-ownership of the means of production in defining employers and workers. Marxist and neo-Marxist measures of social class are always categorical, distinguishing at least three class groups: large employers; the self-employed; and workers.

Other Marxist approaches are less structural, emphasising cultural factors. The most prominent of these approaches is Pierre Bourdieu's work on cultural capital (Bourdieu, 1973; 1984). His thesis argues that social reproduction is maintained by the education system, favouring students from high status backgrounds via subtle processes whereby such students are adept in the dominant culture and their success is enhanced since students are judged and assessed by criteria set by the dominant culture.

Another prominent cultural (but non-Marxist) approach is Coleman's concept of social capital understood as the networks individuals can employ to maintain or improve their social location. The concept of social capital is defined as the "norms, the social networks, and relationships that are of value for the child's growing up" (Coleman, 1987). This concept has been used to explain the high levels of student achievement of some ethnic groups in the United States. Another example is the ability of well-integrated communities (such as those surrounding Catholic schools) to reduce the frequency of undesirable outcomes for their school students.

During the 1950s and 1960s American and Australian studies of social stratification emphasised occupational prestige. These studies asked respondents to rank occupations in terms of prestige and studied the social interaction and social consequences of this ranking. Prestige was generally correlated with income and wealth although there were numerous exceptions such as the clergy (high prestige, low income), entrepreneurs (low prestige, high income) and scientists' (highly education but relatively low income).

Contemporary measures of socioeconomic status are based on these prestige measures. The limitation of early studies on social prestige is that they applied to only a limited number of occupations, those common occupations whose status was well understood. Regressing income and education on the prestige measures isolated the effects of income and education on prestige. These effects were then used to calculate prestige (or occupational status) scores for all occupations by deriving mean levels of income and education for each occupation from census data (Duncan, 1961).

The LSAY project is not committed to a particular theoretical perspective. The socioeconomic status measures often employed in analyses of LSAY data are ultimately Weberian as are the categorical occupational class measures. The LSAY project does not routinely collect measures of cultural and social capital. (However, the 1996 survey of the Y95 cohort included measures that have been used to indicate cultural capital). There are several reasons for not routinely collecting data on cultural and social capital. These concepts cannot be readily operationalized, no standard measures of the concept exist and there is little agreement in the literature on the definition and measurement of these concepts.

Measures

Socioeconomic indices are derived from the codes assigned to occupations. Before the mid-1980s occupations in the census were generally assigned occupation codes from the ABS Classification and Classified List of Occupations. (CCLO). Since the mid 1980s, occupations in ABS surveys have been classified according to the Australian Standard Classification of Occupations (ASCO) schema (Castles, 1986). Most government and academic research have followed the ABS in using these occupational schemas. The

ANU2 measure of socioeconomic status uses the CCLO classification and ANU3 uses the ASCO classification. Using a similar method to that used by American researchers, mean educational and income levels were derived for each occupational code from census data in order to calculate the ANU socioeconomic status measures. The scores were then scaled appropriately (Broom, 1977; Jones, 1989). The ANU2 and ANU3 indices of socioeconomic status are highly correlated.

The most influential Weberian categorical measure of social class is Goldthorpe's class schema commonly used in cross-national research on social stratification, occupational mobility and educational attainment (Erikson & Goldthorpe, 1992; Goldthorpe, 1980; Goldthorpe, 1983). This schema includes class groupings of, managers and professionals (the service class), routine white collar workers, self-employed and small business people, and three divisions of manual workers based on levels of skill and supervision (Erikson, Goldthorpe, & Portocarero, 1982).

In Australia, a Weberian class schema was developed by Najman and Brampton (1991) for health research. This four category schema comprises upper managers and professionals in group A, lower managers and professionals and supervisors in category B, skilled manual workers and lower non-manual workers in category C and unskilled workers, tellers and sales assistants in category D. A categorical measure of occupation, ANU1 was developed from the ANU2 scale. It comprises the following occupational groups: professional, managerial, other white collar, skilled, semi-skilled and unskilled manual workers. Although the ANU1 schema is based on the CCLO coding framework it can be derived from the ASCO framework. An advantage with the ANU1 measure is that it can be aggregated to produce a smaller number of class categories.

The *Youth in Transition* study (a component of the LSAY project) used the census occupational schema existing at the time of coding and to construct appropriate ANU2 and ANU3 indices. The coding of parents' occupations in the first two *Youth in Transition* cohorts was limited to a 16-point scale with the mean ANU2 scores assigned to each of the 16 categories.

As mentioned above, Marxist approaches distinguish a working class, the self-employed and employers. Within this approach there are a variety of issues; such as the definition of the working class, and the status of professional, managers, lower white collar workers and supervisors. Therefore, the class schemas proposed in the course of these debates vary widely in the size of the working class; ranging from a small working class comprising only manual workers employed in productive enterprises to very large working classes comprising all employees including most managers and professionals.

Although there are strong theoretical differences between Marxist and Weberian approaches at the level of measurement there is little difference in categorical measures of social class. Both Marxist and Weberian approaches differentiate the self-employed and small employers from employees. Because there are so few large employers (or in Marxist terms owners of the means of production) they are usually combined with upper managers and professionals for the purpose of empirical analysis. Both Marxist and Weberian approaches may or may not group routine non-manual workers or lower collar workers with manual workers. Some Marxist approaches employ skill and qualifications to differentiate workers from other employees (see Wright, 1985).

The LSAY project is not committed to either continuous or categorical measures. For some analyses, for example cross-tabulations, categorical measures are more appropriate; for other analyses, such as multivariate regression analyses, continuous measures are more appropriate. The three ANU measures have been extensively employed in the analysis of LSAY data. The occupational class measure, ANU1, was used extensively in reports using the *Youth in Transition* data (Williams, Long, Carpenter, & Hayden, 1993a; Williams, Long, Carpenter, & Hayden, 1993b). More recent reports have used ANU2 and ANU3 depending on whether the occupations were coded according to the CCLO or ASCO schemas.

In the absence of individual level data on social background, area-based measures of socioeconomic status are often constructed based on social and economic aspects of the area in which the person resides. These measures are necessarily continuous. In Australia, these measures can be based on postcodes, Statistical Local Areas, Local Government Areas and Census Collection Districts. Since Collection Districts are the smallest (consisting of around 250 dwellings) these are the preferred basis for the construction of socioeconomic area measures. There are a variety of socioeconomic area-based measures for the Australian context, some focus on ‘disadvantage’ others ‘advantage’ and another is closer in concept to socioeconomic status by focusing on education and occupation. The disadvantage and advantage indices sometimes include other aspects of the area that are not strictly to do with socioeconomic status such as rurality, and the proportions of immigrants and indigenous people. One problem with area based measures is that the socioeconomic status of an individual in an area is not the same as the area in which he or she lives. Furthermore, the interpretation of the effects of area based measures is difficult given the complexity of their construction. However, area based measures may be useful for the investigation of contextual effects of the socioeconomic environment. Further details on the area based measures of socioeconomic status can be found in an ABS information paper (ABS, 1994).

Single versus Multiple Indicators

Socioeconomic status can be derived from a single measure or calculated from several variables relating to occupational status. Most often single measure based measures are derived from responses to questions on one individual's occupation. In contrast, multiple measures can be derived from a range of variables such father's and mother's occupation and educational attainment, income, possessions (such as video recorders, television, cars, size of home etc.), the number of books in the home, and home ownership. Multiple measures tend to have stronger correlations with school achievement than single measures. This implies that they capture aspects of socioeconomic background not captured by a single measure. Graetz (1995) provides a more detailed discussion on this issue.

There are several reasons LSAY uses the single variable approach. First, almost all surveys in the LSAY data ask for occupation and these are coded by standard ABS classifications. In contrast, these data do not always include other measures of socioeconomic status which are a component of a composite measure. For example, data on family wealth is only infrequently collected in Australian longitudinal surveys. Furthermore, a concept may be measured but not in a consistent manner. This is true of the wealth measures and to a lesser extent parents' educational attainment. This absence of identical measures causes problems for any comparisons between data sets since the comparisons are not comparing like with like. Second, combining aspects of socioeconomic status undermines the ability to differentiate the role of different aspects of socioeconomic status. This point was also made by Graetz (1995). For example, parental education may have a more powerful effect on early school leaving than parental occupation. Parents who are more educated may value education more highly and so encourage continuation with school. On the other hand, parents with high incomes but not highly educated may not be as interested in their children's education. Furthermore, the relative weights (either explicit or implicit) of occupational prestige, education, wealth and other aspects in a combined measure introduce an additional element of uncertainty for comparative analyses. Finally, the different aspects of socioeconomic status derive from distinct theoretical approaches. Cultural capital theory may imply parental education is most important, whereas Connell's (1977) emphasis on poverty implies that income and wealth are the important aspects of socioeconomic background in regard to educational success. A resources approach emphasises the resources at home and at school that enable students to perform better at school. parents.

Units of Analysis

A major conceptual dispute concerning socioeconomic status involves gender. Traditionally, class or socioeconomic status has been measured by father's occupation. This assumes that the class position of the family is determined by the occupation of the adult male and the woman's occupation

is irrelevant. Since the mid-1970s the traditional view came under attack from feminists and others who argued, justifiably, that women's occupations are relevant to both their own social and economic position and that of their families (Britten & Heath, 1983). In the context of the immediate post-war years the traditional procedure was more understandable, men were viewed as 'the provider', 'the head of the household' or 'main breadwinner', and the proportion of married women in the workforce was considerably lower than it is today. However, in the context of the 1990s, the high proportions of married women working, 'career women' and increasing numbers of househusbands, the traditional procedure is less attractive.

Three distinct approaches to the basis of a family's socioeconomic status have appeared. The first is to use father's occupation, the traditional procedure (Goldthorpe, 1983; 1984). The rationale for this procedure is that it is the male adult who in the vast majority of households has the strongest attachment to the labour force. A second approach is to use the status occupation of whichever adult has the higher status occupation (Erikson, 1984). This approach assumed that the adult with the highest status determines the family's occupational status. The problem with this approach is that it under-estimates the proportion of students from manual backgrounds since male manual employees are often married to women in white-collar occupations, which generally are of a higher status. A third approach is to use both mother's and father's occupation. This approach is difficult to present simply in cross-tabulations and complicates multivariate analysis.

In the many analyses of the LSAY data the following procedure was adopted. Father's occupation was used if the data on this variable was not missing. If that data were missing then mother's occupation was used. This procedure is justified on the following grounds. First, father's occupation is generally more stable than mother's occupation in that, men tend to spend a larger proportion of their adult life in the labour force. In addition their attachment to the labour market is predominantly full-time and there is evidence of stronger psychological attachments. Second, increases in the proportion of women in the workforce causes compositional changes in mother's occupation thereby adding complexity to over-time comparisons. The third justification is empirical. Mother's occupation tends to have weaker effects on educational and labour market outcomes than father's occupation. And on a more practical issue, there is substantially less missing data on father's than on mothers' occupation.

The Relationship between SES and Achievement

Empirical studies show that there is a relationship between socioeconomic background measured by father's occupation and performance in achievement tests. The higher the socioeconomic status or the more privileged the class grouping the higher the level of achievement. However, the relationships cannot be described as strong. An early review by Connell

(1977:164-165) presents moderate associations with his own 1975 study exhibiting a correlation of 0.32. More recent studies find similar or lower correlations. Focusing on 14 year olds in 1989, Ainley and Long (1995:67) found correlations of 0.23 and 0.21 for father's occupation with achievement in maths and reading. According to the *Third International Study of Mathematics and Science* (Lokan, Ford, & Greenwood, 1996:38) the correlations of father's occupation with Word Knowledge and Mathematics among 13 and 14 year-olds was 0.19 and 0.29 respectively. Among Victorian year 9 students in 1988 the correlations with father's occupation were 0.25 and 0.22 for mathematics and reading, respectively (McGaw, Long, Morgan, & Rosier, 1988:93).

The strength of the relationship in Australia is comparable with overseas countries. In the United States, Alexander and Eckland (1975) estimated a correlation of 0.31 between father's occupation and achievement. A meta-analysis, conducted by White (1980; 1982), of data from a range of countries collected at different times found the average correlation coefficient between socioeconomic background and student achievement for individual level analyses was about 0.22. This means that only a little more than four per cent of the variance in achievement test scores could be explained by socioeconomic status.

Empirical Example

In this section I present the results obtained from analyses of a variety of different measures of socioeconomic status. I present the correlations of socioeconomic status measures with school achievement and leaving school before the beginning of year 11. A total of ten measures of socioeconomic status were investigated. These are three ANU3 measure of occupational status based on father's, mother's and parental occupation, respectively. The measure of parental occupation is based on father's occupation when available and mother's occupation, when information on father's occupation is absent. This measure is the measure of socioeconomic status commonly used in LSAY reports. The next three measures are based on years of formal education, father's, mother's and a combined measure constructed in the same manner as the combined ANU3 measure. The next measure is a wealth index based on the following possessions in the home: Washing Machine, Dishwasher, Colour Television, Microwave oven, Mobile Phone, CD player, Video Camera, Computer, Piano and Swimming Pool. The next measure is a composite index of socioeconomic status constructed by summing the standardised measures of parental ANU3 score, education and wealth. The last two measures are area-based measures. The area-based measures are the SEIFA (Socioeconomic Indicators For Areas) indices, Disadvantage and Education and Occupation. (SIEFA indices are widely used by the government departments for analyses of socioeconomic disadvantage). They are derived from the addresses of the respondents when they were in year 9. The

addresses are mapped on to the appropriate Census Collection districts and then the SEIFA index score for each respondent was assigned accordingly.

Table 1 shows the correlations of each socioeconomic measure with achievement as measured by scores in the literacy and numeracy tests and leaving school before the beginning of year 11. Also included are the number of respondents to which each measure could be assigned. Focusing on school achievement first, we find that there is not a wide variation in the strength of the correlations. Most of the correlations are between 0.20 and 0.25. The weakest correlation is with the wealth index and the strongest correlation is with the composite measure of (socioeconomic status, education and occupation). Similarly the correlations with leaving school have a limited range between -0.08 and -0.12. Here the strongest correlations are for father's education and the composite index and the weakest correlations are for the wealth and the SIFA disadvantaged index. The main message from Table 1 is that particular measures of socioeconomic status do not substantially alter the strength of the relationship. The composite measure is strongest for achievement but not for leaving school. Education has a stronger effect compared to occupation for leaving school but not for school achievement.

Table 2 presents the inter-correlations for the socioeconomic status measures. Generally the inter-correlations (except among the composite measure and its components and among the two SEIFA measures) are surprisingly low. This means that the measures are capturing aspects of socioeconomic background, not captured by the other measures. This finding supports the view that such measures should be analysed as unique variables rather than combining them to form composite measures. The comparable correlations of parents' occupation and the SEIFA index, Education and Occupation, with Achievement together with their low inter-correlation, suggests that there are contextual effects of area of residence on achievement not captured by individual-level measures.

Table 1 Correlation of the SES Measures with School Achievement and Leaving School before Year 11

SES Measure	Valid Cases	Achievement	Leaving School
Father's Occupation (ANU3)	11,291	0.26	-0.09
Mother's Occupation (ANU3)	8,454	0.23	-0.09
Parents' Occupation (ANU3)	11,931	0.23	-0.08
Fathers Education (Years)	9,162	0.24	-0.12
Mother's Education (Years)	9,361	0.22	-0.08
Education (Years)	10,075	0.21	-0.09
Wealth (Items in Home)	9,837	0.19	-0.08
SES Composite (Occ+Ed+Wealth)	7,173	0.30	-0.12
SEIFA- Disadvantaged	13,413	0.20	-0.08
SEIFA-Education and Occupation	13,413	0.24	-0.11

Table 2 Inter-Correlation between Measures of SES.

SES Measure	Name	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10
Father's Occupation (ANU3)	V1	1.00									
Mother's Occupation (ANU3)	V2	0.33	1.00								
Parents' Occupation (ANU3)	V3	1.00	0.38	1.00							
Father's Education (Years)	V4	0.46	0.28	0.45	1.00						
Mother's Education (Years)	V5	0.28	0.46	0.29	0.48	1.00					
Education (Years)	V6	0.41	0.42	0.41	0.87	0.87	1.00				
Wealth (Items in Home)	V7	0.27	0.19	0.26	0.19	0.18	0.21	1.00			
SES Composite (Occ+Ed+Wealth)	V8	0.78	0.46	0.78	0.69	0.61	0.75	0.67	1.00		
SEIFA- Disadvantaged	V9	0.23	0.17	0.23	0.22	0.16	0.21	0.32	0.34	1.00	
SEIFA-Education and Occupation	V10	0.31	0.22	0.30	0.32	0.23	0.31	0.34	0.43	0.81	1.00

Summary

The LSAY project team is well aware of the debates of surrounding the conceptualization and measurement of socioeconomic status and social class. Our preference for the ANU measures is based on their simplicity, comparability of measures across data collected at different times and their prominence in the Australia social research community. It should be understood that many of the controversies surrounding the conceptualization and measurement of socioeconomic status are of little consequence in the empirical analysis of survey data. In addition, although socioeconomic status is important variable to gauge the extent of social equality its relationship with educational and labour market outcomes is not particularly strong. There are other factors such as, parental education, parental-child interaction, wealth, ethnicity and early school achievement that, to varying extents, influence these outcomes.

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