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Does Health-Selective Mobility Account for Socioeconomic Differences in Health? Evidence from England and Wales, 1971 to 1991*

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The paper uses data from a sample of 1 percent of the male population of England and Wales to examine the contribution of social mobility between the censuses of 1971 and 1981 to socioeconomic differences in health. Compared to others in their social class of origin, men who had been downwardly mobile were more likely, and the upwardly mobile were less likely, to report a limiting long-term illness. However, when compared to others in their classes of destination, those who moved down reported less illness, and the upwardly mobile reported more. Prevalence of ill health in mobile men was somewhere between that in the group they left and the group they joined. Social mobility was a common event and, combined with existing socioeconomic differences in health, it acted to constrain rather than to increase these differences.

Differences in health between socioeconomic status groups are consistently observed in industrialized societies (Lawson and Black 1993; Pappas et al. 1993; Adler, Boyce, and Chesney 1994; Kunst, Guerts, and van den Berg 1995) including those which have redistributive tax systems (Vagero and Lundberg 1989; Lahelma et al. 1994), welfare “safety nets” (Mackenbach 1992; Lahelma and Arber 1994), and free or heavily subsidized health care (Blaxter 1983; Harding 1995). Some

research has suggested that social differences in morbidity and life expectancy are increasing (McCarron, Davey Smith and Womersley 1992; Pappas et al. 1993; Phillimore, Beattie, and Townsend 1994).

One explanation for the persistence of social variations in health is that, in achievement-oriented democracies, members of lower status and more disadvantaged social groups who are healthier or have individual characteristics favorable to good health rise up the social scale and displace members of the more privileged groups with less favorable health and related characteristics (Meadows 1961; Goldberg and Morrison 1968; Stern 1983; Illsley 1986; West 1988, 1991, West et al. 1994). Therefore, a causal effect of adversity or inequality in socioeconomic conditions on health is not therefore required to explain social variations in illness or mortality; health itself determines where an individual will be located on the social scale.

In an influential paper, Stern (1983) developed a simple mathematical model which showed that, using constructed data, health differences between SES groups could, in

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theory, be created purely by health-related social mobility of adults during their own working career (intragenerational mobility). In his model, there are two social groups, "rich" and "poor," and health is defined as the likelihood of death by age 40. Initially, health is randomly distributed between the groups. Those with high mortality risk then experience occupational downgrading over time, and vice versa. Consequently, mobility of individuals with different mortality risk into the rich and poor groups produces differences in mortality between the groups.

In Stern's theoretical model, health inequalities between rich and poor were created by social mobility because those who moved up were healthier (and those who moved down less healthy) than the average for the whole population in which "health" was randomly distributed. This model could be applied empirically to intergenerational mobility that takes place during adolescence, because it seems that health differences, measured according to the socioeconomic status of the parents, are slight during this period of life (West 1988, 1991; Glendinning et al. 1992). However, in real populations during middle and later adulthood, the healthy and the ill are never found to have the same socioeconomic distribution. At any one time, there are existing socioeconomic differences in health so that any social mobility is necessarily between social groups with different levels of health. Therefore, individuals moving upward may have better health than the group from which they originate while having worse health than the group they join, and vice versa in the case of downward mobility. Such a pattern would produce an association between "poor health," in comparison to the class of origin, and downward mobility, for example. However, rather than leading to a widening of socioeconomic gradients, it would, if anything, constrain these gradients. Under these conditions, social mobility would tend to dilute the levels of morbidity in each class, upward movers into each class being less healthy than stable members and downward movers somewhat healthier.

This paper investigates the extent to which social mobility during adult working life contributed to the size of the social gradient in chronic illness in a large nationally representative sample of men in England and Wales from 1971 to 1991. The sample comprises 1 percent

of all men in the population who were of working age throughout the period 1971 to 1991 (15 to 40 in 1971 and 35 to 60 in 1991). We adopt a modeling approach which allows us to account for age and movement into and out of the labor force. The modeling also allows us to compare the health of the socially mobile with that of stable members of the classes they move into and out of. In contrast to many previous studies, we include movement into and out of the active labor force as well as between occupationally defined social classes. We have also used a topological model, which allows us to set certain cell values to zero. This is because models relating health to social mobility may be affected by the fact that certain types of movement are impossible (Faresjo, Svardsudd, and Tibblin 1994): for example upward mobility from the highest classes, or downward from the lowest.

SAMPLE AND METHODS

Sample

Data used in this paper are taken from the England and Wales Office for National Statistics (ONS) Longitudinal Study (LS). This is a linked data set containing an approximate 1 percent sample of the population. Sampling was started at the time of the 1971 census and includes everyone born on any one of four dates of any year. It is regularly updated to record events such as deaths and cancer registrations. Those who die or emigrate are lost to follow-up, and the sample is supplemented by adding new members who are born on any of the four relevant days in each year, as well as immigrants with any of these birth dates. Data are linked across decennial censuses for sample members, so that it is possible to examine changes in occupation and employment status in the periods 1971 to 81 and 1981 to 91. In general, information on census characteristics such as occupation is only available at the time of each census and not in between. Aggregated data from the study are available to academic researchers subject to strict controls to preserve confidentiality. Data used in this paper refer to 63,573 men aged 15 to 40 in 1971, who were not enumerated as "permanently sick" at the time of the 1971 or 1981 censuses.

Limiting Long-Term Illness

In 1991, the census of England and Wales included, for the first time in the twentieth century, a question on health status. The census form is filled out by the "head of household," who is asked, of each household member: "Does the person have any long-term illness, health problem or handicap which limits his/her daily activities or the work he/she can do? Include problems which are due to old age."

"Limiting long-term illness" is a broad category which may contain a wide variety of diseases and conditions of different severity. Cohen, Forbes, and Garraway (1995) have shown that responses to this type of question are most strongly affected by the presence of limiting physical conditions rather than psychological health: as a self reported item on the census schedule, responses to it will obviously be affected by subjective factors.

Socioeconomic Status

We have examined mobility between occupational social classes, as defined by the Registrar General of England and Wales, between 1971 and 1981. This classification is variously described as a measure of general standing in the community (Office of Population Censuses and Surveys 1970), or of occupational skill (Office of Population Censuses and Surveys 1980). Class I, professionals and owners or managers of large businesses, is regarded as the "highest" level, and class V, unskilled manual workers, as the "lowest". Class III is divided into two subgroups: III nonmanual (IIINM), the more routine non manual jobs, and III manual (IIIM), the most skilled manual jobs. In addition, there is quite a large proportion of men not allocated to a social class. This may be for a number of reasons: they may be students or members of the armed forces, early retirees, or very long-term unemployed. What these have in common is that they are not part of the economically active labour force in the conventional sense used in British official statistics.

Social Mobility

Social mobility has been characterized by

Goldthorpe (1980) as either "outflow" or "inflow" mobility. "Outflow" mobility rates measure the percentage of (in this case) those in a given 1971 "class of origin" who end up in each 1981 "class of destination." "Inflow" mobility rates measure the proportion of those in a given 1981 "class of destination" who have originated in each 1971 "class of origin." In a table showing class of origin down the left hand side and class of destination across the top, outflow mobility would be represented by the row percentages and inflow mobility by the column percentages.

Not all moves between social classes should necessarily be regarded as social mobility (Savage et al. 1992). For example, the transition from professional to managerial status is a common event in successful careers that is considered nominal "downward" mobility from class I to class II; however, we would not necessarily expect this mobility to be associated with ill health, either "causally" or by "selection." Therefore, we classify movement between these two classes as "stability" in this paper. Similarly, it is doubtful whether movement between social classes IV and V, especially during the sort of period of rapid industrial change of the late 1970s (Manpower Research Group 1980), should be regarded as a meaningful shift in an individual's social status. Therefore, we also classify moves between these two groups as "stability."

We classify movement between these groups as "upward" if the social class in 1981 was of a "higher" level, so defined; "downward" mobility is movement from a higher to a lower level; and class stability occurs when there has been no movement. We have included three additional categories of movement in the measure of social mobility: exit from the labor force, entrance to the labor force taking place after age 15 (which was the United Kingdom school-leaving age in 1971), and "stably out of the labor force" (a category occupied by men who did not report a classifiable occupation at the 1971 or 1981 censuses).

In this paper, only intragenerational mobility, that which takes place within the career of the individual, is examined. As is conventional in studies of this type (Fox and Goldblatt 1982; Fox, Goldblatt and Adelstein 1982; Goldblatt 1990) we do not consider mobility after 1981, in order to avoid distortions in class gradients produced by differential ability to remain in the active labour force in the dif-

ferent social classes and short-term movements of very ill persons shortly prior to death.

STATISTICAL METHOD

There has been some debate concerning the most appropriate methods in studies of the relationship between health and social mobility. Fox (1990) has taken issue with the manner in which researchers use chi-square tests for associations between mobility and illness to collapse complete mobility tables into mobility groups. He argues that this method ignores an important problem. If those in poor health have an initial distribution which is more concentrated in lower classes, fewer of them will be at risk of downward mobility (because they are already at the bottom), and the converse will be the case for those in better health if they are disproportionately represented in higher groups (Faresjo et al. 1994). The modeling approach advocated by Fox makes it possible to use “topological” or “levels models” to overcome this problem: expected cell values can be set to zero or some other value on theoretical grounds (Erikson and Goldthorpe 1993; Gilbert 1993). Instead of examining the three-way interaction between social class of origin, class of destination, and health, the strategy advocated by Fox, however, we have examined the relationship of long-term illness to the direction of mobility, first adjusting for the class of origin and then, in a separate model, for the class of destination.

We treat limiting long-term illness (LLTI) as a binary response variable, and use logistic regression to model its variation by age, grouped into five ordered categories, and one or more of: social class in 1971, social class in 1981, and social mobility between 1971 and 1981. We recognize that the age categories are ordered by fitting linear and quadratic terms in age. We also allow social class to be ordered in some analyses. Researchers generally prefer logistic regression to log-linear models as used by Fox (1990), because the distinction between the response and the explanatory variables is made explicit in logistic regression. However, the two approaches are statistically equivalent. We note that it is not possible to separate age effects from cohort effects with these data.

RESULTS

Table 1 shows the proportion of men who reported LLTI in each of the six Registrar General’s social classes and those with no classifiable occupation in 1971, 1981, and 1991. While a much higher proportion of those without a social class reported LLTI in 1991 than in previous years, among those still classifiable according to their occupations, the relationship between class and limiting illness was no wider in 1991 (when men were aged 40 to 60) than in 1981 (when they were aged 30 to 50) or 1971 (when they were aged 20 to 40).

Table 2 shows the way in which the observed patterns of “outflow” social mobility—in other words, the distribution of 1981 class destinations of those in each class in 1971—varied between those men with and without LLTI at the time of the 1991 census, excluding those who were economically inactive due to temporary or permanent sickness in 1981. Because we have regarded mobility between classes I and II, and between IV and V as “stability,” these classes are combined in this table. The bordered cells represent social stability; cells to the left of these represent upward mobility, and those to the right represent downward social mobility. The rows show the proportion of each class of origin in 1971 who were found in each class of destination in 1981. For example, among those with a long standing illness, 73.0 percent of those in

TABLE 1. Percent with Limiting Long-Term Illness in 1991 by Social Class in 1971, 1981, and 1991

		Percent with Limiting Long-Term Illness in 1991		
		1971	1981	1991
Social Class	I	5.2	5.1	4.9
	II	8.8	7.1	6.1
	IIINM	7.9	9.6	9.6
	IIIM	11.6	11.2	10.2
	IV	14.1	14.6	12.9
	V	18.7	19.4	16.1
Out of Labor Force		6.2	18.1	45.8
Total		63,573	63,573	63,573

Source: Office of National Statistics Longitudinal Study, original data

TABLE 2: Outflow Social Mobility in Those with and without Limiting Long-Term Illness in 1991

Social Class in 1971		Social Class in 1981 Percent					Total
		LLTI	I-II	IINM	IIIM	IV-V	
I & II	Yes		73.0	9.8	10.1	5.8	952
	No		79.8	7.7	7.8	4.0	11,284
IINM	Yes		27.5	50.3	9.8	10.8	600
	No		42.4	40.3	9.8	6.5	7,014
IIIM	Yes		8.7	4.4	64.3	19.6	2,850
	No		12.7	5.0	66.4	14.5	21,689
IV & V	Yes		6.2	5.4	28.0	54.6	1,940
	No		10.4	5.4	33.7	47.5	10,681
No Valid Class	Yes		21.8	11.0	28.2	25.7	408
	No		42.8	14.7	22.6	12.6	6,155

Source: ONS Longitudinal Study (original data)

social classes I and II at the 1971 census were found in the same social classes at the 1981 census; this can be compared to the slightly higher proportion, 79.8 percent of men with no LLTI, who remained in the highest class. By contrast, stability in the lowest classes (IV and V combined) is more common for those with long-term illness; 54.6 percent of those with LLTI remained in this group compared to 47.5 percent of those without. Downward mobility was a more common experience among men who reported LLTI in 1991 than those who did not. It is also noteworthy that mobility from having no classifiable occupation in 1971 into classes I and II was far more likely to have occurred among those who did not report limiting illness in 1991 (42.8%) than among those who did (21.8%). For those with long-term illness, a more common form of mobility was from no occupation to social class IV and V (experienced by 25.7 percent of those with LLTI and only 12.6 percent of those without).

Table 3 shows that, when considering outflow mobility from 1971 social classes, there is a slight but clear tendency for the prevalence of LLTI in 1991 to be lowest among the upwardly mobile from each class, and higher among those who moved downward than among those who remained in any class. This table also shows the importance of movement into and out of the labor force for the class distribution of illness. A very low prevalence of long-term illness (5.8%) was seen among

those who did not have a classifiable occupation at the 1971 census but had entered the active labor force by 1981: Many of these men were pursuing higher education and training. The highest rates of illness (25.8%) were seen among those moving out of the labor force from manual occupations. However, this table shows neither that upwardly mobile men do not always have lower levels of LLTI (as demanded by the “Stern model”), nor that downward movers have higher levels than stable members of the classes they might join. Although men who were upwardly mobile out of classes IV and V were less likely to have a limiting illness by 1991 than those who were left behind, they still had a higher risk of later LLTI (12.7%) than stable members of all other classes into which they might have moved (11.3% in class IIIM, 9.6% in IINM, and 7.2% in I and II). The prevalence of LLTI in those who moved upward from social classes IV and V was, before adjustment for age, is even higher than that amongst those who were downwardly mobile from classes I and II (12.7% versus 10.0%) or IINM (12.7% versus 9.8%).

STATISTICAL MODELING

Table 4 shows the results of two logistic regression models for LLTI in 1991, including social class and social mobility between 1971

TABLE 3. Percent with Limiting Long-Term Illness by Class in 1971 and Mobility 1971 - 1981.

Social Mobility 1971-1981	Social Class in 1971					Total
	I-II	IIINM	IIIM	IV-V	No Valid Class	
Up		5.3	8.8	12.7		10.2
Stable	7.2	9.6	11.3	17.3		10.9
Down	10.0	9.8	15.1			12.1
Left Labor Force	14.0	11.3	21.1	25.8		21.7
Entered Labor Force					5.8	5.8
Never in Labor Force/ No Valid Class 1971 or 1981				10.7	10.7	
All with Limiting Long-Term Illness	952.0	600.0	2,850.0	1,940.0	408.0	6,750.0
All in Class	12,236.0	7,614.0	24,539.0	12,621.0	6,563.0	63,573.0
Percent with Limiting Long-Term Illness in 1971 Class	7.8	7.9	11.6	15.4	6.2	10.6

Source: Office of National Statistics Longitudinal Study (original data)

and 1981, and accounting for age and movement into and out of the labor force.

The first model focuses on the relationship between social mobility (including that into and out of the labor force) and the risk of illness in 1991, controlling for class of origin as a linear term (the fit of the model is not substantially improved by treating social class in 1971 as a set of unordered categories). Social mobility has six categories: up, stable, and down, as previously defined, a category including those who entered the labor force between 1971 and 1981, one for those who left the labor force in this period, and the sixth category including those who were never in the labor force. Compared with the upwardly mobile group, the stable group is 1.27 times as likely to have LLTI in 1991; the downwardly mobile group is 1.9 times as likely to have LLTI. Comparing those who moved into the labor force to the upwardly mobile, illness was .44 times as likely among those moving into the labor force at the median age but .33 times as likely for the youngest cohort and .59 times as likely for the oldest cohort. Compared with the upwardly mobile, those who moved out of the labor force between 1971 and 1981 were 2.7 times as likely to report long-term illness. Those who were not allocated a classifiable occupation in either 1971 or 1981 were .49 times as likely as the upwardly mobile to report LLTI at the median age, but this varied

from .93 times as likely for the youngest cohort to .26 times as likely for the oldest cohort.

The second model examines the relationship between social class in 1981 and health in 1991, after controlling for social mobility, including mobility into and out of the labor force. It includes age, social mobility between 1971 and 1981, and social class in 1981. Social class in 1981 has seven categories and, as before, social mobility six categories. The age effects are similar to those found in the first model. The likelihood of limiting illness rises steadily as social class falls, with age-adjusted odds of experiencing limiting long-term illness in 1991 being 5.93 times higher among men in the lowest class in 1981 (Registrar-general's class V) than amongst those in class I. For those who were outside the labor force with no classifiable occupation in 1981, the odds of ill health are 2.10 times higher than those for class I. Class differences do not appear to be greater in the younger cohorts than in the older cohorts; if anything differences, are greater among older men. However, in this model, including only a linear term for social class in 1981 provides a less satisfactory fit; some caution is needed in interpreting the results because the numbers in some cells are small.

The coefficients for mobility in the second model show the relationship between health

TABLE 4. Logistic Regression Modeling of Limiting Long-Term Illness

Term	Model 1		Model 2	
	Odds Ratios	95 Percent CI	Odds Ratios	95 Percent CI
Constant	0.063	0.06-0.07	0.051	0.04-0.06
Age	1.55	1.47-1.64	1.43	1.28-1.61
Age2	1.06	1.04-1.08	1.05	1.04-1.07
Social Class 1971	1.43	1.39-1.48	a	
Social Class 1981(2)	a		1.25	1.04-1.49
Social Class 1981(3)	a		2.14	1.77-2.59
Social Class 1981(4)	a		2.53	2.14-3.00
Social Class 1981(5)	a		3.82	3.19-4.57
Social Class 1981(6)	a		5.93	4.85-7.24
Social Class 1981(7)	a		2.10	1.46-3.00
Mobility (stable)	1.27	1.18-1.37	0.69	0.64-0.75
Mobility (down)	1.90	1.70-2.12	0.60	0.54-0.67
Mobility (entered labor force)	0.44	0.37-0.52	0.87	0.75-1.01
Mobility (out of labor force)	2.69	2.27-3.20	2.20	1.54-3.16
Mobility (never in labor force)	0.49	0.35-0.69	b	
Age × Social Class 1971 (linear)	0.98	0.96-1.00	a	
Age × Mobility (stable)	1.01	0.96-1.07	1.06	1.01-1.12
Age × Mobility (down)	0.99	0.92-1.07	1.08	1.01-1.16
Age × Mobility (entered labor force)	1.15	1.04-1.27	1.09	1.00-1.19
Age × Mobility (out of labor force)	0.96	0.86-1.08	1.38	1.11-1.72
Age × Mobility (never in labor force)	0.73	0.59-0.89	b	
Age × Social Class 1981 (2)	a		1.12	0.99-1.26
Age × Social Class 1981 (3)	a		1.07	0.94-1.21
Age × Social Class 1981 (4)	a		1.04	0.93-1.17
Age × Social Class 1981 (5)	a		0.97	0.86-1.10
Age × Social Class 1981 (6)	a		0.94	0.83-1.08
Age × Social Class 1981 (7)	a		0.73	0.58-0.90
Likelihood Ratio Statistic	137.0		131.2	
df	95		97	

Source: Office of National Statistics Longitudinal Study (original data).
All estimates for categorical variables given as comparisons with baseline category, i.e. Social Class 1981 = 1, mobility = up.
Note:
a = term not in model.
b = term aliased because of insufficient data.

and social mobility, controlling for class of destination. It thereby addresses the question of whether social mobility acts to make the higher classes healthier and the lower classes less healthy. These results shows that, after allowing for age and for movement into and out of the labor force, upwardly mobile men are more likely to have LLTI than stable members of the destination classes into which they move: those remaining socially stable in each class of destination were over 30 percent less likely (odds of 0.69 to 1) to experience ill health in 1991 than those who were upwardly mobile into the class. Therefore their mobility does not act to improve the health status of higher socioeconomic status groups. Downwardly mobile men are less likely to report LLTI than stable members of the classes they join: those who were downwardly mobile into each class were 40 percent less likely (odds of 0.60 to 1) to experience LLTI than stable members of their class of destination, which means that downward mobility does not contribute to the excess of poor health in lower groups.

DISCUSSION

The argument that social mobility is significantly responsible for socioeconomic differences in health in Britain was first convincingly advanced in studies of women undergoing their first pregnancies and deliveries in Aberdeen during the early years of the post-war welfare state. Women with fathers in manual occupations who married men of higher socioeconomic status than that of their fathers were found to be taller and to have higher educational attainment than those who married men of the same socioeconomic status as their fathers. These upwardly mobile women were also judged by obstetricians to be in better health on examination in the ante-natal clinic (Ilsley 1955, 1986). At the end of their pregnancies, prematurity and perinatal death rates among the upwardly mobile women were lower than those in women from professional or managerial backgrounds who married husbands in semi-skilled or unskilled manual occupations (the downwardly mobile), and even better than outcomes in women whose fathers and husbands were both in the professional or managerial groups (the socially stable). Health-related intergenerational (from

parents' class to an individual's own adult class) mobility patterns of this kind could therefore explain why the advent of extensive welfare provision and free health care in the United Kingdom had not resulted in narrowing the gradients observed in perinatal mortality. This raised the possibility that similar patterns of intragenerational health-related social mobility among men during their own work careers might explain socioeconomic differentials in adult mortality and morbidity; subsequently, Stern (1983) constructed a model, using hypothetical data, to show how this might happen.

Using data which compare occupational mobility in those with and without the illness, studies of the prevalence of diseases such as chronic bronchitis (Meadows 1961), and schizophrenia (Hollingshead, Ellis, and Kirby 1954) have presented empirical evidence supporting this explanation for the relationship between socioeconomic status and health. More recent supportive evidence has come from work on health at younger ages (West 1988; Glendinning et al. 1992; Glendinning, Hendry, and Shucksmith 1995). These scholars reported that socioeconomic differences (using the father's socioeconomic status) in mortality and some forms of morbidity were nonexistent or slight among young men before or shortly after they entered the labor market, though they were present in older age groups (West et al. 1990; Macintyre and West 1991; West 1991). These findings have led to the hypothesis that, during the earlier part of their work career, men are sorted into higher and lower occupational classes according to health and other characteristics that then partly determine later health risks (Glendinning et al. 1992, 1995).

Other studies have thrown some doubt on the importance of such a process of health-selection in producing social variations in health. Goldblatt (1988, 1989), using the same data source as that used in the present research, examined the relationship between mortality and intra generational social mobility between 1971 and 1981. He found no tendency for mortality to be consistently higher in downwardly mobile men than in those who had remained stable or moved up the social scale. Power and her colleagues (Power, Manor, and Fox 1991; Power, Manor, and Matthews 1996) found no evidence that social mobility contributed in any major way to

health gradients at ages 23 and 33 in the 1958 British Birth Cohort Study. While men in poor health at age 23 were less likely to be upwardly mobile and more likely to be downwardly mobile in the subsequent ten years, the overall health gradient at age 33 was not affected by this, and it was the same among those who had reported poor health at age 23 as in those who had not (Power et al. 1996).

More generally, few cross-sectional studies find that socioeconomic differences in morbidity and mortality are very much greater at older ages than they are at age 35 to 40. If health differences were the result of constant sorting of individuals into socioeconomic status groups according to their health, gradients should be wider at later ages, and, in longitudinal studies, continue to increase as cohorts age. The similarity in health gradients in different age groups also raises questions for any theory that social conditions of advantage and disadvantage are the cause of social gradients in health (Ford et al. 1994), or that both processes may be at work. If social conditions cause illness, it is strange that length of exposure to different conditions in the different socioeconomic status groups does not result in widening differences during middle and later adulthood, and even stranger if this has been combined with some degree of health selection.

In this study of the contribution of social mobility to health differences between socioeconomic status groups, we have been able to use a large sample followed between the 1971, 1981 and 1991 censuses of England and Wales. This has shown (tab. 1) that among those men who remained in the labor force, there was no appreciable tendency for class differences in the risk of eventual illness to increase over time in this cohort. This confirms previous findings of longitudinal studies (Power et al. 1991; Power et al. 1996; Kuh, Wadsworth and Yusuf 1994) that class gradients do not appreciably widen as cohorts age. However, at the same time, it was clear (tab. 2) that upward movers were underrepresented in the group that reported LLTI in 1991, and downward movers were overrepresented. Social mobility does, therefore, appear to be related to ill health, but the relationship has no effect on the size of socioeconomic health differences.

In order to see how this happens, we need to consider the differences between "outflow"

and "inflow" mobility. In comparison to stable members of their class of origin, those who moved down the socioeconomic scale were at an increased risk of LLTI and those who moved upward were at lower risk; that is, downward outflow mobility was associated with poorer health and vice versa. This may have been due to very long-term health problems already present in 1971, or to other characteristics such as health behaviors, affecting both mobility and health. There is no measure of health in British censuses prior to 1991, other than a question on whether the respondent was not working because of illness; thus, although we excluded these men, it is not possible to investigate this possibility fully.

However, when we look at "inflow" mobility, the picture changes. In relation to stable members of their class of destination, upward movers are more likely to have LLTI in 1991, and downward movers are less likely. This is why, in this data set, social mobility is associated with the probability of LLTI, but does not result in an increase over time in socioeconomic differentials in such illness. In order for mobility to be a significant cause of social gradients in health, upward movers into any class must be healthier, and downward movers less healthy, not only than those left behind in their class of origin, but also in comparison to those already present in the class of destination, as is the case in Stern's hypothetical model. This is because, at any one time, in actual populations, there are considerable differences in health between social classes; those who are in relatively "good" health in a less privileged social group may still have a higher probability of illness than those with relatively "poor" health in a more advantaged social group. Therefore it is quite possible for the health of those who move out of a social class to be rather better (or worse) than those they leave behind but still appreciably worse (or better) than those they join.

CONCLUSION

The contribution of social mobility to social gradients in health needs to be understood in the context of health differences that exist between socioeconomic status groups at any one time combined with high rates of mobility between these groups. When class differences in the prevalence of long-term limiting illness

were examined in the Office for National Statistics Longitudinal Study, a large data set linking census information to vital events over a twenty year period, upward mobility was associated both with better health than the average in the class of origin and with worse health than average in the class of destination. The converse was the case for downward mobility. To some extent, it appears that men carry with them the risk of illness prevalent in their class of origin, and to this is added (or subtracted) the risk associated with their class of destination.

These findings do not lend support to the idea that intragenerational mobility of those with poorer health or health-related characteristics into occupations lower down the social scale during their own working lives plays a major role in producing social variations in health. This does not necessarily conflict with the evidence from studies of intergenerational mobility of individuals from their parents' class into their own, or their husband's adult class. Following an adult cohort of working-age men over time, however, we see that although mobility was related to the risk of limiting illness in 1991, this did not have the effect of producing a widening gap in the risk of eventual limiting illness among men aged 35 to 60 who still had a classifiable occupation in 1991; if anything, it tended to constrain socioeconomic differences in health rather than to increase them.

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