



Explaining Social Class Differentials in Smoking: The Role of Education

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Abstract

Rates of smoking have decreased dramatically in most Northern European countries over the last fifty years or so, but this decline has not been uniform across the population and there have actually been increases in smoking among lower income and social class groups. Although smoking differentials cannot account for the wide social class inequalities in mortality and morbidity in these countries, they are a contributing factor. This paper argues that the social structuring of smoking rates suggests that social and economic processes may have a major role in starting and quitting behaviour. We test four hypotheses: The first holds that social class differentials in smoking reflect the direct impact of different levels of knowledge about the risks of smoking across educational groups. The second that social class differences reflect the indirect affect of educational differentials acting through educations influence on risk perception and future orientation. The third hypothesis also invokes future orientation, but attributes differences in this variable to socio-economic disadvantage. The last hypothesis holds that differential rates of smoking across social classes actually reflects the indirect affect of social deprivation on the 'push' factors to smoke such as lack of control and psychological stress.

Our analyses shows little support for the first hypothesis with knowledge differences accounting for no more than 10% of the class differential. Tests of the role of future orientation show that this plays almost no role. The last hypothesis gains most support. Measures of disadvantage and deprivation account for half of the differential in class smoking.

1. Introduction

There is now a large body of evidence showing that health and levels of mortality are strongly linked to socio-economic status (SES) across a wide cross-section of western countries (Mackenbach & Bakker 2002; Pamuk et al. 1998) and Ireland is no exception to this pattern (Burke et al. 2004; Balanda & Wilde 2001; Barry et al. 2001). For example, evidence shows that in both Northern Ireland and the Republic, those in an unskilled manual social class have a standardised mortality rate over 130% higher than those in professional or managerial positions (Balanda & Wilde 2001) and that the unskilled have a 275% greater risk of having a chronic illness than those in professional and managerial positions (Layte 2000). Attempts to explain health inequalities between different SES and social class groups have centred on how low education, occupational status and income impact on both physical (Bartley 1994; Kushi et al. 1985; BurrIDGE & Ormandy 1993) and psychological (Brunner 1997; Karasek & Theorell 1990; Kawachi, Colditz, & Ascherio 1976) context and through these impact on health in both early life (Lundberg 1993; Poulton et al. 2002; Barker 1992) and adulthood (Kuh & Ben Shlomo 1997). Attention has also centred on the role of health behaviours in explaining educational and social class differentials in health with research showing that people in lower education and occupational groups are more likely to smoke, drink alcohol, eat a poor diet and get little exercise (Kelleher et al. 2003). Although research shows that health behaviours and lifestyle factors are not in themselves a sufficient explanation of SES health differentials, they clearly do contribute to them (Carroll, Bennett, & Davey-Smith 1993; Carroll, Davey-Smith, & Bennett 1996; Davey Smith, Blane, & Bartley 1994). Smoking for example is increasingly concentrated among lower income and social class groups both in Ireland (Layte, Russell, & McCoy 2002) and the UK (Marsh & McKay 1994)¹. But why exactly why does the prevalence of smoking differ across social class groups? Simply because individuals ‘choose’ to smoke, this does not mean that all further explanation should cease or that such behaviour is ‘individual’ and only explicable in psychological terms, although psychological factors definitely have a role.

In reality, behaviour that exhibits such a pronounced class structure must be driven to a considerable degree by social forces and sociological processes. There has been research on the social class distribution of smoking, but for the most part this has either been quantitative, economic and descriptive (Fry & Pashardes 1988; Marsh & McKay 1994) or explanatory, but qualitative (Chamberlain & O'Neill 1998; Blair 1993; Calnan & Williams 1991). Sociological analysis which also draws upon representative survey data would be a considerable advance and allow us to unravel the social processes at work and possibly contribute to smoking cessation policy.

Simply put, that is the aim of this paper. Using representative national survey data from Ireland we examine three hypotheses that suggest an explanation for social class patterns of smoking. The first two hypotheses relate to the role of education which can have both a direct and an indirect impact on class differentials in smoking through its strong positive correlation with class position. The direct effect is through the acquisition of higher levels of knowledge about the risks of smoking in higher educational groups. Although higher levels of education may lead to greater levels of

¹ It is interesting to note that earlier in this century the class gradient for cigarette smoking was reversed (Royal College of Physicians of London 1977).

knowledge, if this effect exists it is actually likely to act through the greater capacity of those with higher education to both absorb and use information. On the other hand education may have an indirect affect through its impact on the structuring of perceived risk and future orientation. This hypothesis holds that higher levels of education develop greater levels of abstract thought in individuals and an ability to project future risk on present behaviour leading to lower levels of smoking.

A third hypothesis on the other hand holds that although future orientation may be important, this will be structured by the lived experience of being working class rather than by educational differences in judgement about risk. Low income, deprivation and economic strain thus create working class ways of thinking which are relatively myopic and fatalistic.

Our last hypothesis also invokes the lived experience of being manual working class, but holds that it increases smoking through the use of tobacco as a coping device. From this perspective, education is one of several intermediate causes of smoking, influenced by social origins and itself influencing life chances, social class attainment, and more importantly, the risk of low income, deprivation and economic strain. These disadvantages are ‘push’ factors that influence smoking as a response to higher levels of stress. Although the factors implicated in all four hypotheses are class based, their implications for cessation policy are very different. Whereas knowledge deficits may be amenable to education programs and health promotion, processes rooted in disadvantage will require more structural action.

The paper unfolds as follows; in the next section we discuss past literature on the relationship between class and smoking and specify our three hypotheses. In the third section we then describe the data used to test the hypotheses – the Living in Ireland Survey from the year 2000 and the measures and variables constructed. In the fourth section we move onto some descriptive analyses by looking at trends in smoking over the recent period, the nature of social class differentials in smoking and the impact that smoking has on health outcomes. In the fifth section we move onto the explanatory analyses where we test the three hypotheses laid out in section two. In the sixth and last section we summarise the paper and draw some conclusions about the causes of smoking, the policy implications and future research needs.

2. Understanding Social Class differentials in Smoking

Why do people smoke? After around half a century of research and at least a quarter of a century of sustained public health education on the dangers of smoking, it should be clear, even to the child lighting their first cigarette, that this is a dangerous past time. Yet, each day, around a quarter of the Irish population will smoke a cigarette. More worryingly, around 20% of Irish 15 year olds are regular smokers (Currie et al. 2004). How can we explain such seemingly irrational behaviour? On the one hand smoking is a personal choice made by individuals in the face of clear information about its risks, although levels of this information do seem to vary across the population. For example, an MRBI/TNS poll from 2002 showed that although 87% of the population agreed with the statement that “smokers die younger because of smoking” the proportion was only 45% among smokers. More importantly for this paper, that poll also showed that whereas 65% of those from the professional and managerial class (ABC1F1) agreed strongly with that statement (47% among

smokers), only 60% did so among the unskilled manual (class D – 39% among smokers). However, beliefs about the risks of smoking were strongly influenced by age and the unskilled manual class tends to have higher numbers of older people within it. But even if we look specifically at the under 25s we see that whereas 72% of the professional group agree strongly with this statement, only 65% do so among the unskilled manual. So there are differences in professed knowledge across class groups, although a clear majority, even of the lower class group still believe that smoking is a serious risk. Knowledge differences could be the key to understanding the class differential in smoking, but tobacco is addictive and whilst smoking among children and adolescents is for the most part not due to addiction, in adults addiction plays a greater role as does the calming effect of smoking (Chamberlain & O'Neill 1998). The same MRBI/TNS poll showed that 86% of smokers thought that cigarettes were addictive and over 90% saw smoking as calming and relaxing. In this context, the decision to continue smoking has to be seen as a choice, or perhaps often, a non-choice on the part of the individual that the benefits of smoking out-weigh both the risks of continuing and the costs of quitting.

The Social Structuring of Risk Perception

There are then some differences in knowledge about the risks of smoking across class groups, but these differences are relatively small so we need to look to other processes to explain the class differential. One explanation may be the socio-economic structures within which the decision to smoke and to continue to smoke is made. As in many others areas of human behaviour however, smoking can only be understood by situating it within its social and economic context and this may be crucial to understanding social class differentials in smoking.

Past research has shown for instance that that there are distinct social class differences in language use toward health with working class people using more physicalistic terms when discussing health whereas more middle class people used more mentalistic and person centred terms (Blair 1993). Although only using a small, qualitative sample, Chamberlain & O'Neill (1998) showed that working class respondents were more likely to see health in functional terms, most notably as the ability to work, whereas middle class respondents tended to see health in holistic terms and as a sense of all round well-being. A greater ability to see health and illness as abstract concepts also seems to extend to differences between people in different social classes as to the reasons why they took up smoking in the first place, or subsequently gave up. Using a sample of working and middle class households Calnan & Williams (1991) showed that although both classes understood the links between smoking and ill health, in the working class group the major reason for not smoking was the actual experience of ill health whereas in the middle class group it was the potential risks and dangers to health which were important.

The qualitative research suggests that working class groups represent health in a different manner to middle class groups and that this structures their response to risk with a decreased sensitivity to future risks and a downgrading of abstract risks. Interestingly, Chamberlain (1998:1110) showed that working class respondents were also more likely to express a general sense of fatalism about their health, concentrating more on factors that they had less control over such as genetic predisposition and the necessity of money to maintain good health whereas her middle

class respondents identified hygiene, lifestyle and a positive state of mind as most important.

Of course the descriptive picture of class differences presented by this qualitative research leaves open the mechanism through which differences in the perception of risk occurs. One hypothesis that we mentioned in the introduction is that these differences reflect differences in levels of education. White collar and professional occupations tend to require higher levels of qualifications. It could be that, as well as leading to differentials in knowledge, higher-level learning also leads to higher levels of abstract thinking and future orientation. The defining characteristic of higher and particularly third level education is often the degree of abstract theoretical knowledge required and this may contribute to class differences in this respect.

On the other hand, they may reflect differences in the lived experience of being working class as found in the work of Melvin Kohn (Kohn & Schooler 1969; Kohn 1989) which has shown that the lived experience of working class life leads to a more limited future orientation and greater tendency to fatalism.

The Social Structuring of Smoking

The social structuring of the perception of risk may be a route through which class differentials are created, but another more direct route may be class differentials in stressful events where smoking acts as a strategy for coping. As the MRBI poll results showed, smoking is calming and relaxing as well as dangerous and so if an individual's life has a higher level of stressful events and circumstances there will be both a greater incentive to smoke and a higher disincentive to quit. Research (Karasek & Theorell 1990; McEwen & Seeman 1999) shows that those in lower socio-economic groups experience higher levels of stress in daily life and these are likely to act as 'push' factors to smoke. Research has clearly implicated stress as a determinant of smoking (Wilkinson & Marmot 1998) and working class groups are more likely to experience stress as a consequence of both their exposure to stressful events and a lower autonomy and capacity in dealing with these events. Smoking in working class groups can thus be seen as a rational response to circumstances and indeed, working class attitudes to smoking may thus reflect a cultural acceptance of smoking that itself contributes to higher levels of smoking.

The Role of Education

The above discussion points us toward three hypotheses about the causes of the differential in smoking levels between social classes. The first relates to the effect of education acting through knowledge differentials about the risks of smoking:

- *The differential between manual and non-manual classes reflects differences in educational level across class groups. Controlling for level of education will explain class differentials.*

On the other hand, we have also seen that class differences in the perception of risk and in particular in future orientation may be important. However there are two routes through which these differences may emerge. The first is through differential education:

- *Level of education structures the class differential in smoking by increasing the level of abstract comprehension among tertiary educated groups and giving them a greater future orientation/lower discount on negative future health events.*

However, future orientation may also be the result of the lived experience of being working class and the lack of control that this affords. If true this means that future orientation is still the mechanism through which class differentials in smoking occur, but the cause of the difference in future orientation is to be found in socio-economic experience and disadvantage:

- *Socio-economic disadvantage structures the level of abstract comprehension and future orientation in social class groups.*

Lastly, we suggest that future orientation and abstract comprehension may actually constitute a small part of social class differential in smoking. Instead we suggested that the lived experience of working class life creates a large amount of stress and that smoking acts as a coping strategy. Class differentials in smoking thus reflect class differentials in socio-economic disadvantage:

- *The social class differential in smoking rates is largely due to the impact of socio-economic disadvantages on the lived experience of working class life.*

3. Data

The data used for this paper come from the 2000 wave of the Living in Ireland Panel Survey (LII), the survey upon which the European Community Household Panel Survey is based in Ireland. The 2000 wave of the LII survey was the seventh wave of a panel survey which began in 1994 (the LII survey is the Irish component of the European Community Household Panel Survey although in LII form it contains a greater range of variables, some of which are extremely important to this paper). From the outset the LII survey was designed to yield information on a large range of socio-economic variables including very detailed information on all household income sources and the labour market status of all adult individuals. Importantly for this paper it also included a range of other information on the social background of individuals, their educational level, household deprivation and individual health status.

The original sample of 9905 individuals in 4048 households in 1994 was achieved using a two-stage clustered sample drawn from the Register of Electors using the ESRI's RANSAM software (for more details see (Callan et al. 1996). Over time this sample was reduced due to attrition thus in 2000 the original sample was supplemented with 1500 new households giving a total sample of 8055 individuals in 3467 households with a response rate of 69%. Sample weights were applied to the sample of households and individuals for all analyses to compensate for sample error stemming from the sampling frame, differential response and attrition. A complex weighting procedure based upon a large number of variables was used to construct weights for individuals and households based on the patterns found in external sources.

Variables and Measures

As already suggested the 2000 LII survey contains a large range of variables, a number of which are important for our analyses here. First we require a measure of social class and for this we use a collapsed version of the Erikson/Goldthorpe (EG or EGP) social class schema. There is still considerable debate about the appropriate social class measure, but research shows that theoretically informed measures such as the EG schema have a stronger underlying conceptual basis (Bartley et al. 1999). The EG schema we use differentiates between a service class, a Higher Routine Non-Manual class, self-employed with and without employees, Small holders, Technical and Supervisory and Skilled Manual Workers and lastly Semi-Skilled Manual Workers and Unskilled Manual Workers. This also grouping also includes Lower Routine Non-Manual Workers whose employment conditions in the Irish context are comparable to the Unskilled Manual class.

For education we use a four-category variable which distinguishes between those with primary education alone, those with lower secondary education (Intermediate certificate), those with higher secondary education (Leaving Certificate) and lastly, those with tertiary education (Degree or equivalent).

Our second and third hypotheses concern the role that future orientation has in shaping the behaviour of persons from different educational levels. In our analyses we examine the role of future orientation using a set of items that have been widely used in the literature on fatalism (Pearlin et al. 1981). Respondents are asked to react to each of the items on a four-point scale running from 'strongly agree' to 'strongly disagree' with responses being summed to give a scale of fatalism. It is constructed from seven questions, the answers to which are summed.

Our fourth hypothesis concerns the role of different socio-economic factors in shaping smoking behaviour. We model a number of factors such as the impact of income (measured as weekly household equivalent disposable using the modified OECD equivalence scale) and lifestyle deprivation. Lifestyle deprivation is measured using three variables. The first is an index of 'basic' deprivation and the second an index of 'secondary' deprivation. These indices measure whether a household has a particular item or service and if not, whether this is because they could not afford them. They are thus measures of 'enforced' deprivation where the influence of preference and choice have been removed and where designed to be used as two distinct indices of underlying 'generalised lifestyle deprivation' (Callan, Nolan, & Whelan 1993; Nolan & Whelan 1996; Layte, Nolan, & Whelan 2001; Whelan et al. 2001). 'Basic deprivation is an eight item scale which measures enforced lack of items including 'a substantial meal' or 'adequate heating' in the last week or items such as a 'warm, waterproof overcoat'. 'Secondary' deprivation is an eight-item scale that refers to the absence of more lifestyle items such as being able to afford an evening or meal out in the last two weeks, or 'presents for friends or family once a year'. The last measure of deprivation that we use is a six item scale that refers to the quality of housing that the person lives in and whether there are problems with this such as there not being enough space, inadequate heating, a leaking roof or damp and rot as well as there being pollution in the local area. Poor socio-economic situation is also entered in to the analyses as a variable measuring whether the persons' household are experiencing 'great difficulties in making ends meet'. The impact of unemployment is modelled

using two variables – whether currently unemployed and whether have also experienced unemployment in the last five years.

In our analyses we control for the age and sex of the respondent, but Illness or poor health may also affect the likelihood of smoking and we control for this using two variables that measure both self-assessed health and the presence of a chronic health condition.

The last of our hypotheses suggests that the greater acceptance of smoking in working class groups may itself contribute to smoking. It seems reasonable to assume that a persons upbringing may well contribute to their cultural norms both in terms of smoking behaviour and other factors such as risk perception. Family of origin may also influence behaviour through conditions experienced whilst growing up. Just as current economic adversity may act as a ‘push’ factor to smoke, such factors in the past may have contributed to a life times smoking behaviour. Given this we control for both having experienced great economic strain in household of origin and coming from an unskilled manual social class.

Lastly, there are likely to be contextual factors that influence the probability of smoking. For example, having a partner that smokes is likely to increase the probability of smoking, as is socialising frequently and measures of these variables are used.

4. The Distribution and Consequences of Smoking in Ireland

As in most other developed countries, rates of smoking have fallen in Ireland since their peak in the 1950s (Conniffe 1994) with the Irish rate now below the EU average, although there seems to be some uncertainty as to trends in smoking rates in Ireland in the recent period. The National Health and Lifestyle, or Slán Surveys (Kelleher et al 2003) show a decrease in rates of regular and occasional smoking between 1998 and 2002 whereas other sources including the data used in this paper show no such decrease. Table 1 for instance shows that the proportion smoking has changed little across the period covered by the Slán data with the rate staying stable at around 31%.

	1998	1999	2000	2001
Daily	25.9	25.9	25.0	26.0
Occasionally	4.6	4.8	5.6	4.6
Total Smoking	30.5	30.7	30.6	30.6
Total	100	100	100	100

Data from the 1998, 1999, 2000 and 2001 Waves of the Living in Ireland Surveys
Standard Error on All Figures is <0.0005

This picture of no decline is supported by figures from the Irish Central Statistics Offices' National Income and Accounts that shows an increase in tobacco consumption over the same period. This discrepancy may be due in part to the methods used in the Slán reports and in particular the lack of weighting by education and social class to correct for sample error (both Slán surveys had high non-response rates).

Table 2: Odds Ratio of Smoking Daily by EG Social Class Controlling for Age and Sex

Erikson/Goldthorpe Social Class	Odds Ratio
Service (I+II)	1
Routine Non-Manual Higher (IIIa)	1.06
S/Employed with or without Employees (IVa)	1.56**
Small-Holders +Agricultural (IVc+VIIb)	1.40
Tech/Supervisory + Skilled Manual (V+VI)	2.42***
Semi-Skilled + Unskilled (IIIa+VIIa)	2.39***
Cox & Snell R ²	0.0357

Data from the 2000 wave of the Living in Ireland Survey
 Significance Key: *** P<0.01 ** P<0.05 * P<0.1

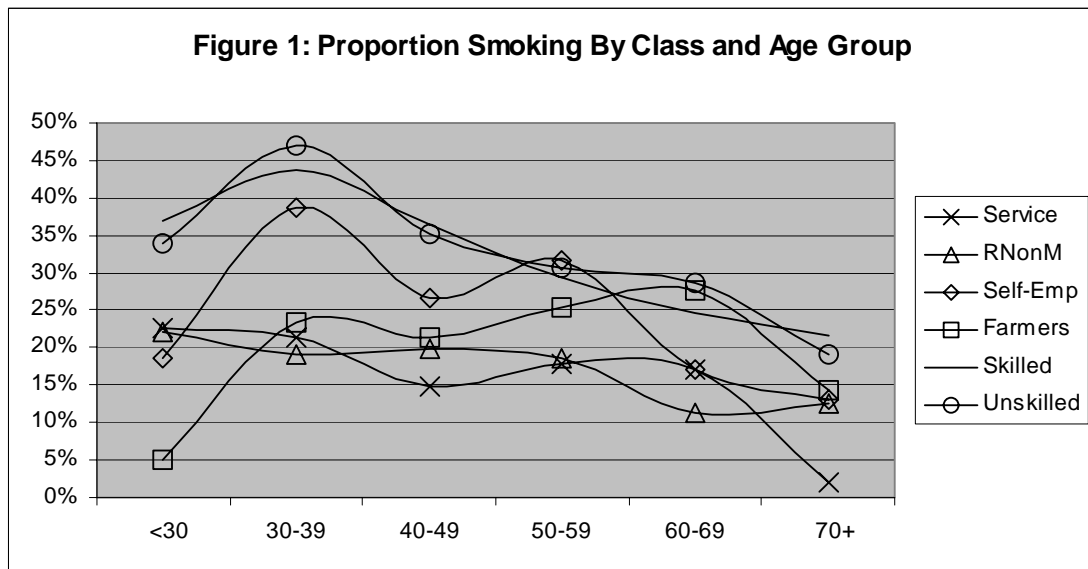


Table 2 confirms for Ireland that there is a very distinctive gradient in the prevalence of smoking by social class with those in the manual working classes more than twice as likely to smoke as those in the 'service' or professional and managerial class controlling for age and sex. Table 2 shows that the main differential in terms of smoking prevalence is between manual employees and all other classes, but there are interesting interactions by age group within classes as shown by Figure 1. For farmers for instance, low rates of smoking under age 30 increase quickly thereafter to be one of the highest in the two oldest age groups. We also see a large differential in the oldest age group between the service class and all other classes that leads to significant positive interaction effects for the oldest age group in each class.

Table 3: Odds Ratio of Having a Chronic Illness/Less Than Good Health by Present and Past Smoking Status Controlling for Age and Sex

	Odds Ratio	
	Chronic Illness	Less Than Good Health
Current Daily Smoker	1.61***	2.28***
Current Occasional Smoker	1.25*	1.63***
Daily Smoker in the Past	1.45***	1.63***
Occasional Smoker in the Past	1.21	1.44**
Never Smoked	1	1
Cox & Snell R ²	0.089	0.118

Data from the 2000 wave of the Living in Ireland Survey

Significance Key: *** P<0.01 ** P<0.05 * P<0.1

Such differences in smoking behaviour are likely to impact on health outcomes since the negative effects of smoking are by now well established and this is confirmed by Table 3 which shows that the odds of having a chronic illness increase by over 60% if one smokes daily and the odds of having less than good self-assessed health increase by over 128%, even controlling for age and sex. Many other factors are likely to be involved, but it is still true that smoking has a very negative impact on health, which coupled with social class differentials in smoking behaviour, will inevitably contribute to health inequalities between social classes.

5. Explaining Social Class Differentials in Smoking

The current smoking rate in the population and the distribution across social class groups is the outcome of two basic processes – the number of people having taken up smoking and the number who have quit. Research shows that few people take up smoking for the first time after their early twenties (Jha & Chaloupka 1999; Liang & Chaloupka 2001) so social class differentials in smoking are due either to higher rates of smoking in adolescence among lower class children or higher rates of quitting among those in higher social class positions. It could be for instance that children from different social class backgrounds (assuming a high association between origin social class and attained social class) begin smoking at roughly similar rates, but that those from higher social positions quit more readily.

Evidence from the Health Behaviour in School Age Children survey (2002) (Kelleher 2003: 25) is mixed, but suggests that among 15 to 17 year olds in 2002 at least, that smoking is more prevalent in lower social class groups (though the relationship in 1998 was reversed which may mean a high sample error in the HBSC surveys) which suggests that working class children in 2002 were more likely to smoke than their peers from higher social groups. Evidence from the Living in Ireland Survey 2000 presents a more complex picture as can be seen from Table 4 which shows current and past smoking by age group by the social class of the respondents' parents². This shows higher rates of never having smoked among non-manual groups, but also higher quit rates with the differential increasing with age. It seems then that working class children are more likely to smoke, but they are also less likely to quit, increasing the social class differential in smoking.

² Since the key differential is between the manual and non-manual classes, here we dichotomise the class of origin into manual and non-manual.

Table 4: Distribution of Current and Past Smoking by Social Class of Family of Origin and Age Group

	Current Smokers	Past Smokers	Never Smoked	Total	Base N
Aged <25					
Non-Manual	25.7	6.3**	68.0	100%	269
Manual	35.8	5.1	59.0	100%	586
25-44					
Non-Manual	34.3	11.8*	53.9	100%	568
Manual	39.0	11.6	49.4	100%	1367
45-64					
Non-Manual	19.4	26.6***	54.0	100%	289
Manual	33.7	18.6	47.8	100%	938
65+					
Non-Manual	18.9	30.7	50.4	100%	127
Manual	25.0	22.2	52.8	100%	396

Significance Key: *** P<0.001 ** P<.01 * P<.05

How can we explain this increased tendency to smoke and lower probability to quit? In the discussion above we suggested that smoking among working class groups was related to their lower educational attainment and certainly, education and smoking are related. Table 5 shows for example that even when we have controlled for being manual working class plus age and sex, having primary education alone or lower secondary education increases the risk of smoking by 107% and 44% respectively compared to those with third level education. This shows that lower educational attainment seems to play some role and indeed, the extent of this role can be quantified in the decrease in the effect for manual class individuals between models 1 and 2 in Table 5 which shows a 33% decrease when we control for education.

Table 5: Logit Models of Odds of Smoking

	Model 1		Model 2		Model 3	
	β	Sig.	β	Sig.	β	Sig.
Manual	2.12	***	1.79	***	1.78	***
Aged 30-39 (Ref <30)	1.32	*	1.26	n.s	1.26	n.s
Aged 40-49	0.92	n.s	0.82	n.s	0.82	n.s
Aged 50-59	0.88	n.s	0.70	*	0.69	*
Aged 60-69	0.73	n.s	0.52	***	0.51	***
Aged 70+	0.44	***	0.30	***	0.29	***
Female	1.07	n.s	1.12	n.s	1.12	n.s
Primary Education Only (Ref Tert)			2.00	***	1.96	***
Lower Secondary or Equivalent			1.38	*	1.36	*
Upper Secondary or Equivalent			0.97	n.s	0.97	n.s
Level of Fatalism					0.99	n.s
Constant	0.24	***	0.23	***	0.30	**
N	6147		6147		6147	
Log-Likelihood	-3294.03		-3263.34		-3262.58	

Significance Key: *** P<0.01 ** P<0.05 * P<0.1

Of course education and social class are highly correlated variables, but we can get some idea of their independent influence on smoking by varying their entry into the model and parcelling out the observed change in explained variance. When we do this we see that of the decrease in variance explained by education and class combined,

class contributes 38%, education 30% and they share just around 32%. Our first hypothesis above was that the class differential in smoking could be explained solely in terms of differences in knowledge of the risk or taught judgement. Table 5 shows that education is an important predictor of smoking and, moreover, explains roughly a third of the class differential.

Our second and third hypotheses were that class differences may in fact be due to the differential levels of future orientation among class groups. The second hypothesis held that this was due to the influence of education and, as Table 6 shows, there are significant differences between educational groups in their level of ‘fatalism’, or what we are terming, ‘future orientation’.

Primary	21.2***
Lower Second Level	22.0***
Upper Second Level	22.55***
Tertiary	23.39***
R ²	0.174

Significance Key: *** P<0.01 ** P<0.05 * P<0.1

To assess hypotheses two and three together, to what extent though does level of fatalism impact on the social class differential in smoking? Table 5 suggests not much. Model 3 shows that the addition of the fatalism variable leads to a small decrease in the class effect of 2% and a reduction in the effect of primary education of 4%. It seems then that we can reject hypothesis two and three that future orientation or ‘fatalism’ is the prime factor explaining social class differences. Hypothesis one on the other hand receives some support.

The problem is however, that education could be an influence on smoking though its affect on life chances and the probability of disadvantages such as unemployment, poverty and deprivation. In a cross-sectional sample we will need to isolate the independent affect of education on smoking net of other socio-economic influences before we can assess the role of both differential knowledge and judgement (derived from education). By doing this we can then also assess the fourth of our hypotheses above, that smoking differentials are in fact the result of socio-economic ‘push’ factors to smoke. If so, the majority of the effect of class will be accounted for by socio-economic mediators.

To examine the effect of education net of its indirect affect on life chances and socio-economic position we need to examine the effect of education on the probability of smoking once we have controlled for confounding variables and a range of important socio-economic characteristics. To do this we use a series of logistic regressions and data from the Living in Ireland Survey from the year 2000.

By entering sets of variables we can examine the role of different factors in the probability of smoking, but more importantly, examine how these factors reduce the effect of manual social class. We apply the variables listed earlier and Table 7 gives the resulting odds ratios and significance of variables in predicting smoking daily.

Table 7: Logistic Models of Probability of Smoking Daily

Variable	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	β	Sig.	β	Sig.	B	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Manual Working Class	2.12	***	1.86	***	1.64	***	1.61	***	1.55	***	1.44	***	1.44	***
Aged 30-39 (Ref <30)	1.32	*	1.40	*	1.39	*	1.35	n.s	1.33	n.s	1.27	n.s	1.27	n.s
Aged 40-49	0.92	n.s	1.06	n.s	1.03	n.s	1.04	n.s	1.02	n.s	0.93	n.s	0.93	n.s
Aged 50-59	0.88	n.s	1.04	n.s	0.97	n.s	0.99	n.s	0.95	n.s	0.81	n.s	0.81	n.s
Aged 60-69	0.73	n.s	0.82	n.s	0.79	n.s	0.84	n.s	0.81	n.s	0.65	*	0.64	*
Aged 70+	0.44	***	0.51	***	0.50	***	0.54	**	0.53	**	0.41	***	0.41	***
Female	1.07	n.s	1.07	n.s	1.04	n.s	1.08	n.s	1.08	n.s	1.12	n.s	1.12	n.s
Partner Smokes Daily (Ref No Partner)			2.40	***	2.49	***	2.46	***	2.45	***	2.49	***	2.49	***
Partner Smokes Occasionally			0.93	n.s	0.99	n.s	0.99	n.s	1.00	n.s	1.02	n.s	1.02	n.s
Partner Smokes Daily in Past			0.67	*	0.73	n.s	0.72	n.s	0.72	n.s	0.73	n.s	0.73	n.s
Partner Smokes Occasionally in Past			0.41	**	0.46	*	0.46	*	0.46	*	0.50	*	0.50	*
Partner Smokes Never			0.53	***	0.58	***	0.58	***	0.59	***	0.60	**	0.60	**
Frequent Socialiser			1.16	n.s	1.27	n.s	1.30	n.s	1.27	n.s	1.26	n.s	1.27	n.s
Log Equivalised Income					0.96	n.s	0.97	n.s	0.98	n.s	1.03	n.s	1.03	n.s
Basic Deprivation					1.12	n.s	1.11	n.s	1.11	n.s	1.11	n.s	1.11	n.s
Secondary Deprivation					1.05	n.s	1.04	n.s	1.03	n.s	1.03	n.s	1.03	n.s
Housing Deprivation					1.22	n.s	1.20	n.s	1.20	n.s	1.19	n.s	1.19	n.s
Great Difficulty 'Making Ends Meet'					1.31	n.s	1.32	*	1.31	n.s	1.28	n.s	1.28	n.s
Unemployed							0.94	n.s	0.94	n.s	0.94	n.s	0.94	n.s
Unemployed in the Last 5 Years							1.53	**	1.51	**	1.51	**	1.51	**
Economic Strain During Childhood									1.13	n.s	1.05	n.s	1.05	n.s
Unskilled Manual Family of Origin									1.28	*	1.22	n.s	1.22	n.s
Primary Education Only (Ref Tertiary)											1.64	**	1.63	**
Lower Secondary or Equivalent											1.22	n.s	1.22	n.s
Upper Secondary or Equivalent											0.97	n.s	0.97	n.s
Level of Fatalism													1.00	
Constant	0.24	***	0.22	***	0.23	*	0.20	**	0.19	**	0.14	**	0.14	**
N	6147		6147		6147		6147		6147		6147		6147	
Log-Likelihood	-3294.03		-3162.22		-3134.49		-3122.40		-3115.44		-3102.30		-3102.29	

Although our main aim is not to examine the effects of each predictor, it is interesting nonetheless to remark on some specific affects. Age is negatively associated with smoking, although only in the two oldest age groups. Whether a partner smokes or not is a very significant predictor of the respondent's smoking behaviour with a smoking partner increasing the probability of smoking and vice versa. Interestingly, none of the variables representing standard of living are significant, although having great difficulty 'making ends meet' does increase the likelihood of smoking once we control for experience of unemployment. Similarly, although currently being unemployed does not seem to increase the probability of smoking, having been unemployed in the last five years is a significant positive predictor.

These results offer some insights into the factors associated with smoking, but of more interest to us here is their impact on the social class differential. Table 8 gives the proportionate reductions in the class differential as we add groups of variables. Model 2 shows that the addition of the contextual factors leads to a 23% reduction in the class differential over model 1 which controls solely for confounding factors. Introducing living standards in Model 3 decreases the differential by a further 20% whereas introducing experience of unemployment only decreases the differential by a further 3%. Family of origin affects have slightly more impact by reducing the differential by 5%, but it is the final two additions to the model that we are most interested in – education and fatalism.

The introduction of education to model 6 decreases the class differential by a further 10%, the second largest affect after the contextual factors. As we have now controlled for a range of socio-economic predictors of disadvantage we are in a position to state the 'direct' affect of education, i.e. the role of differential knowledge and learnt judgment. Model 6 shows that education does have a direct affect, but from Model 6 this would seem to be no more than 10%, supporting hypothesis 1 which states that the direct impact of education will be minimal.

Model	Decrease
1 Class + Confounders	-
2 +Contextual Factors	23.21%
3 +Living Standards	42.86%
4 +Employment Status	45.54%
5 +Family of Origin	50.89%
6 +Education	60.71%
7 +Fatalism	60.71%

Our Fourth hypothesis was that the social class differential in smoking will be accounted for directly by socio-economic mediators which provide 'push' factors to smoke. These may then also create a working class 'culture' within which smoking is encouraged. Looking at Table 8 we can see that the addition of contextual factors, variables for measuring living standards, employment status and family of origin decreases the social class differential by over 50%. Therefore at least half of the

differential in smoking behaviour can be directly explained through differences in socio-economic conditions and disadvantages.

6. Summary and Conclusions

Although rates of smoking have decreased dramatically over the last fifty years in Ireland, as they have done elsewhere among English speaking countries, this decline has not been uniform across the population and there have actually been increases in smoking among lower income and social class groups. This development means that rates of smoking among manual working class groups are twice those of professional and managerial groups. Smoking may not be the primary cause of differentials in life expectancy and morbidity across social class groups, but it is contributory, but this does not mean that we should see poor health status and early mortality among working class groups as nobodies fault but their own and in some sense freely 'chosen'. Smoking is a choice, but even putting questions of addiction aside, it is a choice made in a social and economic context that has a large bearing on the incentives to smoke and the perception of health risk. In this paper we formulated four hypotheses about how different factors, including structural context, might impact on social class differentials in smoking. The first hypothesis related to the direct impact of education on differential knowledge about the risks of smoking and its indirect affect then on class differentials. The second hypothesis related to the indirect affect of education on class differentials acting through its impact on the structuring of received risk and future orientation. This hypothesis holds that higher levels of education develops greater levels of abstract thought in individuals and an ability to project future risk on present behaviour leading to lower levels of smoking. The third hypothesis also invoked future orientation, but saw this as the outcome of socio-economic disadvantage and the lived experience of being working class. Our last hypothesis was that the class differential in smoking was an indirect result of socio-economic disadvantage and deprivation which acts as a 'push' factor to smoke. According to this hypothesis the majority of the class differential will be accounted for directly by socio-economic mediators, which create a working class 'culture' within which smoking is encouraged.

Using nested logistic models we found a fairly conclusive answer to that question of whether education impacts on smoking directly via differences in knowledge. After controlling for a large number of socio-economic, social origin and contextual factors we found that education accounted for no more than 10% of the differential between classes allowing us to reject this hypothesis. Similarly, tests using a measure of fatalism found that this had almost no bearing on class differentials in smoking behaviour once we had controlled for other measures of social deprivation. The main finding from this paper has to be that socio-economic factors such as living standards and unemployment, contextual factors and deprivation in family of origin account for around half of the differential in smoking across social classes giving support to hypothesis three which stated that class differential is largely structured by socio-economic differences and levels of disadvantage.

Recognising the importance of socio-economic context is an important step that is still to be accepted by much of the smoking cessation literature and policy. For the most part, cessation policy rests upon education in tandem with support groups or physical aids such as nicotine patches, but the findings of this paper would suggest that more

research needs to be focused on how exactly socio-economic hardship and deprivation promotes or encourages smoking. The finding in section five that a large proportion of those who have ever smoked will have quit, even among manual groups, shows that individuals can stop smoking, but it is clear that rates of quitting are far lower among manual working class groups and the reasons for this would seem to be bound up with the lived experience of socio-economic deprivation. This is the type of conclusion that anti-smoking groups do not like to hear since they would argue, correctly, that they have little or no influence over the policy changes that would need to be implemented to actually change levels of social deprivation. However, we would argue first that such groups should perhaps align themselves with the broader lobby of public health groups who are arguing for social and economic change to equalise health inequalities. Second, we would also suggest that recognition of the role of socio-economic circumstances should also lead to a better targeting of health education messages and supports to particular sections of the population where they would have more benefit.

7. References

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