Linguistic Elitism and Gender in the Irish Labour Market: How much Advantage is there to Workers in Ireland Speaking Irish and being Male? Evidence from the 2006 Census[+]

Vani K Borooah[*]
University of Ulster

Donal A. Dineen[**]
University of Limerick

Nicola Lynch[***]
University of Limerick

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Abstract

This paper, using data from the 2006 Irish Census, provides evidence of the structural disadvantage of women, relative to men, workers - and of the structural advantage of Irish speaking, relative to non-speaking, workers - in Ireland's labour market with advantage and disadvantage being defined in terms of occupational outcomes. The former finding is, perhaps, less surprising, than the latter. To the best of our knowledge there has been no systematic investigation of any advantage enjoyed by Irish speakers in Ireland and allegations of the comfortable middle class ambience of the *Gaelscoileanna* have remained at the level of anecdote. Since linguistic elitism is a feature of many societies and since Irish enjoys the constitutional status of the national and first official language of Ireland, such an investigation was, arguably, overdue. Our conclusion was that after controlling for as many relevant factors as the data permitted, there was a small, but undeniably significant, advantage that accrued to Irish speakers in terms of obtaining jobs of the professional, managerial, or technical variety. Equally, a considerable part of the difference between speakers and non-speakers in their proportionate presence in the upper reaches of occupational class was due to structural advantage. The major contribution of this paper is to lift the debate about the economic position Irish speakers in Ireland above the level of hearsay: *dúirt bean liom go ndúirt bean léi.*

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[*] Author for correspondence: School of Economics, University of Ulster, Newtownabbey, Northern Ireland BT37 0QB, UK (VK.Borooah@ulster.ac.uk)

[**] Kemmy Business School, University of Limerick, Limerick, Ireland (Donal.Dineen@ul.ie)

[***] Kemmy Business School, University of Limerick, Limerick, Ireland (Nicola.Lynch@ul.ie). She would like to gratefully acknowledge funding received from the Irish Research Council for the Humanities and Social Sciences (IRCHSS).

"Is there any point to which you would wish to draw my attention?"
"To the curious incident of the dog in the night-time."
"The dog did nothing in the night-time."
"That was the curious incident," remarked Sherlock Holmes.
Arthur Conan Doyle, *Silver Blaze*

1. Introduction

The curious incident about Irish speakers in Ireland is that, while enjoying considerable advantage in the labour market, many of them never speak Irish and, of those that do, very few speak it with any regularity. The curious incident about women workers in Ireland is that while they are generally better educated than their male counterparts, they are silent – there is silence - about the fact that they do not do as well as (and, by corollary, men do better than) they deserve. This paper is about these twin themes: the structural advantage that, among those at work in Ireland, Irish speakers enjoy over non-speakers and men enjoy over women.

There are two aspects to structural advantage in the labour market. The first is whether differences in the remuneration to different persons fully reflect disparities in their productivity or whether such differences are wholly, or in part, the result of "earnings discrimination". Oaxaca (1973), in his pioneering study of male-female wage differentials, developed a methodology for answering this question and, in the context of Ireland, the issue of male-female wage differentials has been investigated by Callan (1991).

The second aspect relates to the differential chances of persons from different groups attaining a particular occupational status. Here the concern is whether the different degrees of success, with which persons from different groups attain a particular status, are justified by inter-group differences in worker attributes or whether they are the result of "occupational discrimination". It is this aspect which is the focus of the paper.

The class of jobs we examine are those that are described as "professional, managerial, or technical" (PMT jobs) and having such a job, in contrast to having a job outside this occupational class (non-PMT jobs), is regarded in this paper as "occupational success". By structural advantage in terms of occupational outcomes we mean that, *after controlling for a range of labour market attributes*, workers from one group have a better chance of attaining PMT jobs (i.e. occupational success) than those from another group.

Although the existence, and degree of, occupational discrimination has been investigated for *inter alia* the USA (Schmidt and Strauss, 1975), Great Britain (Blackaby *et. al.*, 1997 and Borooah, 2001), and Australia (Borooah and Mangan, 2002 and 2007), to the best of our knowledge this has not been investigated for Ireland. As Arrow (1998) has observed, although the issue of occupational discrimination is more important than that of earnings discrimination – in the sense of occurring more frequently in the real world – it is also the more neglected. As Higgs (1977) and Whately and Wright (1994) have argued in the context of the US labour market, black and white wages for the same job rarely differed by much; instead, discrimination took the form of restricting the range of jobs to which black persons were hired. Similarly, in Northern Ireland, discrimination against Catholics took the form of excluding them from jobs (for example, in the shipyards) rather than paying Catholic workers less than Protestants (Borooah, 1999).

Studying the labour market disadvantage of women in Ireland requires little justification. The Commission of the European Communities (2007) reported a pay gap of 11 percent between men and women in Ireland and pointed out that while women in Ireland had better educational qualifications than men, only 30 percent of managers in Ireland in 2005 were women.

Examining the labour market advantage of Irish speakers in Ireland is more contentious. At a populist level, it has been claimed that "students in Irish schools doing their exams through Irish enjoy positive discrimination, with an advantage in the Leaving Cert[ificate] of up to 10 percent of their original result, and that puts children in English-speaking schools, from English-speaking and immigrant families, at a disadvantage". Furthermore, smaller classes mean that "every year, the Leaving Cert[ificate] students with the most As come largely from Irish-speaking schools" with the consequence that "students from Irish-speaking schools are more likely to get on the university course of their choice".[1] Needless to say, such claims are promptly rubbished by others: rather than Irish-speaking schools (*Gaelscoileanna*) being bastions of middle class privilege, many of them are to be found in working class areas; the extra points system is not as generous as it appears and, in any event, they are awarded to compensate for a paucity of learning materials in Irish.[2]

2. The Background

The data on which this study is based are from a 5% sample from the 2006 Irish Census, referred to as the *Sample of Anonymised Records* and, hereafter, as SARS06.[3] According to SARS06, of the 197,862 persons in the sample, aged 3 years or more, 82,858 persons (42 percent) claimed an ability to speak Irish (hereafter, "Irish speakers"); if one restricted attention to persons (who regarded themselves) of Irish ethnicity, then of 173,703 persons, 80,591 (46 percent) were Irish speakers.[4]

Of the 26,919 Irish speakers *who spoke it daily* - comprising 32 percent of the total of 82,858 Irish speakers - 85 percent (22,810 persons) only spoke it within the

[1] Kate Holmquist, "Language of educational apartheid", Irish Times, 9 December 2009.
[2] Muireann Ní Mhóráin, "'Apartheid' slur on Gaelscoileanna not based on facts", Irish Times, 18 Dcember 2008.
[3] Census Enquiries Section, Central Statistics Office, Swords, Co. Dublin, Ireland (www.cso.ie).
[4] Implying that nearly one in ten of the non-Irish part of the population was an Irish speaker in (2,267 out of 24,159 persons).

educational system with only 15 percent of daily speakers of Irish (4,109 persons) using the language outside the educational system. Of the 55,939 Irish speakers who did not speak Irish on a daily basis, 20,622 *never* spoke it and 29,218 spoke it less often than once weekly. Consequently, if one regards a "living language" as one which is used daily, in a non-institutional setting, then Irish is a living language for less than one in twenty of Irish speakers in Ireland and a living language for one in forty of Ireland's population.

The broad point is that although nearly half the Irish population regards itself as speaking Irish, it is a "living language" for only a small minority. On the face of it, therefore, an inability to speak Irish should not be a significant barrier to living and working in Ireland in the way that, say, an inability to speak Hindi might be in North India. Nevertheless, the evidence is that, on several counts, Irish speakers are considerably better off than those who cannot speak the language.

In terms of *social class*, 42 percent of Irish speakers, but only 27 percent of Irish non-speakers, were in professional, managerial, and technical occupations and 12 percent of Irish speakers, but 19 percent of Irish non-speakers, were in semi-skilled or unskilled occupations. In terms of *economic status*, 3 percent of Irish speakers, compared to 6 percent of Irish non-speakers, were unemployed and 2 percent of Irish speakers, compared to 5 percent of Irish non-speakers unable to work due to permanent illness or disability. In terms of the *highest level of education*, 25 percent of Irish speakers, compared to 14 percent of Irish non-speakers, had degree (or higher) level qualifications and just 9 percent of Irish speakers, in contrast to 22 percent of Irish non-speakers, had just primary level (or no) qualifications.[5]

[5] These advantages spilled over from the labour market into other areas. In terms of *housing tenure*, 82 percent of Irish speakers, compared to 70 percent of Irish non-speakers, were owner-occupiers; in terms of *housing type*, 52 percent of Irish speakers, compared to 41 percent of Irish non-speakers, lived in a detached house and 13 percent of Irish speakers, compared to 18 percent of Irish non-speakers,

However, as this paper will show, *even after controlling for labour market relevant attributes*, Irish speakers did better in the labour market compared to Irish non-speakers. In other words, *ceteris paribus* there is a bias in Ireland's labour market which favours Irish speakers over non-speakers.

Turning to gender, women workers in Ireland are better off than their male counterparts in one respect: 45 percent of the 28,949 women in work, compared to 37 percent of the 39,540 working men, had professional, managerial, or technical jobs; moreover, 34 percent of female workers, compared to 23 percent of male workers, had degree (or higher) level qualifications and only 4 percent of female workers, compared to 10 percent of male workers, had primary (or below) qualifications.

Nonetheless, as this paper will argue, men in Ireland "punch above their weight" – and, by corollary, women "punch below their weight" - meaning that men rise higher in the labour market than do women with comparable attributes. As we show, *after controlling for labour market relevant attributes*, men do better in the labour market compared to women so that *ceteris paribus* there is a bias in Ireland's labour market which favours male over female workers.

3. Logit and Ordered Logit Models of Labour Market Outcomes

The first logit model was estimated over the subset of persons from SARS06 *who were presently in work for payment or profit*; in this model, the dependent variable Y_i was such that $Y_i=1$, if a person $(i=1…N)$ worked in a professional, managerial or technical (PMT) capacity, $Y_i=0$, if he/she was employed in another

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lived in a terraced house; lastly, in terms of *heating*, 91 percent of Irish speakers, compared to 86 percent of Irish non-speakers, lived in houses which had central heating.
In terms of *car ownership*, 45 percent of Irish speaking persons, compared to 34 percent of Irish non-speaking households, lived in two-car households and, in terms of *computer ownership* and *web access*, 73 and 25 percent of Irish speakers, owned a computer and had access to broadband, respectively, in contrast to, respectively, 58 and 21 percent of Irish non-speakers.

(non-PMT) capacity.[6] The second logit model was estimated over the subset of persons from SARS06 *who were presently in the labour force*; in this model, the dependent variable Y_i was such that $Y_i=1$, if a person $(i=1…N)$ was working, $Y_i=0$, if he/she was unemployed.

Both models were estimated on a vector of variables, X_{ij} being the value of the j^{th} variable for the i^{th} person $(j=1…J)$.[7] A natural question to ask from the logistic model is how the probability of a particular labour market outcome would *change* in response to a change in the value of one of the variables. These probabilities are termed *marginal probabilities*.

For discrete variables, the marginal probabilities refer to *changes* in the outcome probabilities consequent upon a move from the residual category for that variable to the category in question, *the values of the other variables remaining unchanged*. For continuous variables, the marginal probabilities refer to *changes* in the outcome probabilities consequent upon a unit change in the value of the variable, *the values of the other variables remaining unchanged.*

Table 1 shows the marginal probabilities for the "in work" equation and Table 2 shows the marginal probabilities for the "in labour force" equation. The associated z-values are shown alongside the marginal probabilities: a z value exceeding 1.96 indicates that the coefficient was significantly different from zero at a 5% significance level. Table 1 shows that *ceteris paribus* the likelihood of a *female worker* being in a PMT job was 10.1 percentage points lower compared to the corresponding likelihood for a male worker while the likelihood of an *Irish speaking worker* being in a PMT

[6] Non-manual, skilled manual, semi-skilled, unskilled, other.

[7] The logit equation is $\frac{\Pr(Y_i=1)}{1-\Pr(Y_i=1)} = \exp\{\sum_{j=1}^{J} X_{ij}\beta_j\} = \exp\{z_i\}$ for J coefficients, β_j and for observations on J variables.

job was 6.7 points higher compared to the corresponding likelihood for a worker who did not speak Irish.

Relative to Dublin, the probability of working in a PMT job was lower in all the other *regions* of Ireland and was smallest in the Border and Western regions (*ceteris paribus* 11.1 and 9.2 points, respectively, lower than Dublin). Compared to a non-Catholic worker, the likelihood of a *Catholic worker* being in a PMT job was 8.1 points lower and, compared to persons whose ethnicity was not Irish, the likelihood of workers of *Irish ethnicity* being in PMT jobs was 7.3 points higher. Workers who were *Irish nationals* were more likely (by 9.7 points) to be in PMT jobs compared to non-nationals but workers born in Ireland were less likely by 4.2 points, relative to foreign-born workers, to be in PMT jobs.

Relative to working in agriculture, the likelihood of working in PMT jobs was smaller in all the other *industrial sectors* (except professional services); this likelihood was smallest in construction and transport and in public administration and defence (*ceteris paribus* 29.1 and 19.2 points, respectively, lower than agriculture). As expected, the level of education had a large effect on the probability of working in a PMT job: compared to having a primary education, the likelihoods of workers with third level education and of workers with secondary education, being in PMT jobs were, respectively, 59.6 points and 18.3 points higher.

The marginal probabilities from the "labour force" equation (Table 2) echo many of the findings of the "in work" equation: the likelihood of Irish speakers being in work was 10 points higher than for non-speakers; relative to living in Dublin, the likelihood of being in work was lower in many of the regions; Catholics in the labour force were more likely to be unemployed compared to non-Catholics; relative to those in agriculture, people in manufacturing, construction and transport, commerce, and

professional services were more likely to be unemployed; persons with a degree or with secondary educational qualifications were more likely to be in work compared to persons with primary educational (or no) qualifications. Some differences between the "in work" and "in labour force" equations were that the significant gender, nationality, and country of birth effects from the former set of estimates (Table 1) were not reproduced in the latter set (Table 2).

In order to guard against the possibility that the PMT/non-PMT dichotomy was excessively blunt, we also estimated an *ordered logit* model for persons in work in which the dependent variable, Y_i was such that: $Y_i=1$, for a professional worker, $Y_i=2$, for a managerial or technical worker, $Y_i=3$, for a non-manual worker, $Y_i=4$, for a skilled manual worker, and $Y_i=5$, for a semi-skilled or unskilled worker. This "in work" ordered logit model was estimated on the same set of determining variables as for the "in work" logit model (Table 1) and the marginal probabilities from the model, for each of the five categories of social class, are shown in Table 3.[8]

These results refine, but do not alter the conclusions of the dichotomous model: *inter alia* women workers and workers who could not speak Irish were *ceteris paribus* less likely to be in professional jobs or in managerial/technical jobs and were more likely to be at the non-manual and manual end of the class spectrum;

4. The Advantage of Being an Irish Speaker

The econometric results reported in the previous section clearly point to the advantage that Irish speakers have over non-speakers in Ireland's labour market: even

[8] In an ordered logit model, a person's classification in terms of his/her social class depends upon whether the value of an unobservable latent variable crosses a threshold such that the probabilities of a person being in a particular class are:

$\Pr(Y_i = 1) = \Pr(\varepsilon_i \le \delta_1 - Z_i); \Pr(Y_i = 2) = \Pr(\delta_1 - Z_i \le \varepsilon_i < \delta_2 - Z_i)$ etc.

If it is assumed that the error term ε_i follows a logistic distribution then an *ordered logit* model results.

after controlling for a number of attributes, the likelihood of an Irish speaking worker being in the upper echelons of social class were significantly higher, and the likelihood of an Irish speaker in the labour force being unemployed were considerably lower, compared to the relevant probabilities for non-speakers. The question is from where does this advantage derive?

One possibility is the quality of education. The Irish language movement has attracted a small but strong wave of strong urban middle/professional class support in recent decades, especially since the 1970s. Up till then, the language existed mainly within a small number of Irish language areas which were confined to poor, rural parts of the west coast, with a small core of educated urban activists, many of them connected in one way or another with education or the public sector. However, a major focus of the urban movement has been a push for schools that operate through the Irish language.

That this push has been highly successful is evidenced by the fact that in 1972, outside the Irish-speaking areas, there were 11 such schools at primary level and five at secondary level. Today there are 138 at primary level[9] and 53 at secondary level[10]. These schools have developed good academic reputations. They attract good teachers and a leadership core of committed parents and that attracts a wider circle of families that are drawn by good exam performance. The result is a system of positive social selection into Irish language schools which feeds through into occupational attainment.[11]

Our analysis of "feeder" schools in Ireland (that is, schools supplying students to third level educational institutions) shows that 53 schools, of a total of 707 feeder

[9] http://www.schooldays.ie/primary-schools-in-ireland/primary-gaelscoil
[10] http://www.schooldays.ie/secondary-schools-in-ireland/Gaelscoil
[11] The results can be seen among students at University College Dublin: the *Cumann Gaelach* (Irish language society) is one of the strongest student societies (over 1,000 members last year) and its board is dominated by students from the high-achieving areas of study (law, medicine, architecture, etc.).

schools sent *all* their students to third level institutions (7 percent), compared to the 10 of the 46 *Gaelscoils* (22 percent) who also did the same.

An illustration of the quality of Irish-language schools is provided by an independent report, commissioned by a *Gaelscoil* in Kerry, analysing its pupils' scores in English reading ability in MICRA-T tests. This report concluded that the classes which had been previously assessed by school inspectors in 2006, and had been criticised for poor English language skills, had, in fact, above-average reading skills (60% scored in the top level for reading compared to a 40% national average) 18 months after the inspection. According to the school board's chairman the original inspector's report failed to take account of how rapidly children improve their skills from a low base when knowledge of one language (Irish) reinforces learning another language (English). (Irish Examiner, 7 May, 2008).[12]

Occupational attainment may also be influenced by the subjects studied by those with third level education. Table 4 shows that of people currently in work, 10 percent of Irish speakers (regardless of sex) and 10 percent of women (regardless of whether they could speak Irish) obtained their third-level education in Education, in contrast to 3 percent of non-speakers and 3 percent of men. On the other hand, 17 percent of non-speakers, and 26 percent of men, had third level education in Engineering, Manufacturing, and Construction, in contrast to 12 percent of Irish speakers and 3 percent of women. The popularity of Social Science/Business/Law was roughly equal across the groups: in each group, about 22 percent of workers with third level education had this as their subject area.

Sixty nine percent of Irish speaking workers, compared to 63 percent of workers who were not Irish speakers, who had third level education had qualifications

[12] Ní Ríordáin and O'Donoghue (2008) suggest that a bilingual proficiency in English *and* Irish can enhance mathematical performance.

at degree level or higher; and, compared to 67 percent of male workers, 66 percent of female workers who had third level education had qualifications at degree level or higher.

Different subject groups had a different proportionate presence in the two social classes: PMT and non-PMT. Table 5 shows that 85 percent of workers with third level education in Education, and 92 percent of workers with third level education in Health, had PMT jobs; in contrast, 56 percent of workers with third level education in Agriculture and Veterinary Science, and 48 percent of workers with third level education in Social Services, had PMT jobs. Another factor influencing social class would be whether the third level education led to a degree: 77 percent of workers with a degree had PMT jobs compared to just 50 percent of workers with sub-degree third level education.

Consequently the different mix of subjects chosen by Irish speaking and non-speaking workers - and by male and female workers - with third level education might explain the different proportions of workers from each of these groups in the PMT class. To test this hypothesis the logit equation for social class (Table 1) was re-estimated, this time over the subset of workers who had third level education and including whether or not the third level education resulted in a degree (or higher) - and also the subject in which the third level education (degree or non-degree) was pursued - in the list of determining variables. The marginal probabilities, shown in Table 6, show that even after controlling for subject – and whether the third level education resulted in a degree - the probability of a worker who could speak Irish being in a PMT job was 3.5 points higher than for a non-speaker and the probability of a female worker being in a PMT job was 7.5 points lower than for a male worker.

The third reason why Irish speaking workers have an advantage over their counterparts who do not speak the language is that Irish speakers form a *network* of social contacts which results in the accumulation of *social capital* within the group. The term *network* has been used to describe many different types and forms of interactions between people, both on a formal and an informal basis.[13] The type of network considered relevant to this discussion is a *social* network based on informal, interpersonal relationships.

According to Davern (1997 p. 288), "a social network consists of a series of direct and indirect ties from one actor to a collection of others". Deaux and Martin (2003) in their analysis of interpersonal networks and social categories regard interpersonal networks as made up of individuals who share common attributes in terms of membership of a social category (for example, ethnic background or occupation). Accordingly they suggest that a major effect of this is that social category can, "shape an individual's participation in everyday networks by creating opportunities to form relationships with similar others" (Deaux and Martin, 2003 p. 106). Deaux and Martin (2003) highlight the interpersonal networks that Polish immigrants developed when they relocated to the United States: they set up workmen's groups, that were first located in boarding houses, with Polish immigrants being preferred to non-Polish immigrants, relatives being preferred to non-family members, and people from the same region in Poland being preferred over people from other Polish regions.

Lewer and Van den Berg (2007) show that the sharing of religious ideas and culture across countries (Buddhists, Confucians, Hindus, Eastern Orthodox, Catholics, or Protestants) creates network effects that improve intra-group trade. Both of these

[13] See for example the work of, Larson (1991); Dubini & Aldrich (1991); Zaheer and Venkatraman (1995); Belussi and Arcangeli (1998); Freel (2000); Premartne (2001); and Madill *et al* (2004) to name just a few.

examples indicate that common attributes between individuals can lead to the creation of a social network. From an Irish perspective, such attributes may include the Irish language (*Gaeilge*) and Irish culture (e.g. Irish sports such as *hurling* and *Gaelic football*). These linguistic, cultural, and sporting bonds are instrumental in creating social (interpersonal or informal) networks, whereby individuals who are bound by these ties accumulate trust and social capital.

Ties between individuals within a social network can accrue benefits to those involved. One such example is in the job market. Davern (1997, 1999) highlights the advantages of social network involvement in the job market for both individuals in search of work, and employers looking to fill a vacancy: social network ties can be used as a source of informal job search in terms of, for example, job referrals, getting 'inside' information or possibly being employed directly by a friend.

Davern and Hachen (2006) emphasised the work of Granovetter (1973) for his research on the role social networks play in the job mobility process. Granovetter (1973) proposed that the strength of interpersonal ties within a network influences the flow of information. He showed that the majority of his respondents found jobs through 'informal' means, such as friends or family. He found that these ties served as bridges between networks, which allowed individuals to link with others who were not already part of their network (Davern and Hachen 2006). It is thus, through these social networks that individuals, who were connected in some way (for example via ethnic background, gender, culture), interacted.

5. The Decomposition of Social Class Advantage

In the logistic model reported in Table 1, the "gender" and the "Irish speaker" effects operated entirely through the intercept term with the slope coefficients being unaffected by either the sex of the person or by whether he/she was an Irish speaker

(the implication being that the marginal probabilities associated with the variables - say, third level education - was the same for men and women and for Irish speakers and non-speakers). This assumption can be relaxed by estimating the equation specified in Table 1 separately for: workers who were Irish speakers and non-speakers; and male and female workers. The marginal probabilities from these models are shown in Table 7 (Irish speaking and non-speaking workers) and Table 8 (male and female workers).

According to Table 7, compared to an Irish speaking male (currently in work), an Irish speaking female (currently in work) was 11.4 points less likely to be in a PMT job while, compared to an Irish non-speaking male (currently in work), an Irish non-speaking female (currently in work) was 8.5 points less likely to be in a PMT job. So, while discrimination against women workers is a pervasive feature of the Irish jobs market, it would appear to be more pernicious among Irish speakers than among non-speakers.

According to Table 8, compared to an Irish non-speaking male (currently in work), an Irish speaking male (currently in work) was 5.7 points more likely to be in a PMT job while, compared to an Irish non-speaking female male (currently in work), an Irish speaking female (currently in work) was 7.7 points more likely to be in a PMT job. So, while Irish speaking workers enjoy an advantage over Irish non-speaking workers, both taken in their entirety - the advantage enjoyed by Irish speaking women workers, over their non-speaking counterparts, was greater than that enjoyed by Irish speaking male workers, over their non-speaking counterparts.

A red font in Tables 7 and 8 indicates that the marginal probabilities were significantly different between the relevant groups at 10% or less - while a blue font indicates that the marginal probabilities were significantly different between the two

groups at 20% or less - level of significance. So, for example, in Table 8, compared to a non-Catholic *male* worker, a Catholic *male* worker was 8.9 points less likely to be in a PMT job while, compared to a non-Catholic *female* worker, a Catholic *female* worker was 6.2 points less likely to be in a PMT job; the red font indicates that these two marginal probabilities were significantly different at a 10% or less level of significance. Similarly in Table 7, an Irish speaking worker living in the West of Ireland was 11.7 points less likely to be in a PMT job, compared to an Irish speaking worker in Dublin, while, compared to an Irish non-speaking worker in Dublin, an Irish non-speaking worker living in the West of Ireland was 7.2 points less likely to be in a PMT job; the blue font indicates that these two marginal probabilities were significantly different at a 20% or less level of significance.

The Oaxaca (1973) method of decomposing differences between groups, in their respective mean values, into a "discrimination" and a "characteristics" component is, arguably, the most widely used decomposition technique in economics. This method has been extended from its original setting within regression analysis, to explaining group differences in probabilities derived from models of discrete choice with a binary dependent variable and estimated using logit/probit methods (Nielsen, 1998).

The Oaxaca decomposition (and its extension) is formulated for situations in which the sample is subdivided into two mutually exclusive and (collectively exhaustive) groups, such as, for example, men and women. Then, one may decompose the difference in, for example, average wages between men and women – or the difference between male and female (or Irish speaking and non-speaking) workers in their average probabilities of being in PMT jobs – into two parts: the first

due to inter-group differences in the coefficient vectors and the second due to inter-group differences in the attribute vectors.

The attribute contribution is computed by asking what the average male/female (Irish speaker/non-speaker) difference in probabilities *would have been* if the difference in attributes between them had been evaluated using a common coefficient vector. Typically, two separate computations of the attribute contribution are provided using, in turn, the coefficient vectors of the two groups as the common vector. It is important to note that the two sets of computations will, generally, yield different answers.

Column 1 of Table 9 shows the *observed* difference between Irish speaking and non-speaking workers in their proportions in PMT jobs: 0.502 – 0.333 = 0.169. Column 2 of Table 9 shows the amount of the overall gap that is due to the *attributes effect* when speaker and non-speaker attributes are both evaluated using *speaker* coefficients; similarly, column 4 of Table 9 shows the amount of the overall gap that is due to the *attributes effect* when speaker and non-speaker attributes are both evaluated using *non-speaker* coefficients. Two points should be noted:

1. When non-speaker attributes are evaluated at speaker coefficients, the proportion of non-speaker workers in PMT job is predicted to rise from the observed value of 0.333 to 0.374: this is because non-speaker attributes are being evaluated using more favourable coefficients (i.e. those of speakers). Consequently, of the observed gap of 0.169 points, 0.128 (or 76 percent) can be explained by differences in attributes between workers who are Irish speakers and non-speakers. The "unexplained" residual of 24 percent could be ascribed to some "structural advantage" that Irish speakers possess over non-speakers.

2. When speaker attributes are evaluated at non-speaker coefficients, the proportion of Irish speaking workers in PMT job is predicted to fall from the observed value of 0.502 to 0.448: this is because speaker attributes are being evaluated using less favourable coefficients (i.e. those of non-speakers). Consequently, of the observed gap of 0.169 points, 0.115 (or 68 percent) can be explained by differences in attributes between workers who are Irish speakers and non-speakers. The "unexplained" residual of 32 percent could be ascribed to some "structural advantage" that Irish speakers possess over non-speakers.

Column 1 of Table 10 shows the *observed* difference between female and workers in their proportions in PMT jobs: 0.449 – 0.369 = 0.08. Column 2 of Table 10 shows the amount of the overall gap that is due to the *attributes effect* when female and male attributes are both evaluated using *female* coefficients; similarly, column 4 of Table 9 shows the amount of the overall gap that is due to the *attributes effect* when female and male attributes are both evaluated using *male* coefficients. Two points should be noted:

3. When male attributes are evaluated at female coefficients, the proportion of male workers in PMT job is predicted to *fall* from the observed value of 0.369 to 0.320: this is because male attributes are being evaluated using *less* favourable coefficients (i.e. those of female workers). Consequently, of the observed gap of 0.08 points, 0.129 (or 161 percent) can be explained by differences in attributes between female and male workers. The "unexplained" residual of 61 percent could be ascribed to some "structural advantage" or, less kindly, "discriminatory advantage" that men workers possess over women workers.

4. When female attributes are evaluated at male coefficients, the proportion of female workers in PMT job is predicted to *rise* from the observed value of 0.449 to 0.534: this is because female attributes are being evaluated using *more* favourable coefficients (i.e. those of male workers). Consequently, of the observed gap of 0.08 points, 0.165 (or 206 percent) can be explained by differences in attributes between female and male workers. The "unexplained" residual of 106 percent could be ascribed to "discriminatory advantage" that men workers possess over women workers.

Would the above conclusions have changed if the subject areas in which third-level education had been obtained were taken into account? In order to answer this question the model shown in Table 6 – estimated over the subset of workers with third level education – was now estimated separately for Irish speakers and non-speakers and separately for men and for women.[14] These results were then used to reprise the decompositions, discussed above, and these are shown in Tables 11 (Irish speaking/non-speaking workers) and 12 (male and female workers).

Under this revaluation, the observed difference between Irish speaking and non-speaking workers, *with third level education*, in PMT jobs is 0.087 points, a reduction from the corresponding difference of 0.169 points of Table 9 when all workers (regardless of educational attainment) were considered. However, when attention was restricted to workers with third level education, 58 and 55 percent of the observed gap was due to attribute differences between the two groups of workers when, respectively, non-speaker attributes were evaluated using speaker coefficients and speaker attributes were evaluated using non-speaker coefficients. So, the structural advantage of Irish speaking, over non-speaking, workers increased from 24-

[14] For reasons of economy these results are not shown and may be obtained on request from the corresponding author.

32 percent, when all workers were analysed, to 55-58 percent when only workers with third level education were considered.

The proportion of men in PMT jobs exceeded that for women when attention was confined to workers with third level education (0.687 to 0.673). However, if female attributes were evaluated at male coefficients the proportion of women in PMT jobs would have risen from the observed 0.673 to a predicted 0.740; conversely, if male attributes were evaluated at female coefficients, the proportion of men in PMT jobs would have fallen from the observed 0.687 to a predicted 0.641. Consequently, whichever perspective one adopts towards the decomposition, there is evidence that there is a large discriminatory bias in Ireland against female workers with third level qualifications and that this exceeds the discriminatory bias that exists against women workers considered in their entirety.

6. Equality-Adjusted Proportions holding PMT jobs

Anand and Sen (1997), in a paper prepared for the 1995 *Human Development Report*, pointed out that a country's non-economic achievements were likely to be unequally distributed between subgroups of its population: for example, in terms of gender equality, which was the focus of their concern, the female literacy rate, or female life expectancy, was often lower than that for males. In the face of such inter-group inequality, they argued that a country's achievement with respect to a particular outcome should not be judged exclusively by its mean level of achievement (for example, by the average literacy rate for a country) but rather by the mean level *adjusted to take account of inter-group differences in achievements*.

They argued that if μ is the mean level of achievement, and *I* the degree of inequality in its distribution, then the level of social welfare, *W*, may be represented as $W = \mu(1-I)$: "this has the intuitive interpretation as the size of the pie (μ) corrected

downwards by the extent of inequality (*1-I*)" (Sen, 1998, p. 129). Pursuing this line of reasoning, Anand and Sen (1997) argued that a country's achievement with respect to a particular outcome should not be judged exclusively by its mean level of achievement (for example, by the average literacy rate for a country) but rather by the mean level *adjusted to take account of inter-group or inter-personal differences in achievements*: they termed the resulting indicators *equality adjusted indicators*. They further suggested that assessments of country achievements should be made on the basis of such (equality adjusted) indicators rather than, as was often the case, on the basis of its mean level of achievement. This would, then, for example, allow a comparison between two countries, one of which had a lower mean achievement level, but a more equitable distribution of achievement, than the other[15].

In this section these ideas are applied to computing the equality adjusted likelihood of workers who were, and were not, Irish speakers – and the equality adjusted likelihood of male and female workers - being in PMT jobs. In order to iron out as many differences between workers from these groups as possible, we focus on workers who had third level educational qualifications of a degree or higher.

The first step in computing such likelihoods was to estimate the logit specification of Table 6 *separately for degree-holding Irish speaking and non-speaking workers* and, then, to use these estimates to predict for *every* person, in *each* of the two groups, his/her probability of being in a PMT job.[16] If $\mathbf{p}^{IS}$ and $\mathbf{p}^{NS}$ represent the vectors of predicted probabilities for, respectively, Irish speaking and non-speaking workers, then the next step was to estimate the inequality embodied in

[15] Anand and Sen (1997) compared the Honduras (with an average literacy rate of 75%, distributed between men and women as 78%, 73%) with China (with an average literacy rate of 80%, distributed between men and women as 92%, 68%) and asked which country should be regarded as having the "better" achievement with regard to literacy: China with a higher overall rate or the Honduras with greater gender equality?

[16] The equation was now estimated only over degree holders so that the variable “degree” of Table 6 was redundant.

these vectors by computing the Gini coefficient over $\mathbf{p}^{IS}$ and $\mathbf{p}^{NS}$**.** This was done by computing the Gini coefficient over all degree-holding workers (i.e. over the entire $\mathbf{p}^{IS}$ and $\mathbf{p}^{NS}$ vectors) and then for each of the subject areas enumerated in Table 6 (i.e. the Gini was computed over the relevant subsets of $\mathbf{p}^{IS}$ and $\mathbf{p}^{NS}$).

Applied to the distribution of probabilities, if *N* is the number of persons in the group, and p_i is the probability of worker *i* from that group being in a PMT job, *(i=1…N)*, and $\mu = \sum_{i=1}^{N} p_i / N$ represents the average probability, the Gini coefficient is defined as:

$$G = \frac{1}{2N^2\mu}\sum_{i=1}^{N}\sum_{j=1}^{N}| p_i - p_j |$$

In other words, the Gini coefficient is computed as half the mean of the difference in the probabilities between pairs of workers, divided by the average probability (μ). So, *G=0.2* implies that the *difference in probabilities between two persons chosen at random* will be 40 percent of the average: if μ*=0.8*, this difference will be 0.32 points.

Table 13 shows the results of these computations. The proportions in PMT jobs of the 10,723 Irish speaking, and the 8,405 non-speaking, workers with degrees were, respectively, 81.8 and 71.6 percent. The values of the Gini coefficient over the distribution of the 10,723 individual probabilities for Irish speakers, and the 8,405 individual probabilities for Irish non-speakers, were, respectively, 0.097 and 0.151. So, not only were Irish speaking workers with degrees more likely to be in PMT jobs than their non-speaking counterparts, the distribution of probabilities for speakers was *more compressed* compared to that for non-speakers. As a consequence, the equality adjusted proportions – computed as $E = \mu(1-G)$ - were 73.8 and 60.8 for speakers and non-speakers, respectively: a difference of 13 points compared to the difference of eight points in the unadjusted proportions.

The remainder of Table 13 reproduces the above calculations for Irish speaking and non-speaking workers with degrees in different subject areas. Two features of these subject specific calculations stand out. First, for every subject area, the proportion in PMT jobs of Irish speaking workers with a degree in that area was always larger than the corresponding proportion for non-speakers. Second, for every subject area, the Gini coefficient computed over the distribution of probabilities for speakers was lower than the Gini coefficient computed over the distribution of probabilities for non-speakers. Consequently, the gap between speakers and non-speakers in their equality adjusted proportions was always greater than the gap between them in their unadjusted proportions.

Table 14 computes the equality adjusted proportions for male and female workers *who had degrees*. When the sample was divided by gender, the difference between male and female workers in their respective proportions in PMT jobs was small (77.5 percent for men and 77.1 percent for women), and since the difference between them in the degree of inequality in the distribution of their probabilities was also small (Gini coefficients of 0.121 and 0.126 for, respectively, male and female workers), there was very little gender difference in the equality adjusted proportions (0.681 and 0.674 for, respectively, male and female workers).

In terms of specific subjects, there were two glaring differences between male and female workers with degrees. First, for workers with degrees in Social Services, the Gini coefficient for men was considerably higher than for women (0.232 against 0.154) and for workers with degrees in Social Sciences, Business, and Law, the (unadjusted) proportion of men in PMT jobs was, compared to that for women, considerably higher (0.795 versus 0.686).

7. Conclusions

This paper, using data from the 2006 Irish Census, provided evidence of the structural disadvantage of women, relative to men, workers - and of the structural advantage of Irish speaking, relative to non-speaking, workers - in Ireland's labour market where, it bears emphasising, disadvantage and advantage were defined in terms of occupational outcomes. The former finding is, perhaps, less surprising, than the latter. To the best of our knowledge there has been no systematic investigation of any advantage enjoyed by Irish speakers in Ireland and allegations of the comfortable middle class ambience of the Gaelscoileanna have remained at the level of anecdote and hearsay - *dúirt bean liom go ndúirt bean léi.*[17]

Since linguistic elitism is a feature of many societies – in Tsarist Russia and in Vietnam the elite spoke French; in the Philippines, the elite spoke Spanish; in Plantagenet England, the elite spoke Anglo-Norman; in Ptolemaic Egypt, the elite spoke Koine Greek[18] – and since Irish enjoys the constitutional status of the national and first official language of Ireland, such an investigation was, arguably, overdue.

Our conclusion was that after controlling for as many relevant factors as the data permitted, there was a small, but undeniably significant, advantage that accrued to Irish speakers in terms of obtaining jobs of the professional, managerial, or technical variety. Equally, a considerable part of the difference between speakers and non-speakers in their proportionate presence in the upper reaches of occupational class was due to structural advantage.

We appreciate that the status of Irish as a language is an emotive subject in Ireland and that some – indeed, many - might find our conclusions difficult to accept. But, as Sherlock Holmes, had he been an Irish speaker - which, alas, he was not -

[17] A woman told me that another woman told her.
[18] Information from *Wikipedia*.

might have said: “Nuair a fhaigheann tú réidh lena bhfuil dodhéanta, fiú agus gan í a bheith róchosúil, níl fágtha agat ach an fhírinne”.[19]

[19] “When you have eliminated the impossible, whatever remains, however improbable, must be the truth”, Arthur Conan Doyle, The Sign of the Four.

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Table 1
Marginal Probabilities from Logit Model for Persons Currently in Work Being Professional, Managerial or Technical Workers

	Marginal Probability	z-value	Sample Average
Sex			
Female	-0.101	-20.81	0.423
Age Bands (Residual: 60+)			
Age: 20-29	-0.198	-20.06	0.258
Age: 30-39	-0.094	-9.13	0.287
Age: 40-49	-0.085	-8.35	0.239
Age: 50-59	-0.056	-5.33	0.159
Region (Residual: Dublin)			
Border	-0.111	-14.86	0.108
Mideast	-0.041	-5.62	0.120
Midland	-0.062	-6.37	0.056
Midwest	-0.069	-8.25	0.083
Southeast	-0.077	-9.85	0.105
Southwest	-0.083	-12.20	0.143
West	-0.092	-11.76	0.097
Religion (Residual: non-Catholic)			
Catholic	-0.081	-10.50	0.881
Area (Residual: Rural)			
Urban	0.008	1.45	0.608
Ethnicity			
Irish	0.073	3.79	0.885
Industry of Work (Residual: Agriculture)			
Manufacturing	-0.153	-17.07	0.164
Construction & Transport	-0.291	-41.41	0.192
Commerce	-0.050	-4.99	0.325
Public Administration & Defence	-0.192	-21.93	0.062
Professional Services	0.080	6.93	0.203
Highest Level of Education (Residual: Primary or below)			
Third-level: degree & non-degree	0.596	76.33	0.425
Secondary-level: lower & upper	0.183	17.73	0.499
Never Married			
Marital Status (Residual: Widowed)	0.012	0.57	0.402
Married	0.064	3.26	0.534
Separated or Divorced	-0.019	-0.90	0.051
Nationality			
Irish	0.097	5.19	0.885
Country of Birth			
Ireland	-0.042	-4.38	0.827
Irish speaker	0.067	13.77	0.412

Dependent variable is 1 if the person was a professional, managerial, or technical worker, 0 otherwise
Number of observations: 68,106; Pseudo R^2 = 0.250

Table 2
Marginal Probabilities from Logit Model for Persons Currently in Work or Unemployed

	Marginal Probability	Z-value	Sample Average
Female	0.001	0.95	0.420
Age: 20-29	0.004	1.41	0.259
Age:30-39	0.001	0.52	0.285
Age: 40-49	-0.006	-1.94	0.239
Age: 50-59	-0.015	-3.97	0.161
Border	-0.019	-6.26	0.110
Mideast	-0.001	-0.34	0.119
Midland	-0.006	-1.94	0.056
Midwest	-0.010	-3.40	0.083
Southeast	-0.016	-5.48	0.107
Southwest	-0.005	-2.39	0.143
West	-0.009	-3.10	0.097
Catholic	0.012	5.15	0.879
Urban	-0.005	-3.44	0.608
Irish ethnicity	0.001	0.12	0.885
Manufacturing	-0.040	-6.72	0.167
Construction & Transport	-0.027	-5.50	0.194
Commerce	-0.025	-5.95	0.325
Public Administration & Defence	0.003	0.82	0.061
Professional Services	-0.015	-3.28	0.200
Third-level: degree & non-degree	0.042	20.82	0.417
Secondary-level: lower & upper	0.024	13.14	0.502
Never Married	-0.019	-3.22	0.406
Married	0.008	1.58	0.528
Separated or Divorced	-0.023	-2.70	0.053
Irish Nationality	-0.005	-0.99	0.884
Ireland Born	0.004	1.40	0.827
Irish Speaker	0.010	7.26	0.406

Dependent variable is 1 if the person was in work, 0 if unemployed
Number of observations: 70,874; Pseudo R^2 = 0.0643

Table3: Marginal Probabilities from Ordered Logit Model for Persons Currently in Work Being in Different Social Classes

68,013 observations; Pseudo R^2 = 0.136	Professional		Technical & Managerial		Non Manual		Skilled Manual		Semi and Unskilled		
	Marginal Probability	Z-value	Marginal Probability	Z-value	Marginal Probability	Z-value	Marginal Probability	Z-value	Marginal Probability	Z-value	Sample Average
Female	-0.002	-2.77	-0.008	-2.76	0.001	2.77	0.005	2.76	0.004	2.75	0.423
Age: 20-29	-0.027	-19.36	-0.120	-18.39	-0.002	-1.37	0.079	18.17	0.070	15.35	0.259
Age: 30-39	-0.018	-12.15	-0.074	-11.68	0.003	6.96	0.049	11.52	0.040	10.64	0.288
Age: 40-49	-0.017	-12.31	-0.073	-11.67	0.002	4.11	0.048	11.49	0.040	10.47	0.239
Age: 50-59	-0.012	-8.53	-0.051	-8.03	0.002	4.91	0.034	7.91	0.028	7.31	0.159
Border	-0.016	-15.97	-0.070	-14.65	0.000	-0.58	0.046	14.34	0.040	12.59	0.108
Mideast	-0.007	-6.82	-0.030	-6.53	0.002	9.69	0.019	6.46	0.015	6.16	0.120
Midland	-0.011	-8.16	-0.046	-7.56	0.001	2.48	0.030	7.43	0.025	6.79	0.056
Midwest	-0.011	-9.93	-0.049	-9.23	0.001	2.77	0.032	9.06	0.027	8.28	0.083
Southeast	-0.012	-11.66	-0.053	-10.85	0.001	2.66	0.035	10.65	0.029	9.70	0.105
Southwest	-0.012	-12.67	-0.052	-11.90	0.002	4.55	0.034	11.70	0.028	10.77	0.143
West	-0.013	-12.66	-0.059	-11.68	0.001	1.07	0.039	11.45	0.033	10.27	0.097
Catholic	-0.019	-13.04	-0.068	-14.94	0.015	9.83	0.043	15.27	0.030	16.53	0.881
Urban	0.002	1.95	0.006	1.95	-0.001	-1.98	-0.004	-1.94	-0.003	-1.94	0.609
Irish|	0.010	3.54	0.041	3.33	-0.002	-4.79	-0.027	-3.28	-0.022	-3.06	0.885
Manufacturing	-0.040	-36.61	-0.196	-35.76	-0.039	-11.97	0.127	38.34	0.148	23.23	0.164
Construction & Transport	-0.045	-40.54	-0.219	-42.36	-0.046	-14.34	0.140	46.34	0.170	27.11	0.192
Commerce	-0.004	-2.15	-0.015	-2.13	0.002	2.35	0.010	2.12	0.007	2.10	0.325
Public Administration & Defence	-0.020	-14.47	-0.094	-12.69	-0.007	-3.22	0.063	12.49	0.058	10.03	0.062
Professional Services	-0.013	-7.80	-0.054	-7.43	0.002	6.28	0.035	7.30	0.029	6.81	0.203
Third-level: degree & non-degree	0.184	51.31	0.400	119.09	-0.084	-40.62	-0.257	-96.24	-0.243	-70.87	0.425
Secondary-level: lower & upper	0.040	25.92	0.153	29.33	-0.017	-16.08	-0.099	-28.80	-0.078	-27.24	0.499
Never Married	0.001	0.44	0.005	0.44	-0.001	-0.43	-0.003	-0.44	-0.003	-0.44	0.402
Married	0.009	3.20	0.037	3.20	-0.004	-3.31	-0.024	-3.19	-0.018	-3.16	0.533
Separated or Divorced	-0.005	-1.68	-0.021	-1.62	0.002	3.32	0.013	1.60	0.011	1.54	0.051
Irish Nationality	0.022	9.87	0.099	8.72	0.006	2.01	-0.066	-8.61	-0.061	-6.98	0.885
Ireland Born	-0.008	-5.06	-0.030	-5.30	0.005	4.15	0.019	5.36	0.014	5.54	0.827
Irish Speaker	0.013	16.37	0.050	16.98	-0.006	-12.29	-0.032	-16.99	-0.024	-17.16	0.412

Table 4: Workers with Third Level Qualifications by Main Subject Area of Qualification

	Irish non-speakers 11,430	**Irish speakers 13,411**	**Men 12,149**	**Women 12,790**
Education	3.0	10.4	3.3	10.4
Humanities and Art	8.0	8.5	6.3	10.1
Social Science/Business/Law	23.4	22.6	22.7	23.2
Life Sciences/Physical Sciences/Mathematics/Statistics	5.3	5.7	5.7	5.4
Computing	8.1	5.8	8.7	5.1
Engineering, Manufacturing, Construction	16.9	11.7	25.9	2.7
Agriculture and Veterinary	3.2	2.7	5.0	1.0
Health	12.8	11.4	5.0	18.7
Social Services	3.2	2.7	0.8	5
Services	5.5	3.7	4.8	4.3
Multiple Subjects	10.6	14.8	11.7	14.0
Total	100	100	100	100
Third level with degree	***63***	***69***	***67***	***66***

Table 5: Social Class of Workers with Third Level Qualifications, by Subject of Qualification

	Professional, Managerial, Technical	Non-Manual, Skilled Manual, Semi-Skilled & Unskiled
Education	85.2	14.9
Humanities and Art	63.6	36.4
Social Science/Business/Law	67.4	32.6
Life Sciences/Physical Sciences/Mathematics/Statistics	77.9	22.1
Computing	61.3	38.7
Engineering, Manufacturing, Construction	64.1	35.9
Agriculture and Veterinary	55.9	44.1
Health	91.6	8.4
Social Services	47.8	52.2
Services	37.4	62.6
Multiple Subjects	76.9	23.2
Total	17427	7512
Third Level with degree	***77***	***23***

Table 6

Marginal Probabilities from Logit Model for Persons with Third Level Qualifications, Currently in Work Being Professional, Managerial or Technical Workers

	Marginal Probability	Z-value	Sample Average
Female	-0.075	-11.94	0.521
Age: 20-29	-0.221	-9.16	0.308
Age:30-39	-0.092	-4.15	0.347
Age: 40-49	-0.069	-3.01	0.202
Age: 50-59	-0.034	-1.44	0.114
Border	-0.098	-7.42	0.089
Mideast	-0.038	-3.67	0.119
Midland	-0.069	-4.16	0.044
Midwest	-0.064	-4.85	0.076
Southeast	-0.065	-5.05	0.086
Southwest	-0.079	-7.61	0.142
West	-0.094	-7.26	0.089
Catholic	-0.045	-5.57	0.841
Urban	0.000	-0.04	0.680
Irish ethnicity	0.102	3.73	0.867
Manufacturing	0.073	4.18	0.140
Construction & Transport	-0.065	-2.82	0.094
Commerce	0.113	6.25	0.360
Public Administration & Defence	-0.045	-1.92	0.067
Professional Services	0.243	15.85	0.318
Never Married	0.058	1.76	0.459
Married	0.109	3.32	0.493
Separated or Divorced	0.019	0.56	0.040
Irish Nationality	0.138	4.89	0.870
Ireland Born	-0.029	-2.54	0.798
Irish Speaker	0.035	5.39	0.537
Third level with degree or higher	0.263	38.74	0.662
Subject of Third level qualification (Residual: Multiple Subjects)			
Education	0.118	10.09	0.058
Humanities	-0.036	-2.98	0.069
Social Science/Business/Law	0.047	6.27	0.191
Life Sciences and Computing	0.094	11.47	0.098
Engineering, Manufacturing, Construction	0.114	15.05	0.107
Agriculture, Veterinary Science	0.040	2.27	0.022
Health	0.228	34.67	0.097
Social Services	-0.100	-4.47	0.020

Workers with Third level educational qualifications only

Dependent variable is 1 if the person was a professional, managerial, or technical worker, 0 otherwise

Number of observations: 28,913; Pseudo R^2 = 0.188

Table 7
Marginal Probabilities from Logit Model for Irish Speakers and non-Speakers Currently in Work Being Professional, Managerial or Technical Workers

	Irish Speakers: 28,062			Irish non-Speakers: 40,044		
	Marg Prob	Z-value	Sample Average	Marg Prob	Z-value	Sample Average
Female	-0.114	-14.20	0.502	-0.085	-15.22	0.368
Age: 20-29	-0.219	-12.02	0.282	-0.170	-15.97	0.242
Age:30-39	-0.113	-6.29	0.274	-0.074	-6.36	0.297
Age: 40-49	-0.086	-4.81	0.224	-0.075	-6.61	0.250
Age: 50-59	-0.051	-2.81	0.166	-0.053	-4.59	0.154
Border	-0.129	-9.28	0.099	-0.095	-11.86	0.115
Mideast	-0.056	-4.29	0.111	-0.033	-3.98	0.126
Midland	-0.082	-4.80	0.056	-0.049	-4.48	0.057
Midwest	-0.089	-6.34	0.096	-0.053	-5.41	0.073
Southeast	-0.081	-5.79	0.103	-0.071	-8.30	0.107
Southwest	-0.097	-8.31	0.162	-0.070	-9.04	0.130
West	-0.117	-8.71	0.111	-0.072	-7.93	0.087
Catholic	-0.015	-0.98	0.936	-0.096	-11.40	0.842
Urban	0.029	3.30	0.582	-0.006	-0.97	0.626
Irish ethnicity	0.030	0.50	0.993	0.076	4.19	0.810
Manufacturing	-0.135	-7.41	0.140	-0.143	-15.68	0.180
Construction & Transport	-0.294	-19.09	0.148	-0.264	-36.48	0.223
Commerce	-0.034	-1.87	0.317	-0.049	-4.43	0.331
Public Administration & Defence	-0.218	-12.22	0.082	-0.150	-15.68	0.049
Professional Services	0.149	8.10	0.267	0.031	2.35	0.158
Third-level: degree & non-degree	0.601	39.08	0.553	0.582	59.84	0.334
Secondary-level: lower & upper	0.179	7.77	0.414	0.161	15.90	0.558
Never Married	-0.001	-0.04	0.420	0.018	0.74	0.390
Married	0.053	1.65	0.523	0.065	2.83	0.541
Separated or Divorced	-0.045	-1.24	0.043	-0.003	-0.13	0.057
Irish Nationality	0.153	2.95	0.992	0.078	4.41	0.810
Ireland Born	-0.039	-2.20	0.949	-0.042	-4.10	0.742

A red font indicates that the marginal probabilities were significantly different between Irish speakers and non-speakers at 10% or less.
A blue font indicates that the marginal probabilities were significantly different between Irish speakers and non-speakers at 20% or less.

Table 8
Marginal Probabilities from Logit Model for Men and Women Currently in Work Being Professional, Managerial or Technical Workers

	Male Workers: 39,297			Female Workers: 28,809		
	Marg Prob	Z-value	Sample Average	Marg Prob	Z-value	Sample Average
Age:30-39	-0.089	-7.59	0.283	-0.074	-3.78	0.294
Age: 40-49	-0.079	-6.84	0.241	-0.069	-3.56	0.237
Age: 50-59	-0.044	-3.67	0.168	-0.052	-2.62	0.146
Border	-0.107	-11.54	0.110	-0.110	-9.02	0.106
Mideast	-0.038	-4.03	0.123	-0.046	-3.90	0.115
Midland	-0.063	-5.25	0.059	-0.052	-3.21	0.053
Midwest	-0.061	-5.80	0.082	-0.073	-5.44	0.083
Southeast	-0.068	-7.01	0.111	-0.078	-6.13	0.098
Southwest	-0.077	-9.04	0.147	-0.086	-7.83	0.138
West	-0.095	-9.85	0.099	-0.080	-6.25	0.094
Catholic	-0.089	-9.01	0.871	-0.062	-4.99	0.894
Urban	0.005	0.74	0.586	0.010	1.16	0.639
Irish ethnicity	0.073	2.86	0.875	0.061	2.04	0.899
Manufacturing	-0.155	-17.30	0.198	-0.075	-2.39	0.117
Construction & Transport	-0.308	-40.05	0.290	-0.111	-3.58	0.058
Commerce	-0.001	-0.06	0.287	-0.058	-1.85	0.377
Public Administration & Defence	-0.190	-22.07	0.062	-0.139	-4.73	0.064
Professional Services	0.088	5.76	0.079	0.131	4.15	0.372
Third-level: degree & non-degree	0.587	59.64	0.353	0.618	43.05	0.523
Secondary-level: lower & upper	0.161	14.44	0.547	0.239	10.71	0.433
Never Married	-0.002	-0.06	0.388	0.010	0.38	0.422
Married	0.079	2.55	0.561	0.025	0.96	0.496
Separated or Divorced	0.003	0.08	0.043	-0.053	-1.85	0.062
Irish Nationality	0.109	4.63	0.875	0.078	2.69	0.898
Ireland Born	-0.032	-2.57	0.819	-0.053	-3.62	0.839
Irish Speaker	0.057	8.97	0.356	0.077	10.34	0.489

A red font indicates that the marginal probabilities were significantly different between Irish speakers and non-speakers at 10% or less.
A blue font indicates that the marginal probabilities were significantly different between Irish speakers and non-speakers at 20% or less.

Table 9
The Decomposition of the Proportion of Workers in Professional, Managerial, and Technical Occupations by Ability to Speak Irish

Sample Average	*Irish non-speaker attributes evaluated at Irish speaker coefficients*		*Irish speaker attributes evaluated at Irish non-speaker coefficients*	
$F^{IS} - F^{NS}$	Attributes Difference*	Residual	Attributes Difference**	Residual
0.502 – 0.333 = 0.169	0.502-0.374 = 0.128	0.374- 0.333 =0.041	0.448-0.333 = 0.115	0.502-0.448 = 0.054

F^{IS} and F^{NS} are the proportions of workers who are, respectively, Irish speakers and non-speakers in professional, managerial, or technical jobs.

*Attributes difference: *holding coefficients constant at Irish speaker values*, this difference represents the inter-group difference in proportions due to differences between Irish speakers and non-speakers in their attributes.

** Attributes difference: *holding coefficients constant at Irish non-speaker values*, this difference represents the inter-group difference in proportions due to differences between Irish speakers and non-speakers in their attributes.

Table 10
The Decomposition of the Proportion of Workers in Professional, Managerial, and Technical Occupations by Gender

Sample Average	*Male attributes evaluated at female coefficients*		*Female attributes evaluated at male coefficients*	
$F^{W} - F^{M}$	Attributes Difference*	Residual	Attributes Difference**	Residual
0.449 – 0.369 = 0.080	0.449 - 0.320 =0.129	0.320-0.369 = -0.049	0.534-0.369 = 0.165	0.449-0.534 = -0.085

F^{W} and F^{M} are the proportions of, respectively, female and male workers who are, in professional, managerial, or technical jobs.

*Attributes difference: *holding coefficients constant at female values*, this difference represents the inter-gender difference in proportions due to differences in attributes between men and women.

** Attributes difference: *holding coefficients constant at male values*, this difference represents the inter-gender difference in proportions due to differences in attributes between men and women.

Table 11
The Decomposition of the Proportion of Workers, with Third Level Qualifications, in Professional, Managerial, and Technical Occupations by Ability to Speak Irish

Sample Average	*Irish non-speaker attributes evaluated at Irish speaker coefficients*		*Irish speaker attributes evaluated at Irish non-speaker coefficients*	
$F^{IS} - F^{NS}$	Attributes Difference*	Residual	Attributes Difference**	Residual
0.720 – 0.633= 0.087	0.720-0.668 = 0.052	0.668-0.633 =0.035	0.681-0.633 = 0.048	0.720-0.681 = 0.039

F^{IS} and F^{NS} are the proportions of workers with third level qualifications who are, respectively, Irish speakers and non-speakers in professional, managerial, or technical jobs.

*Attributes difference: *holding coefficients constant at Irish speaker values*, this difference represents the inter-group difference in proportions due to differences between Irish speakers and non-speakers in their attributes.

** Attributes difference: *holding coefficients constant at Irish non-speaker values*, this difference represents the inter-group difference in proportions due to differences between Irish speakers and non-speakers in their attributes.

Table 12
The Decomposition of the Proportion of Workers, with Third Level Qualifications, in Professional, Managerial, and Technical Occupations by Gender

Sample Average	*Female attributes evaluated at male coefficients*		*Male attributes evaluated at female coefficients*	
$F^{M} - F^{W}$	Attributes Difference*	Residual	Attributes Difference**	Residual
0.687 – 0.673 = 0.014	0.687- 0.740 = -0.053	0.740-0.673 = 0.067	0.641-0.673 = -0.032	0.687-0.641 = 0.046

F^{W} and F^{M} are the proportions of, respectively, female and male workers with third level qualifications who are, in professional, managerial, or technical jobs.

*Attributes difference: *holding coefficients constant at female values*, this difference represents the inter-gender difference in proportions due to differences in attributes between men and women.

** Attributes difference: *holding coefficients constant at male values*, this difference represents the inter-gender difference in proportions due to differences in attributes between men and women.

Table 13
Equality-Adjusted Proportions in Professional, Managerial, Technical jobs for Irish speaking and non-speaking workers with degrees, by subject

	Irish speakers: 10,723			***Irish non-speakers: 8,405***		
	Proportion in PMT jobs	**Gini coefficient**	**Equality-adjusted proportion**	**Proportion in PMT jobs**	**Gini coefficient**	***Equality-adjusted proportion***
All subjects	***0.818***	***0.097***	***0.738***	***0.716***	***0.151***	**0.608**
Education	0.953	0.018	0.936	0.676	0.190	*0.548*
Humanities	0.718	0.135	0.621	0.607	0.196	*0.488*
Social Sciences, Business, Law	0.770	0.089	0.701	0.708	0.131	*0.615*
Life Sciences, Physical Sciences, Mathematics, Statistics, Computing	0.807	0.080	0.742	0.778	0.094	*0.705*
Engineering, Manufacturing, Construction	0.829	0.069	0.772	0.752	0.110	*0.669*
Agriculture and Veterinary	0.772	0.107	0.689	0.600	0.220	*0.468*
Health	0.959	0.017	0.943	0.931	0.030	*0.903*
Social Services	*0.685*	*0.137*	*0.591*	*0.625*	*0.196*	*0.503*

Table 14
Equality-Adjusted Proportions in Professional, Managerial, Technical jobs for male and female workers with degrees, by subject

	IMale workers: 9,246			***Female workers: 9,882***		
	Proportion in PMT jobs	**Gini coefficient**	**Equality-adjusted proportion**	**Proportion in PMT jobs**	**Gini coefficient**	***Equality-adjusted proportion***
All subjects	***0.775***	***0.121***	***0.681***	***0.771***	***0.126***	**0.674**
Education	0.879	0.077	0.811	0.917	0.034	*0.886*
Humanities	0.696	0.164	0.582	0.654	0.162	*0.548*
Social Sciences, Business, Law	0.795	0.093	0.721	0.686	0.121	0.603
Life Sciences, Physical Sciences, Mathematics, Statistics, Computing	0.805	0.091	0.732	0.775	0.086	*0.708*
Engineering, Manufacturing, Construction	0.789	0.101	0.709	0.791	0.075	*0.732*
Agriculture and Veterinary	0.675	0.178	0.555	0.738	0.131	*0.641*
Health	0.945	0.028	0.919	0.946	0.022	*0.925*
Social Services	*0.660*	*0.232*	*0.507*	*0.653*	*0.154*	*0.552*