

UCD CENTRE FOR ECONOMIC RESEARCH

WORKING PAPER SERIES

2008

**Economic Status, Religion, and Demography in
an Ulster Town a Century Ago**

Cormac Ó Gráda, University College Dublin

WP08/02

January 2008

**UCD SCHOOL OF ECONOMICS
UNIVERSITY COLLEGE DUBLIN
BELFIELD DUBLIN 4**

ECONOMIC STATUS, RELIGION, AND DEMOGRAPHY IN
AN ULSTER TOWN A CENTURY AGO¹

Cormac Ó Gráda
School of Economics
University College Dublin
Dublin 4, Ireland

Email address: cormac.ograda@ucd.ie

1. INTRODUCTION

Most of the social science literature on the Irish household hitherto has focused on the rural household.² There are good reasons for that, but for a change, this paper is about the socio-economic demography of households in an urban setting. It looks at households containing married couples in the town of Lurgan in County Armagh a century or so ago.

Lurgan is located less than twenty miles southwest of Belfast, close by the southern shore of Lough Neagh. The town's main thoroughfare follows a long elevated ridge and traces of the original rectangular tenements carved from the slopes on both sides are still readily observable today. Those tenements gave rise to the courts and laneways which housed many of the town's poorer inhabitants a century ago.

Lurgan is more or less at the epicentre of the Dungannon-Lisburn-Armagh 'linen triangle' that encompassed south Antrim, north Armagh, and east Tyrone. In 1831 the town contained fewer than three thousand people, but its population rose rapidly thereafter as the linen industry became more mechanized and urbanized. Traditionally linen production in Lurgan and its hinterland was associated with the highest quality weaves of diapers, handkerchiefs, and the like.³ The low percentage (by Irish standards) of the town's female labour force engaged in domestic service (21.7 per cent in 1871, 12.5 per cent in 1891, and 10.3 per cent in 1911) was a reflection of the dominance of linen. In the half-century or so before the First World War the linen industry employed three workers in five, male and female, and in 1911 four-fifths of occupied females were employed in the linen sector⁴ (Table 1 below).

Lurgan was a weaving rather than a spinning centre, although its Castle Street Mill operated ten thousand spindles in the 1900s. The major weaving concerns included Johnston, Allen (ranked 4th in the UK in 1913, 800 looms), Spence, Bryson (ranked 8th, 700 looms), and the Lurgan Weaving Co (ranked 9th, 670 looms). John S Brown (3rd) operated 950 looms in Lurgan and Belfast.⁵

Some sense of the state of the industry at the turn of the century may be inferred from the reaction to an announcement in November 1899 by three of the town's weaving firms that a fine of 8d per day would be imposed in future on absentee workers. At this time many of the male workers, who formed the majority of weavers, were 'habituated to work such hours as they pleased', with the result that machinery was under-used. Employers sought to increase output by increasing labour input. The announcement resulted in an immediate walkout involving a thousand workers. After a few days the workers returned to their looms on condition that they be allowed one absence a week without being fined, and that all revenue from fines would be redistributed to the workforce either as bonuses or sick pay.⁶

In the 1900s the industry faced an increasing threat from tariff protection.⁷ Still, at the end of 1908 there was a 'steady increase in demand' from the United States, while 1909 represented 'a record of continuous improvement from start to finish...with unabated briskness in every department', and in 1910 'business throughout the various branches of the linen trade during the past year was almost a duplicate of that of 1909', although success was tempered by a rise in yard prices.⁸ Linen's dominance would hurt when the industry began to contract, since Lurgan

was very slow to diversify into other activities⁹: but that was still in the future. By 1911 Lurgan contained 12,553 people. This represented an increase from 11,429 in 1891 and 11,782 in 1901. ¹⁰

--TABLE 1 ABOUT HERE --

The Lurgan area has a long history of sectarian animosity and conflict. The native population harboured a collective memory of dispossession and marginalization, the settlers and their descendents one of insecurity born of conflicts in the seventeenth century. The Orange Order was born close by in the 1790s; the Brownlow family, descendants of the town's founders, were patrons of the order almost from the start. Not surprisingly, perhaps, a century ago the town was very segregated along religious lines.¹¹ The two communities - Catholic-Irish, on the one hand, Protestant-English and Presbyterian-Scottish, on the other -- lived apart and did not interact much socially. The town contained few really mixed streets, and several exclusively or almost exclusively populated by either Catholics or non-Catholics.¹²

The main source in this paper is the manuscript enumeration forms of 1911 Irish population census.¹³ Our database contains 1,565 households living on 77 streets (and roads, lanes, and lanes) in the town in 1911. All households included contained a co-resident married couple. Nearly one-third of couples in the database lived on streets containing no Catholic householder, while nearly one-fifth lived on streets containing no non-Catholic householder. Almost another one in five lived on

streets that were less than one-tenth Catholic. The divide that separated Catholics and non-Catholics does not seem to have applied between non-Catholic confessions. Almost nine adult Lurganites in ten of all Christian persuasions were born either in county Armagh or in the neighbouring county of Down.

The 1911 census was the first to ask all co-resident couples to report the duration of their marriage, the number of children born of the marriage, and the number still alive. Economic historians, social historians, and demographers have employed these data to investigate variations in marital fertility and in infant and child mortality.¹⁴ The influence of religion, if any, on demographic characteristics is one of the main interests of the paper. Part 2 describes the town of Lurgan in context. Part 3 offers an analysis of marital fertility, and Part 4 of infant and child mortality.

2. RELIGION AND SOCIO-ECONOMIC STATUS IN LURGAN

Tables 2 and 3 describe some simple markers of economic status by religious affiliation, based on a database derived from manuscript 1911 census forms. The database includes 541 Catholic families, and 987 belonging to other denominations. Only households that contained co-resident married couples are included. The majority of the non-Catholic household heads were members of the Church of Ireland (611), but there were 196 Presbyterian, and 179 belonging to other religions (mainly non-conformist, but including twelve Jews), or else mixed (i.e. Catholic bride/husband and non-Catholic husband/bride) couples.

--TABLES 2 AND 3 ABOUT HERE--

'Whoever says Lurgan says linen', and the preponderance of linen-related occupations in 1911 is remarkable. The breakdown by occupational category is a good indication of relative Catholic disadvantage.¹⁵ The white collar (e.g. clerk) and business and professional classes (e.g. draper, accountant) were disproportionately non-Catholic. Within the dominant linen industry, there was a hierarchy of occupations. Damask weavers were better paid than cambric weavers.¹⁶ Relatively skilled jobs at this time included mechanic, bleacher, finisher, beetler, handloom weaver, hackler, and flax dresser. To become a dresser or a sorter required an apprenticeship of seven years. Tenters constituted another class of skilled workers who were 'responsible for the beam they had started, and made sure that the loom ran properly, fixing any malfunction'.¹⁷ Marilyn Cohen has shown that in the nearby parish of Tullylish Protestants were much more likely to hold such jobs than Catholics. Unskilled occupations included labourer, servant, rougher, and power-loom weaver.

The predominance of weavers in the labour force is striking. Over one Catholic household head in two and over one non-Catholic household head in four described themselves as some sort of weaver. In Armagh the weaving of fine damask and cambric linens by hand survived the onset of power-loom weaving of coarser linens by several decades.¹⁸ However, power-loom weaving of fine linens became viable in the 1880s, and the Lurgan firm of Johnston, Allen & Co., which

began as a handloom factory in 1867, switched to power-loom weaving in 1888. At its peak it employed upwards of one thousand workers.

According to Marilyn Cohen, 'by the end of the nineteenth century, it was normative for Protestant capitalists in Tullylish to incorporate presumptions of Protestant privilege into their hiring practices and organizational structure, legitimized partly by Protestant numerical superiority in the region'¹⁹. Lurgan, located only a few miles from Tullylish, was no different. A photograph taken in the mid-1930s of the overseer and administrative staff of Johnston, Allen & Co. showed 'seventy-eight suited and white collared men', of whom only one was identified as a Catholic.²⁰

Wage data collected by the Board of Trade in the 1900s suggest that weavers working outside Belfast were paid an average of 14/- (fourteen shillings) in 1906, general labourers in linen mills 12/-, bundlers and driers 16/-, roughers 17/-, warehousemen and packers 19/6, assistant foremen (who would have included tenters) 30/- to 35/-, dressers 35/-, and mechanics 30/-.²¹ Combined with Table 2, these data confirm that Lurgan Catholic males were over-represented in low-pay occupations in the linen sector and greatly outnumbered in high-wage occupations.

Data on literacy in the 1911 census (Table 3) confirm Catholic disadvantage. Only 56.7 per cent of Catholic wives and 65.6 per cent of Catholic husbands in the database could read and write. The non-Catholic percentages were 73.8 and 80.8, respectively. Self-declared illiteracy rose with age; for example, over three in four of Catholic women in their twenties could read and write, but only half of those in their forties, and one-fifth of those in their sixties.

The information on ages in the census can be used to generate a simple index of age heaping, or the tendency for respondents' ages to clump on certain values (Table 4). Some age heaping may sometimes be due to deliberate misreporting, but in general this is not so. Measures of age heaping are often used as barometers for innumeracy or low levels of human capital.²² The simple index used here is the proportion of those aged 30-4, 40-4, and 50-4 years giving their ages as 30, 40, and 50 years, respectively. In the absence of age heaping one would expect a ratio of about 0.2; the higher the index the higher the degree of age-heaping. Table 3 reports illiteracy and age-heaping levels for males and females by religious affiliation (Catholic and Other). Catholics were more prone to age-heap.

--TABLE 4 ABOUT HERE --

The census also points to the inferior housing of Lurgan Catholics. The census used an index of 'house points' (one per window, two for a tiled roof, and so on) as a measure of housing quality. The average number of house points per Catholic household in Lurgan was 7.99; for others it was 8.63. Alternatively, the average number of rooms per household was 4.2 for Catholics and 5.1 for all others. And 3.1 per cent of Catholic households could afford a live-in domestic servant, compared to 3.7 per cent of Church of Ireland couples, and 6.3 per cent of Presbyterian households. The economic elite in Lurgan was disproportionately Presbyterian, and in 1911 one Presbyterian household contained six domestic servants.

2.1. WOMEN AT WORK:

A century women outnumbered men in most Irish towns, but the ratio of females to males was highest in the textile towns of Ulster. In Lurgan women aged 20-39 years outnumbered men of the same age by 54 per cent in 1871; by 1901 they did so by 74 per cent. McCorry links this to 'the modernised linen industry's failure to foster a balanced population composition in otherwise industry-free town'.²³

In relative terms, Catholic female wage earners fared better than their male counterparts. Women working as piece-workers, reelers, winders, or hemstitchers commanded a wage premium over other female workers.²⁴ By this reckoning, Table 5 suggests that in Lurgan Catholic women were over-represented in the less skilled female occupations.

--TABLE 5 ABOUT HERE--

Another indicator of relative poverty of Catholic women is that their labour force participation after marriage was higher than that of non-Catholic women, those in the 60-to-64 year age group excepted. This was also the case in neighbouring Tullylish, where anthropologist Marilyn Cohen puts it down to the lower economic status of male Catholic workers²⁵:

Despite the strength of the family wage ideology, which linked masculinity with the privileged breadwinner, only certain strata within the working class were able to attain this norm. For example, skilled

male workers such as mechanics and bleach green workers were better able to keep their wives at home and children in school, which enhanced their respectability. In poorer households, headed by unskilled laborers, proportionately more wives were required to work.

A simple logit regression (see Table 6) corroborates. The dependent variable here is set at one if the wife is working and at zero if she is not. The outcome shows that in Lurgan a wife was less likely to work outside the home if her husband was in a white-collar occupation (*WHCOLL*), but much more likely to work outside the home if he was a weaver (*WVR*) or labourer (*LAB*). The bigger the household's house (proxied by *ROOMS*), the less likely the woman was to be working outside the home. The presence of a domestic (*DOM*) or of children (*CHALIVE*) had the opposite effect. Having several children alive meant that the woman was more likely to stay at home. Controlling for all these factors, Catholic (*CATH*) women were still much more likely to be in the labour force. Church of Ireland (*COFI*) women were also more likely to work outside the home than Presbyterian and other non-Catholic women.²⁶

--FIGURE 1 ABOUT HERE--

--TABLE 6 ABOUT HERE--

3. FERTILITY, RELIGION, AND SOCIO-ECONOMIC STATUS

Irishmen and Irishwomen are well known to historical demographers for their tardy and unenthusiastic participation in the European fertility transition. This

reluctance is usually attributed to Ireland's low rates of industrialization and urbanization and the dominance of Roman Catholicism. Not that all married couples in Ireland chose not to control births, even a century ago: several analyses based on the 1911 census have shown considerable variation across the counties of Ireland. Moreover, it is plain that the decline in fertility was fastest in urban, middle-class, non-Catholic Ireland. Within a few decades there would be a sizeable gap between the marital fertility of Catholics, who formed the overwhelming majority of the population, and non-Catholics.²⁷ Nonetheless, the drop in marital fertility overall was modest; I_g (the measure of marital fertility devised by Ansley Coale in connection with the Princeton Fertility Project) in the two Irelands, north and south, fell by only one-tenth between 1926 and 1961.²⁸ The situation in Ulster a century ago, long before the gap in marital fertility between Catholics and others would become a political issue, is of particular interest.

The relative importance of economic and cultural factors in accounting for past variations in mortality and fertility is a much-discussed topic. Earlier research tended to highlight the role of culture; recent research points also to the relevance of socio-economic factors, as proxied by literacy, occupational status, and the status of women.²⁹

It must be noted, before moving on to an analysis of marital fertility in Lurgan, that the 'economic' data in the census are hardly ideal. Housing quality and reported occupation are at best rough and ready guides to the well-being of a family. Moreover, the data in the census refer to 1911, not to when decisions about whether or not to have children were being made.

Still, Lurgan is an interesting case study in this respect, given its heavy industrial base and mixed confessional character. Tables 7a-7d present some summary demographic data. First, female mean age at marriage did not differ much across the communities in Lurgan: Presbyterians were slowest to marry, but women in all confessional groups married relatively young by Irish standards of a century ago. Males married on average two and half years later than females, with Presbyterians lagging Catholics and Protestants by a year or so. Labourers and illiterate men were quicker to marry, though the women they married were not on average younger. Men with elite occupations in 1911 were much slower to commit, but not so their wives.

Second, the variation in the percentage of childless couples is striking, especially when those married less than ten years are excluded. For highly fecund populations sterility rates of less than five per cent - considerably lower than those found here -- are not unknown. For a small number of Lurgan couples childlessness may have been a deliberate choice; presumably among the heterogeneous 'other religions' group the high proportion of childless couples of women married a decade or more (12.6 per cent) was in part a reflection of choices made. Some couples may have left it too late, however. This was especially so for Catholic women, seventeen of whom were aged forty or more when they married, with seven of those aged forty-five or more. In the case of our Presbyterian women, this matters less since it contained only six women aged forty and above (and all were aged between 41 and 44). However, the higher proportion of childless Catholic couples was probably in part a reflection of sterility brought on by malnutrition and ill-health than of choice.

Although no direct information on morbidity by community is forthcoming, James Deeny's clinical research in the 1930s pointed to significant malnutrition in Lurgan's weaving community.³⁰ In our modelling of fertility outcomes below, we must take account of the likelihood that some couples were excluded from having children. However, Table 7d shows that the number of children born to Catholic couples was higher at each marriage duration than for non-Catholics.

Table 7b describes the age gaps between spouses by socioeconomic group or occupation. Working-class couples were closer in age than white-collar workers. In the literature, such small gaps in spousal ages are sometimes taken as evidence for what Lawrence Stone called 'companionate' marriages.

Table 7a reports that average family size in 1911 was lower for Presbyterians (4.10) than for either Catholics (4.57) or Protestants (4.57). Presumably the propensity of Presbyterians to marry later was partly responsible for this. Table 7c cross-tabulates the average number of children born by duration and religion; the outcome implies that marital fertility in Lurgan was rather high by Irish urban standards.³¹ The following paragraphs offer a more detailed look at the variation in marital fertility.

--TABLES 7a-7d ABOUT HERE--

3. MODELLING FERTILITY

In this section marital fertility (defined as number of children born to a

couple) is modelled as a function of ‘biological’, ‘cultural’, and ‘economic’ variables. Biology is represented by marriage duration (*DUR* and *DURSQ*), and age at marriage (*AAMW* and *AAMH*). Culture is proxied by religious affiliation (*CATH*, *COFI*, and *PRESB*). The economic variables refer to housing quality (*ROOMS*), and a range of self-explanatory occupational variables (*ELITE*, *LAB*, *SKARTISAN*, *WHCOLLAR*), and whether the wife reported an occupation at age less than forty years (*WWLT40*). The dummy variables *HLIT* (husband literate) and *ARMH* (husband born in Armagh) also feature; their female equivalents, *WLIT* and *ARMW*, were dropped because they did not register. Since the number of children born is a count variable, we model the variation in fertility across couples estimating a negative binomial regression. In trials not reported here we allowed for the possibility of an inflated number of ‘zero children’ outcomes due, for example, to unreported births, by using a two-stage zero-inflated negative binomial (ZINB) estimation method, but the negative binomial proved statistically adequate for the present dataset.³²

Where indicated, estimation is restricted to couples married two years or more, and to couples married between 2 and 29 years. The interaction variables, *CATHDEAD*, *COFIDEAD*, and *PRESBDEAD* (where *CATHDEAD*, for example, is defined as *CATH* multiplied by the number of children who had already died by 1911) are included to test for the so-called ‘replacement effect’, i.e. the extent to which couples sought to ‘replace’ children or infants who died. The presence of such a ‘replacement effect’ would be consistent with family planning.

The results are described in Table 8, where the reported coefficients are

elasticities. The outcome highlights the dominant role of biology. *DUR*, *DURSQ*, and *AAMW* pack strong explanatory punches, although as might be predicted, *AAMH* did not affect fertility much. The impact of religion on fertility, once ‘economic’ factors are controlled for insofar as the census permits, was rather weak. In general the coefficients on *CATH* are bigger (or less negative) than those on either *COFI* or *PRESB*; more significant, perhaps, the differences are very small. The coefficients on *COFI* are generally closer to those on *CATH* than those on *PRESB*. The coefficients on the interaction terms suggest that Presbyterians were less inclined to ‘replace’ lost children than either of the other denominations, although it must be pointed out that the differences were very small. The ‘economic’ variables do not add much to the explanatory power of the regressions. Skilled artisans were likely to have slightly bigger families on average, while women who reported a non-household occupation while still under the age of forty had slightly smaller families. The occupational categories, *ELITE*, *LAB*, and *WEAVER* produced tiny and statistically insignificant coefficients not reported here.

--TABLE 8 ABOUT HERE --

4. *INFANT AND CHILD MORTALITY*

Infant mortality and child mortality are sensitive indicators of poverty, both today and in the past. It is no coincidence that the highest infant mortality rate in the world today is to be found in Niger, the poorest country in the world. The correlation between the Human Development Index (a widely used index of

economic development) and the infant mortality rate across 176 countries is 0.88.³³ In Dublin a century ago the gradient in mortality by socio-economic class and area was enormous³⁴, although how steep it was outside Dublin has not yet been studied.

Table 9 and Figure 2 suggest that the survival prospects of Catholic infants and children in Lurgan were lower than those of Church of Ireland and Presbyterian infants and children.³⁵ But these are crude averages, which control neither for economic status nor duration of marriage. Does the apparent Catholic mortality disadvantage survive when we try to control for occupation, literacy, and housing conditions?

--FIGURE 2 ABOUT HERE--

--TABLE 9 ABOUT HERE --

Estimation here is by TOBIT. The dependent variable is the proportion of the children born reported dead in the census (*PDEAD*). *PDEAD* is bounded by zero and one: only couples who have given birth at least once are included. The explanatory variables included, in addition to those already defined, are *CHBORNPA* (children born per year of marriage), *WIFEWORKS* (wife returned as working outside the home). We expect the coefficient on both these variables to be positive.

Plainly *DUR* and *DURSQ* do most of the explaining (see Table 10). They return consistently big and statistically significant coefficients. However, *CHBORNPA* also returns a big coefficient with a consistently positive sign: the

higher fertility within marriage, the higher the proportion of infants and children who die. Other coefficients with plausible signs include *HSEPTS* and *WIFEWORKS*. *HSEPTS*, a measure of household wealth, reduced mortality, while being a working mother increased it. The coefficients on religion are small and weakly determined. There is some evidence that controlling for occupational status, housing quality, literacy of parents, and so on 'weakens' the impact of *CATH* on mortality; in other words, Catholicism is in part, at least, a proxy for a lower standard of living. Moreover, the size of the coefficient on *CATH* (highlighted in yellow) is quite sensitive to marriage duration. It is 0.511 when all durations are included; it falls to virtually zero (0.0096) when marriages of 25 years duration or more are excluded, and is negative for durations of less than 15 years (-0.0312) and less than ten years (-0.0787). This is consistent with the interesting hypothesis that the offspring of Catholic parents suffered more, relatively speaking, later on in childhood but not when they were infants or young children.

Finally, the data suggest that infant mortality was concentrated in a relatively small number of families. While the total number of dead offspring over all marriage durations only slightly exceeded the number of couples in the database, nearly half of all deaths occurred in households where four or more children died. Focusing on marriages of 10-19 years duration only, more than one death in three happened in households where three or more infants or children died.

A comparative glance at elsewhere in Ireland may add some insight here. On the island of Cape Clear (or Cléire) off the coast of Cork, the number of dead infants or children in 1911 also almost equalled the number of households; but one-third of

the total (25) occurred in five of the 77 households, and three-fifths (46) in twelve of the 77. In the same county Clare townlands surveyed by anthropologist Conrad Arensberg and Solon Kimball in the 1930s, there were 46 dead children across 42 households; twelve of these occurred in two households, and another fourteen in a further four. These examples suggest that family-specific factors, genetic or other, may have played a part in clustering mortality in a minority of families.³⁶ It may well be that the death of one child reduced the survival probability of a later birth – what Arulampalam and Bhalotra³⁷ refer to as ‘a scarring effect’ – but our data do not permit a test of this.

5. CONCLUSION

Since this paper has relied in the main on the manuscript 1911 population census, it may be regarded as a didactic exercise in how much – or how little – we can learn from that single source. It has shown how crosstabulations of the distribution of occupations, literacy, and numeracy by religion in 1911 bring the disadvantage of the Catholic couples in Lurgan into sharp focus. Its inspection of female labour force participation, as reflected in the census forms, was corroborative. Its analysis of marital fertility in the town found that after controlling for biology and for socio-economic status – not easy with the available data – religion was left with little explanatory power. Finally, its analysis of the variation in infant and child mortality found that confessional status was mainly a cloak for living standards and socio-economic advantage.

FIGURE 1. MARRIED WOMEN'S LABOUR FORCE PARTICIPATION IN LURGAN, 1911

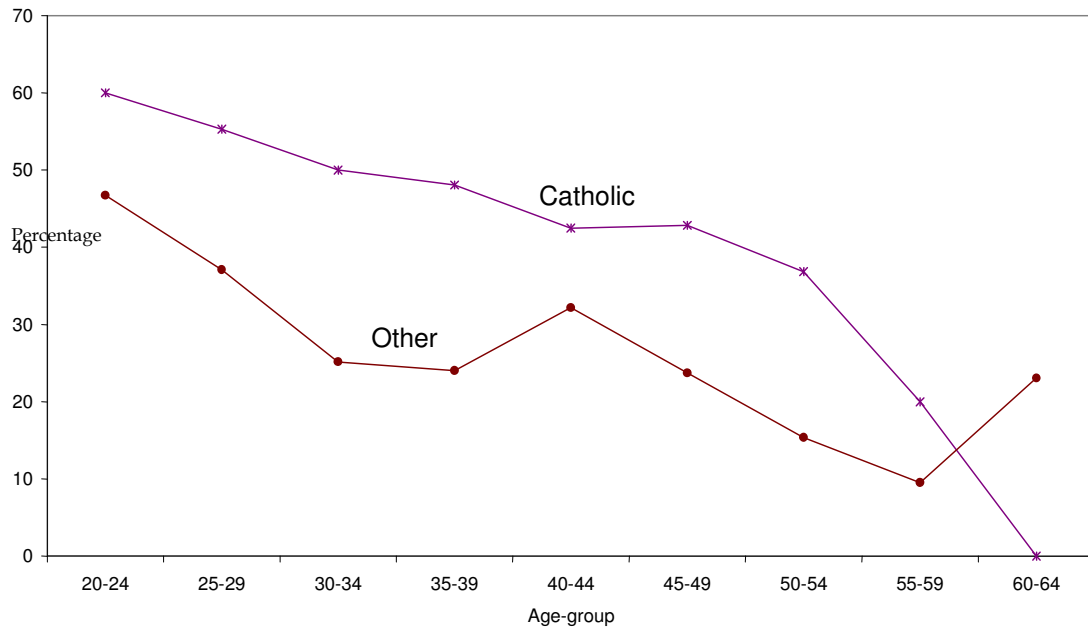
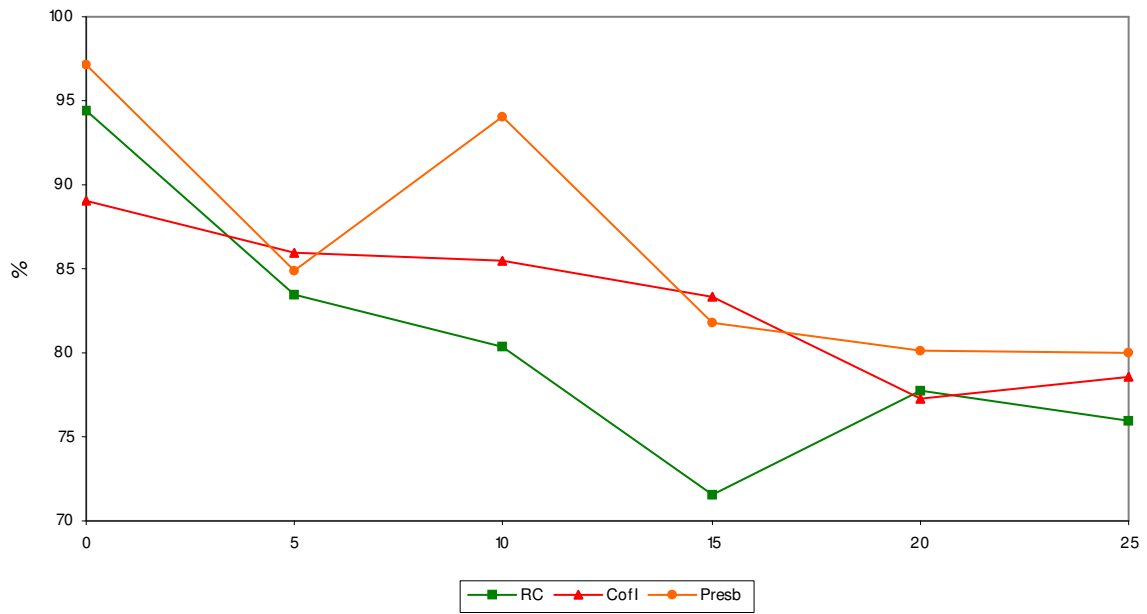


Figure 2. Percentage of Children Alive by Duration



<i>Occupational Group</i>	1871	1881	1891	1901	1911
Agriculture	2.1	2.1	1.6	1.2	1.0
Building	3.0	2.2	3.1	3.8	3.0
Manufacturing	64.4	61.8	67.8	61.3	66.0
Transport	1.5	1.8	2.1	2.5	1.8
Dealing	6.8	6.8	7.3	8.3	6.7
Industrial Service	8.6	6.1	6.0	8.8	10.9
Public Service and Professional	3.0	3.3	3.6	4.9	4.3
Domestic Service	10.4	14.2	7.5	7.7	6.3

Source: McCorry (1986: 170). Agriculture includes quarrying and mining.

<i>Occupational Category</i>	<i>Catholics</i>	<i>Others</i>	<i>Catholic Percentage</i>
Accountant	0	2	0.0
Assurance agent	0	6	0.0
Tenter	0	12	0.0
Yarn dresser, warper	0	11	0.0
Mechanic	1	12	7.7
Clerk	3	34	8.1
Draper	1	10	9.1
White collar	15	129	10.4
Damask weaver	14	54	20.6
Diaper weaver	1	3	25.0
Elite	9	23	28.1
Skilled/ Artisan	46	111	29.3
Powerloom weaver	12	27	30.8
Labourers	109	196	35.7
Labourer/servant	101	159	38.8
Weavers	276	273	50.3
Linen weaver	139	111	55.6
Cambric weaver	87	56	60.8
Butcher	6	2	75.0
Coachman	8	0	100.0
All	546	1,018	34.9

<i>Literacy</i>	<i>Catholics</i>	<i>Others</i>	<i>Catholic Percentage</i>
Women illiterate	178	142	55.6
Women read only	59	125	32.1
Women read and write	310	751	29.2
Men illiterate	150	126	54.3
Men read only	38	69	34.5
Men read and write	359	823	30.4

<i>Age</i>	<i>Catholics</i>		<i>Others</i>	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
30-34	.228	.293	.212	.212
40-44	.439	.436	.333	.253
50-54	.382	.458	.347	.385

<i>Occupational Category</i>	<i>Catholics</i>	<i>Others</i>	<i>Catholic Percentage</i>
Overseamer	1	5	16.7
Teacher	1	5	16.7
Stitcher	11	23	32.4
Folders	22	28	44.0
Winder	50	54	48.1
Seamstress	7	7	50.0
Smoother	34	32	51.5
Cambric weaver	10	7	58.8
Drawer	41	28	59.4
Veiner	11	7	61.1
Linen weaver	20	10	66.7
All	241	267	47.4

Variable	dy/dx	Z	Mean value
<i>DOM</i>	0.056	1.17	0.063
<i>ROOMS</i>	-0.030	-3.80	4.72
<i>WHCOLL</i> (*)	-0.119	-2.52	0.088
<i>WVR</i> (*)	0.272	8.54	0.358
<i>LAB</i> (*)	0.136	3.48	0.195
<i>AGEW</i>	-0.006	-5.68	40.9
<i>CHALIVE</i>	-0.030	-5.88	3.47
<i>CATH</i> (*)	0.143	3.92	0.354
<i>COFI</i> (*)	0.087	2.53	0.401
Note: where there is an asterisk (*) dy/dx is for discrete change of dummy variable from 0 to 1			
Number of observations	1,528	LR ch2(9)	315.4
Prob>ch2	0.000	Log likelihood	-807.6
Pseudo R-sq	0.163		

Religion	AAM (women)	Children dead (%)	Couples (no.)	% Childless (all)	% Childless (DUR=10+)	Mean no. of children
<i>Catholic</i>	24.2	26.1	541	12.8	9.1	4.56
<i>Cofl</i>	24.1	21.6	611	8.7	6.8	4.57
<i>Presb</i>	25.0	20.3	196	11.2	6.7	4.16
<i>Other</i>	23.7	19.9	162	18.5	12.6	4.45

Occupational Group	<i>All AAMH</i>		<i>AAMH<50 only</i>	
	N	Gap	N	Gap
Elite	30	7.1	28	5.8
White collar	133	3.3	132	3.1
Skilled artisan	153	2.6	150	2.2
Labourer	298	2.4	298	2.4
Weaver	546	2.0	539	2.0
Textiles (male)	643	2.2	634	2.1
Textiles (female)	463	2.4	457	2.2

<i>Duration</i>	<i>Catholic</i>	<i>N</i>	<i>Other</i>	<i>N</i>
0-4	1.17	77	1.13	167
5-9	2.70	125	2.55	165
10-14	4.21	71	3.92	143
15-19	5.91	78	5.05	128
20-24	6.60	57	6.41	132
25-29	6.65	65	6.22	87

<i>Duration</i>	<i>'Doesn't work'</i>		<i>'Works'</i>	
	<i>Average</i>	<i>N</i>	<i>Average</i>	<i>N</i>
0-4	1.23	127	1.05	118
5-9	2.68	179	2.52	111
10-14	4.30	132	3.55	82
15-19	5.59	135	4.97	71
20-24	6.55	141	6.23	48
25-29	6.56	119	5.85	33

Variable	[1]	[2]	[3]	[4]
<i>DUR</i>	1.432**	1.298**	1.872**	1.949**
<i>DURSQ</i>	-0.570**	-0.512**	-0.746**	-0.754**
<i>AAMW</i>	-0.958**	-0.943**	-1.046**	-1.127**
<i>AAMH</i>	-0.103	-0.110	-0.123	-0.131
<i>CATH</i>	-0.046**	-0.050**	-0.045	0.025*
<i>COFI</i>	-0.063**	-0.064**		
<i>PRESB</i>	-0.027**	-0.030**		
<i>CATHDEAD</i>	0.050**	0.052**	0.048**	
<i>COFIDEAD</i>	0.059**	0.061**		
<i>PRESBDEAD</i>	0.027**	0.018**		
<i>ROOMS</i>	0.061**	0.063**	0.020	0.023
<i>OCCTEXT</i>	0.017	0.016	0.022	0.026*
<i>SKARTISAN</i>	0.011**	0.010**	0.011**	0.012**
<i>WWLT40</i>	-0.026**	-0.024**	-0.034**	-0.031**
<i>HLIT</i>	0.048	0.046*		
<i>ARMH</i>	0.027	0.032	0.061**	0.063**
N	1,527	1,450	1,218	1,218
Prob > chi sq	0.000	0.000	0.000	0.000
	All durations	<i>DUR</i> >1	<i>DUR</i> >1 & <30	<i>DUR</i> >1 & <30

Duration	IRELAND	DUBLIN	LURGAN		
			Catholic	C of I	Presbyterian
0-4	91.6	87.8	94.4	89.1	97.1
5-9	88.8	83.5	83.4	86.0	84.9
10-14	86.0	79.2	80.3	85.5	94.0
15-19	84.0	76.1	71.6	83.3	81.8
20-24	82.1	72.7	77.7	77.3	80.1
25-29	80.4	70.7	75.9	78.6	80.0

TABLE 10. MODELLING INFANT/CHILD MORTALITY						
Variable	[1]	[2]	[3]	[4]	[5]	[6]
<i>DUR</i>	.0348 **	.0354 **	.0354 **	.0809 **	.2308 **	.4323 **
<i>DURSQ</i>	-.0003 **	-.0003 **	-.0003 **	-.0019 **	-.0105 **	-.0266 **
<i>CHBORNPA</i>	0.546 **	0.555 **	0.555 **	.674 **	.8341 **	.9448 **
<i>AAMW</i>	.0044**	.0041*	.0041 *	.0028	.0025	.0030
<i>CATH</i>	.1021**	0.610	.0511 **	.0096	-.0312	-.0787
<i>COFI</i>	.0371	0.014				
<i>PRESB</i>	-.0054	0.005				
<i>HSEPTS</i>		-.0109 *	-.0110 *	-.0076	-.0026	-.0205
<i>DOMS</i>		-.0381	-.0388	-.0570	-.1812	-.1248
<i>WHCOLLAR</i>		.0056	.0044	-.0043	.0366	.1482
<i>WEAVER</i>		-.0238	-.0238	-.0284	-.0175	-.0656
<i>LAB</i>		.0127	.0139	.0209	-.0102	-.0708
<i>WIFEWORKS</i>		.0805 **	.0807 **	.1048 **	.1623 **	.2041 **
<i>HLIT</i>		-.0121	-.0125	-.0248	-.0243	-.0579
<i>WLIT</i>		-.0295 *	-.0293 **	-.0347 *	-.0580	-.1243 **
<i>CONSTANT</i>	-0.796**	-0.638**	-0.628	-0.914	-1.635	
N	1325	1325	1325	970	607	414
Durations	All	All	All	<25	<15	<10
LR chi-sq (df)	337.33 (7)	398.8 (15)	374.0 (13)	258.2 (16)	90.19 (13)	70.1 (13)
Prob > chi-sq	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R-sq	0.214	0.218	0.212	0.194	0.128	0.150
Notes: The coefficients reported are marginal effects. (**) means $t > 1.96$, (*) means $t > 1.65$						

ENDNOTES

¹ An earlier version of this paper was presented at the History of the European Family Conference, University of Limerick, 20-21 June 2007. My thanks to Frank McCorry for sharing his unrivalled knowledge of Lurgan, past and present, and to Phillip Ollerenshaw and Peter Solar for helpful comments and suggestions. The usual disclaimer applies.

² E.g. C. Arensberg and Kimball, *Family and Community in Ireland* (Ennis, 2001; first published in 1940); K.H. Connell, *Irish Peasant Society* (Oxford, 1968); T.W. Guinnane, *The Vanishing Irish: Households, Migration, and the Rural Economy in Ireland, 1850-1914* (Princeton, 1997).

³ S.C. Lutton, 'The linen trade of County Armagh since the turn of the century'. *Review: Journal of the Craigavon Historical Society*, 2(3) (1974), 12-18.

⁴ F.X. McCorry, 'The History of Lurgan, 1610-1963' (unpublished Ph.D. dissertation, QUB, 1986), 187.

⁵ W.A. Graham Clark, *Linen, Jute and Hemp Industries in the United Kingdom* (Washington, D.C., 1913).

⁶ *Irish Textile Journal*, November 15th 1899.

⁷ A representative of Johnston, Allen (described as 'Manufacturers, Bleachers and Finishers of Linen and Linen Cambrics, Linen Handkerchiefs') complained of the rise in U.S. tariffs to the 1905 Tariff Commission (para. 4135). For a more long-run perspective see P.M. Solar, 'The Irish linen trade, 1852-1914', *Textile History*. 36(1) (2005), 46-68.

⁸ *Irish Textiles Journal*, mid-December issues, 1908-1910. My thanks to Philip Ollerenshaw for this reference.

⁹ F.X. McCorry, *Lurgan: An Irish Provincial Town, 1610-1970* (Lurgan, 1993), 99-106; P. Ollerenshaw, 'Stagnation, war, and depression: the UK linen industry 1900-1930', in B. Collins and P. Ollerenshaw, eds., *The European Linen Industry in Historical Perspective* (Oxford, 2003), 285-308.

¹⁰ For more on the history of Lurgan see W.H. Crawford, 'Lurgan', in A. Simms and J.H. Andrews, eds., *More Irish Towns* (Cork, 1994); R.G. Gillespie, *Settlement and Survival on an Ulster Estate: The Brownlow Leasebook 1667-1711* (Belfast, 1998); G. McAtasney, *'This dreadful visitation': The Famine in Lurgan/Portadown* (Belfast, 1997); McCorry, *Lurgan*.

¹¹ A.C. Hepburn, *A Past Apart: Studies in the History of Catholic Belfast* (Belfast, 1996), 40-45.

¹² Most Catholics lived to the west and to the north-east and east of Church Place in the centre of the town, and in the west of the town around Edward Street; the south of the town and the area to the north, next to the railway station, were almost exclusively non-Catholic. The town's main northwest to southeast artery, encompassing Lough Road, William Street, Market Street, High Street, Queen's Street, and Avenue Road, housed few Catholics.

¹³ The household enumeration forms are kept in the National Archives, Dublin.

¹⁴ Compare C. Ó Gráda, 'Did Ulster Catholics always have larger families?'. *Irish Economic and Social History*, 12 (1985), 79-88; C. Ó Gráda, 'Dublin Jewish demography a century ago', *Economic & Social Review*, 37(2) (2006), 123-47; T.W. Guinnane, C.M.

Moehling, and C. Ó Gráda, 'Fertility in south Dublin a century ago: a first look' [available at: <http://www.ucd.ie/economics/research/papers/2001/WP01.09.pdf>].

¹⁵ Hepburn, *A Past Apart*, 72-78.

¹⁶ Compare W.H. Crawford, *The Impact of the Domestic Linen Industry in Ulster* (Belfast, 2005), 167. See too the same author's *Domestic Industry in Ireland* (Dublin, 1972); and 'A handloom weaving community in County Down', *Ulster Folklife*, 39 (1993), 1-14.

¹⁷ M. Cohen 'Religion and social inequality in Ireland', *Journal of Interdisciplinary History*, 25(1) (1994), 8; M. Cohen, 'Toward a historical anthropology of work: structure and subjectivity among linen workers in Tullylish, County Down, 1900-1920', in M. Cohen, ed. *The Warp of Ulster's Past* (New York, 1997), 268.

¹⁸ W.H. Crawford, 'A handloom weaving community in County Down', *Ulster Folklife*, 39 (1993), 1-14; M. Cohen, *Linen, Family and Community in Tullylish, County Down, 1690-1914* (Dublin, 1997), 216-7.

¹⁹ Cohen, 'Toward a historical anthropology of work', 256.

²⁰ McCorry, *Lurgan*, 90fn22; compare J. Deeny, *To Cure and to Care: Memoirs of a Chief Medical Officer* (Dublin, 1989), 33.

²¹ British Parliamentary Papers. 1909. *Report of the Inquiry by the Board of Trade into the Earnings and Hours of Labour of Workpeople in the Textile Trades*, vol. 90 [cd. 4545]; Guy Routh, *Occupation and Pay in Great Britain 1906-79* (London, 1980).

²² B. A'Hearn, J. Baten and D. Crayen. 2006. 'Quantifying Quantitative Literacy: Age Heaping and the History of Human Capital' (Universitat Pompeu Fabra,

Department of Economics and Business, Working Paper No. 996, 2006)

(<http://www.econ.upf.edu/en/research/onepaper.php?id=996>).

²³ McCorry, 'History of Lurgan', 262.

²⁴ Cohen, 'Religion and social inequality in Ireland', 9; Cohen, *Linen, Family and Community*, 196.

²⁵ M. Cohen, 'Toward a historical anthropology of work', 257.

²⁶ In 1911 Lurgan also contained a dozen Jewish households. Several of these households kept lodgers, nearly all of whom were single men in their twenties born in 'Russia'. Nearly all the men were listed as credit drapers or pedlars. In 18 North Street Joseph Herbert, a draper, had as lodgers David Freeman (23), James Hoffman (22), and Nathan Woolfson (21), all described as 'travellers'. In 48 North Street there were two lodgers, Joel Megget, a 'Jewish school teacher', and Harry Cohen, a photographer. In 53 North Street there were two lodgers: a nineteen year-old 'credit salesman' and a thirty year-old antique dealer.

²⁷ B.M. Walsh, *Religion and Demographic Behaviour in Ireland* (Dublin 1970), C. Ó Gráda, *A Rocky Road: The Irish Economy since the 1920s* (Manchester, 1997), 206-7; C. Ó Gráda, and B.M. Walsh, 'Fertility and population in Ireland, North and South', *Population Studies*, 49(2) (1995), 259-279; Guinnane, Moehling, and Ó Gráda, 'Fertility in south Dublin a century ago'.

²⁸ A. Coale and A. Treadway, 'Summary of Changing Distribution of Overall Fertility, Marital Fertility and the Proportion Married', in A.J. Coale and S.C. Watkins, eds., *The Decline of Fertility in Europe* (Princeton, 1986), 120; Ó Gráda and Walsh, 'Fertility and population'; Ó Gráda, *A Rocky Road*, 193-5.

²⁹ Compare U.O. Schmeltz, *Infant and Early Childhood Mortality among the Jews of the Diaspora* (Jerusalem, 1971); S.H. Preston and M.R. Haines, *Fatal Years: Childhood Mortality in the United States in the Late Nineteenth Century* (Princeton, 1991); J. Brown and T.W. Guinnane, 'Fertility transition in a rural, Catholic population: Bavaria, 1880-1910', *Population Studies*, 56(1) (2002), 35-49; T.W. Guinnane, C.M. Moehling, and C. Ó Gráda, 'The fertility of the Irish in America', *Explorations in Economic History*, 43(3) (2006), 465-85; Ó Gráda, 'Dublin Jewish demography'.

³⁰ Deeny, *To Cure and to Care*; J. Deeny, *The End of an Epidemic: Essays in Irish Public Health 1935-65* (Dublin, 1995), 24-33.

³¹ Compare Ó Gráda, 'Dublin Jewish demography a century ago', Table 3.

³² For more on the choice of estimation method, see Guinnane, Moehling, and Ó Gráda, 'The fertility of the Irish in America'.

³³ Derived from <http://hdr.undp.org/hdr2006/statistics/indicators/91.html>.

³⁴ C. Ó Gráda, 'Infant and child mortality in south Dublin a century ago', in M. Breschi and L. Pozzi, eds., *The Determinants of Infant and Child Mortality in Past European Populations* (Udine, 2004), 89-104.

³⁵ The chart excludes members of other persuasions, including those of Lurgan's eleven Jewish households: only four of the thirty-nine children born to them had died.

³⁶ Today, for instance, in parts of sub-Saharan Africa the transmission of HIV from mother to child leads to the marked clustering of infant mortality.

³⁷ W. Arulampalam and S. Bhalotra, 'Persistence in infant mortality: evidence on the Indian states'. IZA Discussion Paper No. 2488, December 2006.

