

Literacy and Mobility in Rural versus Urban Victorian England: Evidence from linked marriage register and census records for Birmingham and Norfolk, 1851 and 1881.

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**Abstract:** This paper reports procedures and results obtained from linking marriage registers with the 1851 and 1881 censuses for Birmingham, a major industrial center, and rural areas in Norfolk. The results underscore regional contrasts in mobility processes. Those starting out in Birmingham from unskilled origins whether parental or initial occupation, had quite high probabilities of experiencing upward occupational mobility. Probabilities for those of unskilled origin were considerably lower in rural Norfolk; but for those of higher origins mobility rates could at least equal if not exceed those in Birmingham. More strikingly, literacy offered considerably greater prospects for advancement for those in rural Norfolk than industrial Birmingham. Basic education could matter more to the aspiring farm bailiff or rural shopkeeper than for the nail-maker or gunsmith. The career impact of literacy over and above impact on initial occupation at marriage was especially sizable for agricultural Norfolk in the earlier time period. The results suggest differences in the migration patterns in the two areas with overall rates of migration being higher in Norfolk, but migration rates for the upwardly occupationally mobile being greater in Birmingham. There was no clear connection between literacy and geographic mobility. Thus, the results here do indicate a positive association between industrialization and occupational mobility. But they also underscore that mobility did occur in agricultural areas and that education could play at least as great a role in facilitating mobility in agricultural as in industrial areas.

JEL Codes: C81, J24, J43, J61, J62, N33

Key Words: Record Linkage, Intergenerational Occupational Mobility, Career Occupational Mobility, Geographic Mobility, Literacy, Rural Labor Markets, Urban Labor Markets, Victorian England, Norfolk, Birmingham.

Literacy and Mobility in Rural versus Urban Victorian England: Evidence from linked marriage register and census records for Birmingham and Norfolk, 1851 and 1881.<sup>1</sup>

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One of the longest standing issues in the historiography of social mobility is whether on net social mobility has tended to rise with industrialization. Some sociologists and historians have argued that shifts in occupational structure associated with industrialization along with the shift from a traditional, ascriptive rural society to a meritocratic, urban society implied a rise in social mobility. However, others have argued that the changes in occupational structural changes and any associated net shift toward skilled versus unskilled occupations were gradual and modest enough so as not to generate great increases in opportunities for upward mobility. Indeed, some accounts have argued that industrialization was on net de-skilling (Lipset and Bendix 1959; Kaelble, 1981, 1986).

A related issue has been the extent to which the spread of mass education over the past few centuries has promoted increasing social fluidity. In western countries there has been a substantial rise in levels of mass educational attainment in recent centuries. And in some studies this has been associated with increased rates of social mobility (Miles 1999; Vincent 1989). However, it remains unclear just how these two trends were related to each other and to industrialization. Studies of England in particular during its industrial revolution during the late eighteenth and early nineteenth centuries have suggested that literacy provided no advantage in entering newly emerging skilled industrial occupations and that literacy rates may have actually declined in industrial areas and industrial occupations (Sanderson 1972, Nicholas and Nicholas 1992).

Examining either issue has been hindered by the lack of evidence on social mobility and its relationship with literacy during the early periods of industrialization making it problematic to establish actual full longitudinal trends before, during, and after industrialization. However, as an alternative source of perspective on the relationship between industrialization, social mobility, and education, one can turn to comparisons at a given point in time between industrial and rural areas. Even if such comparisons do not fully capture the longitudinal changes associated with industrialization they can shed light on basic patterns and influences at work.

Did industrial areas offer more prospects for upward mobility or put workers more in jeopardy of downward mobility than agricultural areas? Was education of greater value in advancement in industrial or agricultural areas? While it might be presumed that the industrial sector as a modernizing sector would offer more returns to education, in fact, agriculture may have offered more functional uses for basic levels of education in

terms of demands for record keeping. What relation did geographic mobility play in occupational mobility? It might be expected that in industrial regions a rising demand for workers would draw in a larger percentage of workers from greater distances. However, there is also evidence of substantial short distance mobility in agricultural areas. Moreover, it could be that after an initial agricultural to industrial move, relatively little further geographic mobility occurred in industrial areas.

These questions will be considered in this study by examining by using linked marriage register to census samples for the urban, industrial center of Birmingham and for rural, agricultural parishes in the county of Norfolk. Marriage registers provide evidence on both intergenerational mobility by reporting occupation of the groom and his father and on signature ability, a measure of basic educational attainment. Linking marriage registers to subsequent census records provides evidence on intra-generational or what could alternatively be termed career mobility. In the samples employed, marriage registers for the period 1837-43 have been linked to the 1851 census marriage registers for the period 1867-73 have been linked to the 1881 census. The average age of marriage was around age 25, so these linked samples provide evidence on occupational change or continuity between roughly a ten year interval between age 25 on average and age 35. The census also provides evidence on place of birth as well as residence at time of census while the marriage register indicates residence at marriage, thus providing some indication of geographic mobility.

Since the samples come from two time periods some thirty years apart, this permits some consideration of trends over time in mobility patterns, albeit for a period after the peak of England's industrial revolution. In considering time trends there are actually similarities between Birmingham and Norfolk. Birmingham's manufacturing enterprises were noteworthy for their generally small scale and use of informal networks for operation in contrast with say large scale cotton textile factories. By its nature, Norfolk agriculture would also have featured the role of informal networks in establishing career patterns. In that sense both areas can be said to be characterized by external labor markets rather than the so-called internal labor markets, characterized by the role of bureaucratic elements in shaping career patterns. Finally, both areas were subject to significant economic decline over the period 1851 to 1881. Norfolk most obviously with the general decline of agriculture. Between 1851 and 1891, the percentage of males over the age of 10 employed in agriculture and fishing declined in the county of Norfolk from 48 percent to 34 percent. Of course agriculture was in decline generally in England in response to increasing new world competition. The traditional Birmingham industries gunmaking, brass, button making, and toy trade also went into decline in this period (Allen 1929).

The next section describes in more detail construction of the linked marriage register-census sample. The second section employs the sample to compare patterns of intergenerational mobility and career mobility. The third section compares the relationship between occupational mobility and literacy for Birmingham and Norfolk. The third section will consider migration in relation to occupational mobility and literacy. A final summary concludes.

## **I.ASSEMBLING THE LINKED MARRIAGE REGISTER-CENSUS SAMPLE**

Since this study derives evidence on intergenerational occupational mobility from marriage registers and on career mobility from linking marriage registers to census records, some consideration should be given to potential biases in each type of source.

Previous scholars have noted a number of potential biases in employing the information on occupation of father of the groom and groom as reported on marriage registers as a measure of intergenerational occupational mobility (Delger and Kok, 1998; Prandy and Botero, 2000). One important potential bias stems from groups of people who would be unobserved in marriage register samples. This would include those who never married and those who did not form unions in ways that would be registered on the type of certificates most convenient for scholars to sample. In the case of England, such unions would tend to include those who married outside of the Church of England, since Church of England marriage registers are those most readily accessible for sampling.

Regarding the extent of non-Church of England marriages, as Table 1 indicates, in both regions considered here, the clear majority of majority of marriages were conducted by Church of England rites; albeit at least 10 percent were conducted outside of the Church of England. In each of the districts, the Church of England percentage of marriages did fall somewhat, primarily due to the rise of civil marriages, that is those conducted in the Superintendent Registrar's office.

Table 1 Distribution of all marriages according to type of ceremony performed

District	Total Marriages	Church of England	Total Non-Anglican	Roman Catholic	Other Christian	Civil Marriages
1850						
Rural Norfolk	2208	90.4%	9.6%	0.4%	6%	0.8%
Birmingham	1745	86.5%	13.5%	7.3%	3.6%	1.3%
1870						
Rural Norfolk	1862	86%	14%	0.1%	9.0%	4.8%
Birmingham	2230	82.1%	17.9%	5.5%	5.3%	6.6%

Source: Annual Report of the Registrar General of England and Wales.

A second problem concerns the timing of the comparison between occupation of the groom and of his father implied by marriage registers. Insofar, as the father would be at more advanced career stage than the son, it has been argued that marriage registers tend to understate the degree of upward occupational mobility and overstate the extent of downward mobility (Delger and Kok, 1998; Kaelble, 1986).

Although both omitted population groups and differences in career stage of father and son are real difficulties, insofar as there are no systematic differences in these biases between regions, marriage registers would still seem to provide reliable information on comparative differences between regions in intergenerational occupational mobility.

A third issue emphasized by Prandy and Botero (2000) is that one would really like to compare career trajectories of fathers with the trajectories of their sons rather than simply employ point in time comparisons. It would certainly seem desirable to have information on father's career trajectories if it can be obtained. Indeed, the census sources employed here may make possible examining career occupational patterns of fathers as well as sons by linking back from the 1881 to the 1851 census to establish the father's occupation in 1851 during the son's childhood. However, that awaits considerable further development of the data base used here.<sup>2</sup> For purposes of the present study, one can only acknowledge the limitations of point in time information on father's occupation in interpreting the results. Despite such limitations, the marriage register offers a number of advantages for studying intergenerational occupational mobility in the English case. The form for registering marriages in 1837 by the English registrar general requested information on occupation of groom, bride, and the father of each thus allowing comparison of occupation of father, father-in-law and groom at time of marriage. Since this information is provided on one document, it obviates the problems of record linkage typically associated with other ways of constructing occupational mobility measures with historical data sources. Further, this source provides evidence on signature ability thus permitting examination of the influence of a basic measure of educational attainment on occupational status.

Another possible source of insight provided by linkage of marriage registers and census records concerns the relationship between school attendance as a child and adult literacy. Having linked marriage registers for the period 1867-74 to the 1881 census, the birthplace information provided in the 1881 census facilitates linking back to the 1851 census for those born in Norfolk or Warwickshire since census records for those two counties are also on CD-ROM. Such linkage back to the 1851 census for those who would have been roughly of school age, approximately ages 5 to 13 at this date, allows one to compare reported occupation as scholar in this age range for those signing and making a mark respectively. Here some very preliminary results with admittedly quite small samples are reported to suggest what further such linkage might reveal. For those linked to the Birmingham 1881 census sample, of some 13 grooms who could sign their names at marriage during the period 1867-74, 8 were reported as scholars in the 1851 census, 4 were reported either with no occupation or as working and 1 was reported as a Sunday School scholar. Of 3 grooms who made a mark at marriage, 2 were listed as scholars in the 1851 census and 1 was listed with no occupation. For those from the rural Norfolk sample of grooms, of some 9 grooms who could sign their names at marriage during the period 1867-74, 4 were reported in the 1851 census as scholars while 5 were reported with no occupation. Of 8 grooms who made a mark at marriage, 4 were reported as scholars and 4 were reported with no occupation at time of the census. Thus, these admittedly quite small samples suggest no clear differences between literate and illiterate grooms in school attendance patterns. While increasing sample size may well change results, these results at least suggest the possibility that a good percentage of those who made marks at marriage had spent some time in school.

Another source that has been employed to study occupational mobility in nineteenth century England has been the census. In the 1970's a few studies employed the census to study intergenerational occupational mobility by constructing samples of sons over the age of 20 residing in the household of their fathers (Anderson 1971; Preston 1977). More recently surname indexes have been employed to link the two percent sample of the 1851 census with the 1881 census. This has permitted both an examination of career mobility by comparing occupations of those linked between the two censuses and an examination of intergenerational mobility for those co-residing with their fathers in the 1851 census. Recently Long and Ferrie and Long (2002) have done studies based on linking the 1851 British 2 percent census sample with the 1881 British census for purposes of studying rates of inter and intra generational occupational mobility. While they have found substantial rates of both types of mobility, again counter to the view of Victorian Britain as a completely static, hierarchical society, in a comparative study with the U.S., they found substantially lower rates of both types of mobility in Britain than in the U.S.

The census offers several advantages for the study of occupational mobility compared with marriage registers. First, with data linkage, one can study career occupational change. Second, it can allow comparison of occupation of father son at similar ages thus facilitating comparison with intergenerational mobility rates found in other countries. Third, since occupational title of father as well as son would be that reported at time of census, evidence on father's occupation may be more reliable than that reported retrospectively in marriage registers. Fourth, the census occupational titles are typically more detailed and hence more informative than those employed on marriage registers. A simple but important example is that agricultural labourers were frequently listed simply as labourer on marriage registers while as agricultural labourer in census enumerators' schedules. A further useful feature of the census is that it reports place of birth which facilitates the study of migration and geographic mobility associated with occupational mobility.

A hybrid approach that has been taken by some is to employ family histories constructed by genealogists that entail linking these and other types of sources to produce evidence on inter-generational mobility as well as intra-generational mobility at a number of points in time (Prandy and Botero 2000; Pooley and Turnbull 1998). However, this latter source has the drawback of relying on samples of individuals selected out by those pursuing genealogical research rather than any true random or other sample of the population.

This paper reports on the use of another type of hybrid approach, the linkage of marriage registers to census surname indexes to examine both intergenerational and career mobility. Linkage provides both evidence on intergenerational mobility from marriage registers and evidence on career mobility by comparing occupation at marriage and at census. It does this in a way that avoids the sample attrition problems either from linking census to census records or the use of genealogical databases. It also permits examining mobility at a variety of intervals between marriage and census. In addition to ascertaining whether there was "real" occupational change between marriage and census, the more detailed occupational descriptions that frequently characterized the census may provide insight into the nature of occupations listed at marriage. It also allows one to examine the relationship between signature ability at marriage, a basic measure of

educational attainment and career occupational change over and beyond the relationship between signature ability and intergenerational mobility to which one is confined with use of the marriage register alone.

Starting with marriage register samples and linking to the census has implications for the nature of the sample selected with regard to geographic mobility. Since no accessible national population of marriage registers is available, a natural way to proceed is by assembling regional samples of marriage registers. This implies sampling from the population of those who married in a given location. On the one hand some of this marrying population may have been born and/or spent considerable time in other locations than where they married. On the other hand, many of those born in the location of the marriage register samples may have migrated to other destinations prior to marriage. On the one this implies that this approach to sample construction would not be suitable for capturing the full range of geographic mobility associated with occupational change. On other hand, this may approach may bring out useful regional contrasts with regard to mobility patterns.

Samples of linked marriage to census records have been created for this study for individuals who were married in the county of Norfolk and in the city of Birmingham and linked to the 1851 and 1881 census. This choice of areas was in part dictated by the availability of surname indexes for the 1851 census for these two areas as well as their coverage in the 1881 national census surname index.

The evidence used for the study involved linking marriage registers for given individuals with their records in the English censuses of 1851 and 1881. The census information was available on CD-ROM's prepared by the Genealogy Library of the Church of Jesus Christ of Latter Day Saints. Hence the first step in linkage was to obtain samples of marriage registers from relevant areas and time periods to link to the census records on CD-ROM. Two basic sources were used to obtain these marriage registers. For the Norfolk registers microfiche covering the period 1837 to 1874 were ordered for some 90 parishes from the Norfolk Record office in Norwich, England. The parishes were selected to give representative coverage of Norfolk. For Warwickshire, marriage registers were obtained by photocopy from microfilm copies at the Family History Library in Salt Lake City, Utah. Parishes again were selected to give representative coverage, though given its share of the population of the county, particular emphasis was given to parishes from Birmingham. Approximately 40 percent of the population of mid-nineteenth century Warwickshire resided in Birmingham. For each time period under consideration, approximately 2000 marriage registers were obtained for each of Norfolk, Birmingham, and areas in Warwickshire outside of Birmingham.

The dates of marriage registers sampled were selected to allow varying degrees of lag between date of marriage and date of the census, which in turn allows study of varying lengths of occupational mobility and continuity. For marriages linked to the 1851 census, the time period selected was 1837-43, which allowed for an average time between marriage and census reporting dates of about 10 years. Thus, this allowed for an examination of occupational change after marriage over approximately a ten year interval. Since the form used for marriage registers reporting occupational information as well as signature ability only began in 1837, it was not possible to consider longer lags for registers linked to the 1851 census. For registers linked to the 1881 census, registers were collected with a view to obtaining not only 10 year lags between marriage and

census but also 20 and 30 year lags. Thus, registers were collected for the periods 1847-54, 1857-64, as well as 1867-74, for linking to the 1881 census.

Once the marriage registers had been obtained, the next step involved linking individuals on the marriage registers to their records in 1851 or 1881 censuses. I had two graduate research assistants who worked on this. It should be noted that since marriage registers indicated both first and last name of the groom and the bride's first name, nominal record linkage could usually be based on names of two individuals (either spouse could either have died or migrated out of the country between marriage and time of the census). In addition, between 1837 and the 1870's it became increasingly common for marriage registers to report numerical ages for bride and groom rather than the earlier practice of simply recording whether they were of full age or minors. Thus, for marriage registers linked to the 1881 census, the degree of age consistency between marriage and census records could in many instances be used as a further criterion for record linkage, though allowance was also made for possible discrepancies between ages reported at marriage and census.

Based on age discrepancies and other sources of inconsistency, such as a spouse not showing up on census records, record links were graded according to degree of suspicion for the later sample time period.

Table 2 Distribution of marriages linked to the 1881 census by quality of match

Quality of Match	Norfolk 1881	Birmingham 1881
High	84.2%	60.3%
Medium	5.5%	25.3%
Low	2.0%	14.3%

A high quality match involved no age discrepancies and names of groom and spouse at marriage matching those at census. A medium quality match involved an age discrepancy of no more than 3 years between marriage and census records and possibly a discrepancy in name of spouse. A low quality match involved an age discrepancy of more than 3 years and also possible discrepancy in name of spouse. For this study, all match qualities were included in the sample; however, in future work, attention should be given to the robustness of results when the sample is restricted to high quality matches.

Due to the time-consuming nature of this record linkage, it turned out to be feasible to complete linkage only for marriage register samples with 10 year lags from the 1851 and 1881 censuses. Indeed, not even all of the 10 year lag registers could be linked.

The linkage rates in Table 3 of 30 to 50 percent are respectable for linkage projects (see for example Ferrie 1999). Nevertheless, one source of concern is whether there is selection bias; that is whether the matched sample has different characteristics than those who were not matched. A particular source of concern for the case at hand is that individuals who were unmatched may have been more likely to be occupationally and geographically mobile and indeed these characteristics contributed to the difficulties of matching them. However, one does have some information about unmatched individuals which provides some indication of the extent of the problem. One immediate simple indicator is the signature rate in the matched versus the unmatched sample. Table 3 below indicates that for the most part literacy rates were quite similar in the matched



and unmatched samples, giving some assurance that there was not sizable selection bias. Another indicator is the occupational distributions reported by grooms in matched and unmatched samples. This is reported in Table 4, grouping occupations into the five broad status categories of the Registrar General:

I: Titled, independently wealthy, and higher professions

II: White collar employees, farmers, trading and commerce involving large scale capital.

III: Skilled manual workers, craftsmen, elite factory workers, miners, petty trading and shopkeeping, farm stewards and bailiffs.

IV: semi-skilled manual workers – mainly service, transport, and factory workers, and more skilled, specialized farm workers.

V—Unskilled labourers including farm labourers.

Although some differences between matched and unmatched are evident, especially for the Norfolk, 1881 sample, they are not sizable enough to suggest substantial bias.

A third and perhaps especially pertinent indicator of bias for purposes of measuring mobility is the extent of intergenerational change between father and son at time of marriage. Since this measure comes from the marriage register, it is available for both matched and unmatched samples. Insofar as those in the unmatched sample had a greater propensity for mobility, one would expect much of this to be already evident at marriage. In some cases in Table 3 below it does appear that those in unmatched samples had greater tendencies for intergenerational mobility (that is had lower proportions with grooms with occupations identical to their fathers). However, this is based solely on exact title comparison. In Table 4, occupations have been grouped into the Registrar General's five status categories. With the exception of the Norfolk sample in 1881, no clear difference between matched and unmatched samples for intergenerational mobility across status categories is evident. These results would suggest that any selectivity bias in the matched samples is not so large as to render them completely unrepresentative.

Table 3 Comparison of Matched and Unmatched Samples by signature ability and whether father and son reported same occupation at marriage.

	Matched	Unmatched
Norfolk		
1851	148	159
Grooms's Signature Rate	54.05%	56.0%
Groom's occupation = Father's Occupation	62.84%	51.6%
1881	1180	1226
Grooms's Signature Rate	65.25%	64.0%
Groom's Occupation = Father's Occupation	55.0%	47..8%
Birmingham		
1851	660	1178
Groom's Signature Rate	69.2%	70.12%
Groom's Occupation= Father's Occupation	35.5%	34.07%
1881	754	765
Groom's signature Rate	74.3%	73.2%
Groom's Occupation =Father's Occupation	23.3%	15.1%

Table 4  
Distribution of matched and unmatched across status categories

Norfolk matched to 1851 census

	I	II	III	IV	V	Obs.
Matched	0.53	12.14	25.33	29.29	32.72	379
Un-matched	1.04	13.99	24.87	20.21	49.90	193

Norfolk matched to 1881 census

	I	II	III	IV	V	Obs
Matched	0.76	9.44	21.91	20.02	47.88	1059
Un-Matched	1.51	12.67	23.96	20.33	41.53	797

Birmingham matched to 1851 census

	I	II	III	IV	V	Obs
Matched	1.58	7.10	52.21	22.24	16.88	634
Un-Matched	2.83	11.34	47.39	23.38	15.06	1129

Birmingham matched to 1881 census

	I	II	III	IV	V	Obs
Matched	0.27	5.19	75.00	14.34	5.19	732
Un-Matched	0.14	6.64	70.26	14.52	8.44	723

Note: The tabulations for the 1851 Norfolk sample include additional observations not reported in Table 3. For the other samples, the number of observations is smaller than reported in Table 4 due to occupations not assigned a status level.

Table 5  
Intergenerational mobility – Matched vs. unmatched

I. Norfolk, 1851 (1837-43 marriage registers)

Groom's Status Category (% in Category)

Father's Status	I	II	III	IV	V	Obs
I						
Matched	20	80	0	0	0	5
UnMatch	100	0	0	0	0	1
II						
Matched	1.72	53.45	20.69	8.62	15.52	58
UnMatch	3.13	53.13	21.88	6.25	15.63	32
III						
Matched	0	8.14	62.79	17.44	11.63	86
Unmatch	0	14.29	57.14	19.05	9.52	42
IV						
Matched	0	1.09	18.48	71.74	8.70	92
UnMatch	0	6.45	16.13	58.06	19.35	31
V						
Matched	0	2.17	9.42	18.12	70.29	138
UnMatch	0	2.30	13.79	12.64	71.26	87

II. Norfolk, 1881 (1867-74 marriage registers)

Groom's Status Category (% in Category)

Father's Status	I	II	III	IV	V	Obs
I						
Matched	41.7	33.3	25.0	0	0	12
Unmatch	26.09	56.52	8.70	0	8.70	23
II						
Matched	1.63	53.66	25.20	7.32	12.20	123
Unmatch	3.48	47.83	20.87	16.52	11.30	115
III						
Matched	0.47	6.98	57.67	19.07	15.81	215
Unmatch	1.20	12.57	58.08	14.37	13.77	167
IV						
Matched		4.14	14.79	57.40	23.67	169
Unmatch		4.80	27.20	48.80	19.20	125
V						
Matched		1.48	9.07	12.04	77.41	540
Unmatch		1.63	9.26	15.80	73.30	367

Table 5 continued  
Birmingham (1837-43 registers)

Father's Status	Groom's Status Category (% in Category)					Obs
	I	II	III	IV	V	
I						
Matched	23.08	38.46	15.38	15.38	7.69	13
Unmatch	47.06	11.76	35.29	2.94	2.94	34
II						
Matched	3.85	32.05	37.18	17.95	8.97	78
Unmatch	4.95	41.76	32.42	17.58	3.30	182
III						
Matched	0.70	3.83	79.09	12.20	4.18	287
Unmatch	0.88	5.52	77.70	12.36	3.53	453
IV						
Matched	1.60	3.20	40.80	48.80	5.6	125
Unmatch	0.89	7.14	32.59	54.02	5.36	224
V						
Matched	0	0	16.79	22.14	61.07	131
Unmatch	0.42	2.97	16.53	22.88	57.20	236

Birmingham (1867-74 registers)

Father's Status	Groom's Status Category (% in Category)					Obs
	I	II	III	IV	V	
I						
Matched		60.0	40.0			5
Unmatch		33.33	44.44	11.11	11.11	9
II						
Matched		23.81	61.90	12.70	1.59	63
Unmatch		21.62	48.65	20.27	9.46	74
III						
Matched	0.21	2.75	83.51	10.99	2.54	473
Unmatch	0.23	5.28	83.49	7.57	3.44	436
IV						
Matched		3.85	63.85	29.23	3.08	130
Unmatch		4.65	55.81	32.56	6.98	129
V						
Matched	1.64	3.28	49.18	11.48	34.43	61
Unmatch	0	0	42.67	18.67	38.67	75

As a simple, preliminary test of whether unmatched observations were more mobile inter-generationally than those that were matched, Table 6 reports the results of probit estimates of the likelihood of being matched with change in occupational status from father to son at marriage as the one independent variable.

Table 6

Probit Estimates of probability of matching marriage register to census records Dependent Variable: 1 if matched; 0 if Not matched

	Norfolk 1881	Norfolk 1851	Birmingham 1881	Birmingham 1851
Pseudo R2	.0003	.0022	.0003	.0009
Coeff. On change in Status	-.02887	.0735	-.03157	-.0497
Std. Error	0.2767	.05723	.0389	.059
P >  z	0.297	0.199	0.417	0.400
No. of Obs.	2360	577	1455	939

For three of the four samples, the coefficient on intergenerational occupational change between father and son at marriage was positive indicating that those who were unmatched may have been more occupationally mobile. However, in none of the four samples was this statistically significant at the 10 percent level. Thus, these results would suggest no large bias in the extent to which the matched samples would more or less occupationally mobile than those who were unmatched.

## II. Career Mobility Intervals

To properly study career mobility of a given individual, information on every occupation that person held throughout his work-life history would be required. One would like to be able to study the individual's complete career trajectory. In general, the limits of historical sources, do not make it feasible to even approximate such detail, although some sources available for some countries do provide information on the occupation of a given individual at more than two points in time. However, the approach taken here to studying career mobility of using occupation at marriage and occupation at subsequent census to examine the extent of occupation restricts information to two points in time. The dates for the census to be linked are restricted by available surname indexes to 1851 and 1881. However, this still allows choice over the lag between the time of marriage and the two census dates. For registers to be linked to the 1851 census, the earliest date for which the register forms provide information on occupation of father and son is 1837; so registers for the period 1837-43 were sampled in order to provide an approximate ten year interval between the occupations observed for a given individual. For registers to be linked to the 1881 census, a wider interval was feasible using the standard registrar general's form. Choosing different lags between marriage and census allows one to examine the extent to which occupational mobility increased as the lag lengthened.

Tables 8, 9 and 10 provide evidence for Norfolk samples of marriages in, 1867-73, 1847-53 and 1857-63 respectively linked to the 1881 census, that is on occupational mobility roughly 20 and 30 years after marriage or roughly on occupational change on average between ones mid-twenties and ones mid-forties and mid-fifties respectively (See Table 7). These tables suggest more occupational change between ones mid forties and fifties than between ones mid-thirties and mid-forties. This contrasts somewhat with the findings of Prandy and Botero (2000) that peak occupational position occurred between the ages of 45 and 50. In particular in the samples here, there was somewhat more upward mobility for unskilled grooms after 30 years than 20 years and somewhat greater downward mobility for skilled grooms relative to the same intervals. Perhaps most noticeable, is the considerably greater downward mobility for those starting in category II, farmers and others of more middle-class status over the 30 year interval. However, the differences between rates of 10, 20, and 30 year mobility are not large. This suggests that what career mobility did occur after marriage was likely to occur within the first 10 years of marriage between the ages of roughly 25 and 35. Admittedly the sample sizes for these longer intervals are on the small side and will require increasing to establish the robustness of these results. Nevertheless, they would seem to justify a focus on the first ten years after marriage in examining rates of career mobility.

Table 7 Mean Age at 1881 Census according to Date of Marriage, Norfolk Samples

Date of Marriage	Mean age at 1881 census
1847-53	57
1857-63	47
1867-73	38

#### 8. Norfolk Grooms Marrying 1847 to 1853

Percent of Grooms reporting a given occupational status in 1881 Census

Groom's Status at Marriage, 1847-53	I	II	III	IV	V	Obs
I						
II		33.33	0	11.11	55.56	9
III		8.70	65.22	17.39	8.70	23
IV		11.11	5.56	72.22	11.11	18
V		8.51	12.77	14.89	63.83	47
Obs						97

## 9. Norfolk Grooms Marrying 1857-63

Percent reporting a given occupational status in 1881 census

Groom's Status at Marriage, 1857-63	I	II	III	IV	V	Obs
I						0
II		57.14	14.29	14.29	14.29	14
III		18.18	72.73	4.55	4.55	22
IV		5.0	15.00	80.00	0.0	20
V		6.90	10.34	12.07	70.69	58
Obs						114

## 10. Norfolk, Grooms marrying 1867-73

Percent of Grooms reporting a given occupational status in 1881 census

Groom's status at Marriage 1867-73	I	II	III	IV	V	Obs
I	14.29	57.14	14.29	0	14.29	7
II		60.53	24.56	6.14	8.77	114
III		10.71	71.03	7.94	10.32	252
IV		6.47	11.64	66.81	15.09	232
V		2.57	8.09	17.46	71.88	544
Obs						1149

**III. Comparisons of Occupational Mobility between Birmingham and Norfolk**

The samples described in Section II can be used to compare the patterns and determinants of occupational mobility in Birmingham and Norfolk in a number of ways. Table 5 above indicates patterns of intergenerational occupational mobility. Tables 8, 9, and 10 above indicate patterns of career mobility at different intervals for Norfolk relative to the 1881 census. Further tabulations of ten year career mobility are given in Tables 11, 12, and 13 below for Norfolk relative to the 1851 census and for Birmingham relative to both 1851 and 1881.



Table 11. Norfolk, Grooms marrying 1837-43  
Percent of Grooms reporting a given occupational status in 1851 Census

Groom's status at marriage 1837-43	I	II	III	IV	V	Obs
I				100		1
II		60.98	17.07	7.32	14.63	41
III		17.78	68.89	6.67	6.67	90
IV		17.12	15.32	56.76	10.81	111
V		4.10	6.56	13.93	75.41	122
Obs						365

Table 12 Birmingham, Grooms marrying 1837-43  
Percent of Grooms reporting a given occupational status in 1851 Census

Groom's Status at Marriage 1837-43	I	II	III	IV	V	Obs.
I	11.11	55.56	11.11	22.22	0	9
II	2.22	66.67	22.22	4.44	4.44	45
III	0.30	9.97	75.23	10.88	3.63	331
IV		7.64	26.39	60.42	5.56	144
V		7.35	29.41	27.94	35.29	68
Obs						597

Table 13 Birmingham, Grooms marrying 1867-73  
Percent of Grooms reporting a given occupational status in 1881 census

Groom's Status at Marriage 1867-73	I	II	III	IV	V	Obs
I	50		50			2
II		52.78	30.56	11.11	5.56	36
III		4.55	80.87	10.61	3.98	528
IV		5.61	26.17	61.68	6.54	107
V	2.70	5.41	18.92	40.54	32.43	37
						710

These cross tabulations indicate substantial rates of social reproduction, to use Prandy and Botero's (2000) terminology, in both regions and both intergenerationally and career. A simple indicator of this is that most diagonal cells in the tables have frequencies greater than 50 percent, reflecting that for most categories, over half of sons had the same status of their fathers and that most grooms had the same occupational status ten years later at the time of the census. However, there were exceptions to this in the Birmingham sample for those starting from unskilled occupations (Status V), for 10 year career intervals in both time periods and intergenerationally in the latter time period as well as for those starting from proprietorial, managerial occupations (II) intergenerationally in both time periods, implying substantial mobility prospects for these groups.

More precise comparison between the two regions is provided by ordered probit estimates. They estimate the impact of various determinants on the probability of being in occupations of various status levels at marriage and at the census approximately ten years subsequent. Ordered probit estimates are employed here rather than the log-linear analysis that has often been employed in studies of mobility by both sociologists and social historians (van Leeuwen and Maas, 1991) for two reasons. First, ordered probit estimates don't require any scaling of the intervals between status levels, unlike some versions of log-linear analysis. Ordered probit analysis estimates the probability of being at various status levels without requiring specification of an interval scale between status levels. Second, ordered probit estimates provide a more direct way of estimating the impact of the determinants of being in a given occupational status than log-linear analysis. It should be noted however, that log-linear analysis more directly incorporates and controls for the impact of changing occupational structure. These changes will be considered in interpreting the ordered probit estimates presented here. A full analysis of the differences between log-linear analysis and an ordered probit approach will not be attempted here.

The independent variables in the ordered probit estimates include age, signature ability at marriage, occupational status of father at marriage and as a determinant of occupational status at census, occupational status at marriage. The age variable for groom's status is at marriage when reported (it was common for age simply to be reported as full or minor rather than a numerical value on marriage registers) and for census status, age at time of census.

Table 14 reports the results of ordered probit estimates of the determinants of occupational status of grooms at marriage and at time of census roughly ten years subsequent. Table 15 reports the estimated marginal effects of the variables listed on the predicted probability of a groom having the given occupational status either at marriage or at the census approximately ten years subsequent. The results indicate, as would be expected, substantial occupational continuity both intergenerational and career. For most status levels in all three samples, father's occupation has statistically and substantively significant impacts on the probability of a groom at marriage being in each occupational status level, with status 4, semi-skilled, for the Norfolk 1851 sample being the one exception. The same is true for the impact of groom's occupational status on his status approximately ten years subsequent at the census.

Examination by status category reveal a mixed picture as to whether occupational mobility was greater in industrial Birmingham compared with simply looking at whether percentages on diagonals exceeded 50 percent. For both those who at time of marriage had unskilled fathers and those who were in unskilled positions themselves at time of marriage, upward mobility rates were substantially greater in Birmingham than Norfolk. It is especially notable how high upward mobility was for those who were labourers at marriage and whose fathers were labourers in Birmingham in 1881, some 60 percent of whom had moved to occupations of higher status roughly ten years subsequent (see Table 13). For sons of labourers who were labourers in the Norfolk 1881 sample, only 28 percent were upwardly mobile by time of the census approximately ten years subsequent (see Table 10). In the ordered probit estimates in Table 15, the coefficients on father's occupation as influencing groom's status and on groom's status at marriage as influencing census status are sizably larger for Norfolk in both years with the one exception of skilled fathers (status 3).

However, for those originating from other status categories, any tendency for greater social reproduction in Norfolk than Birmingham is much less evident. Indeed, it especially noticeable that for those from skilled origins whether intergenerationally or career, the inheritance rates were somewhat larger in Birmingham in both periods than Norfolk.

Table 14 Ordered Probit Estimates of Occupational status at Marriage and Subsequent Census

	Marr. Birm 1837- 43	Marr. Birm 1867- 73	Marr. Norf 1837- 43	Marr. Norf 1867- 73	Census Birm 1851	Census Birm 1881	Census Norf 1851	Census Norf 1881
Age		.0273 (.0367)		-.0097 (.0303)	.0092 (.036)	.0085 (.0022)	-.012 (.066)	-.055 (.0235) *
Age-Square		-.00026 (.0005)		-.0001 (.0004)	-.00007 (.0004)	.00016 (.0003)	-.00003 (.0007)	.00053 (.0002)
Lit-eracy	-.501 (.104) ***	-.297 (.1095) **	-.738 (.1375) ***	-.695 (.119) ***	-.0263 (.108)	-.144 (.1056)	-1.102 (.268) ***	-.1934 (.0849) *
Fathst1	-2.67 (.328) ***	-2.599 (.534) ***		-2.85 (.469) ***	-.43 (.36)	-.7486 (.566)		-.493 (.395)
Fathst2	-2.04 (.176) ***	-1.436 (.223) ***	-.833 (.686) ***	-2.102 (.159) ***	-.346 (.206)	-.1474 (.232)	--.387 (.3604)	-.528 (.145) ***
Fathst3	-1.79 (.136) ***	-.906 (.166) ***	-2.006 (.208) ***	-1.342 (.128) ***	-.237 (.166)	-.1004 (.178)	-.5755 (.348)	-.236 (.109) *
Fathst4	-1.19 (.147) ***	-.523 (.187) **	-1.44 (.173) ***	-.815 (.137) ***	-.005 (.173)	-.0883 (.1995)	-.0809 (.394)	-.0074 (.115)
Marrst1					-2.14 (.438) ***	-3.69 (.898) ***		-1.855 (.558) **
Marrst2					-2.13 (.279) ***	-1.98 (.296) ***	-1.27 (.363) ***	-1.83 (.167) ***
Marrst3					-1.10 (.199) ***	-1.117 (.2134) ***	-.732 (.333) *	-1.455 (.1133) ***
Marrst4					-.34 (.1946)	-.243 (.2314)	-.8576 (.4232) *	-.847 (.1074) ***
No.obs	634	704	371	646	582	695	135	1075
LR Chi2	288.17	77.16	230.0	367.06	176.7	134.2	91.32	533.4
Prob> Chi2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pseudo R2	.1852	.0672	.2285	.2284	.1288	.1009	.253	.192

Table 14 (continued)

\*= significantly different from zero at the 95% level.

\*\*=significantly different from zero at the 99% level.

\*\*\*=significantly different from zero at the 99.9% level.

Note: The dependent variable is occupational status at Marriage (Marr.) or at time of the Census (Census) on a scale of 1 through 5, with 1 having the highest status. Hence a negative coefficient on an explanatory variable implies that increasing that variable tends to raise status by moving from a higher numbered to lower numbered status.

Definitions of Independent Variables:

Age: Age at time of Marriage or Time of Census. This variable was excluded from the Occupational Status at Marriage estimates from the 1837-43 period because most marriage registers from this time period did not report a numerical value for age but simply whether the groom was of full age or a minor.

Literacy: This is a dummy variable equal to 1 if the groom signed his name at marriage and to 0 if he made a mark.

Fathst: These variables are dummy variables equal to 1 if the groom's father's occupational status at marriage was in categories I, II, III, or IV respectively. Category I corresponds to titled and higher professions. Category II corresponds to proprietors and farmers. Category III corresponds to skilled workers. Category IV corresponds to semi-skilled workers. Category V corresponds to unskilled workers. Category I was excluded from Norfolk estimates for the early period because of lack of observations.

Marrst: These variables are dummy variables equal to 1 if the groom's occupational status at marriage was in categories I, II, III, or IV respectively as defined above.

Category I was excluded from Norfolk estimates for the early period because of lack of observations.

Table 15 Marginal effects dy/dx of independent var. on probability of occupational status

	Marrst = 2				CensusST =2			
	Birm 37-43	Birm. 67-73	Norf. 37-43	Norf. 67-73	Birm 1851	Birm 1881	Norf 1851	Norf 1881
Prob of Status 2	.0385	.039	.0506	..031	.10356	.054	.094	.053
Age		-.0022 (.003)		00068 (.00214)	-.0016 (.006)	-.00009 (.0023)	.002 (.011)	.0059 (.0026) *
Age Sq.		.00002 (.00004)		7.30e-06 (.0003)	.000013 (.00007)	-.00002 (.00003 )	4.37e-06 (.00011)	-.00006 (.00003) *
Literacy	.0344 (.0078) ***	.0216 (.0076) **	.071 (.017) ***	.0488 (.011) ***	.00465 (.019)	.0148 (.0104)	.179 (.050) ***	.0209 (.009) *
FathST1	.2098 (.039) ***	.213 (.052) ***	.398 (.098) ***	.2007 (.045) ***	.07655 (.06423)	.0811 (.062)		.0534 (.043)
FathST2	.161 (.025) ***	.118 (.024) ***	.208 (.038) ***	.148 (.024) ***	.0616 (.037)	.016 (.025)	.065 (.061)	.057 (.0164) **
FathST3	.1406 (.0215) ***	.0743 (.017) ***	.149 (.028) ***	.094 (.0165) ***	.0422 (.030)	.0109 (.019)	.097 (.060)	.0256 (.012) *
FathST4	.094 (.017) ***	.043 (.0165) **	.086 (.022) ***	.057 (.0131) ***	.00092 (.0308)	.0096 (.02165 )	.0136 (.066)	.0008 (.0124)
MarrST1					.3815 (.0839) ***	.3995 (.108) ***		.2009 (.063) **
MarrST2					.379 (.0574) ***	.2145 (.0392) ***	.214 (.071) **	.198 (.024) ***
MarrST3					.196 (.038) ***	.121 (.027) ***	.123 (.058) *	.1575 (.018) ***
MarrST4					.0605 (.035)	.0263 (.025)	.144 (.0746)	.092 (.014) ***

\*= significantly different from zero at the 95% level.

\*\*=significantly different from zero at the 99% level.

\*\*\*=significantly different from zero at the 99.9% level.

Table 15 (continued)

	Marrst = 3				CensusST = 3			
	Birm 37-43	Birm. 67-73	Norf 37-43	Norf. 67-73	Birm 1851	Birm 1881	Norf 1851	Norf. 1881
Prob. Of Status 3	.572	.776	.284	.2207	.608	.713	.2882	.2315
Age		-.00486 (.00655)		.0024 (.00754)	-.0015 (.006)	-.00016 (.00435)	.0026 (.0141)	.0127 (.005) *
Agesq		.000046 (.00009)		.000026 (.0001)	.00001 (.0001)	-.00003 (.00006)	5.55e-06 (.00014)	-.00012 (.00006) *
Literacy	.155 (.034) ***	.0609 (.026) *	.1845 (.035) ***	.1726 (.031) ***	.0043 (.0177)	.0297 (.02339)	.216 (.0572) ***	.0447 (.0198) *
Fathst1	.778 (.108) ***	.463 (.109) ***	.9964 (.199) ***	.7092 (.1278) ***	.069 (.058)	.1444 (.1102)		.1140 (.091)
Fathst2	.596 (.065) ***	.256 (.049) ***	.5214 (.0731) ***	.5222 (.05556) ***	.055 (.034)	.02844 (.0448)	.0825 (.0786)	.122 (.034) ***
Fathst3	.521 (.0525) ***	.161 (.034) ***	.374 (.0554) ***	.3335 (.0384) ***	.038 (.027)	.0193 (.0343)	.1229 (.0776)	.0545 (.0254) *
Fathst4	.348 (.049) ***	.093 (.035) **	.2152 (.0449) ***	.2025 (.03553) ***	.0008 (.028)	.0170 (.03855)	.0173 (.0842)	.0017 (.0265)
Marrst1					.342 (.084) ***	.7111 (.1877) ***		.4287 (.1314) **
Marrst2					.341 (.065) ***	.3818 (.0701) ***	.2712 (.092) **	.4224 (.0458) ***
Marrst3					.176 (.041) ***	.2154 (.0467) ***	.1563 (.0768) **	.3362 (.0323) ***
Marrst4					.054 (.032)	.0468 (.045)	.1831 (.096)	.1958 (.02636) ***

Table 15 (Continued)

	MarrST = 4				CensusST = 4			
	Birm 37-43	Birm. 67-73	Norf 37-43	Norf. 67-73	Birm 1851	Birm 1881	Norf 1851	Norf 1881
Prob. of Status 4	.2805	.145	.4026	.2705	.243	.194	.2946	.3348
Age		.00498 (.0067)		.0007 (.0024)	.0023 (.009)	.00019 (.005)	-.0003 (.00155)	.0023 (.0012)
Agesq		-.000047 (.0001)		8.20e-06 (.00003)	-.00002 (.0001)	.000035 (.00007)	-5.84e-07 (.00002)	-.000022 (.00001)
Literacy	-.092 (.019) ***	-.0557 (.0214) **	-.009 (.017)	.0549 (.0146) ***	-.0065 (.027)	-.0324 (.0241)	-.00725 (.0309)	.0080 (.0043)
FathST1	-.535 (.081) ***	-.474 (.1045) ***	-.146 (.0974)	.2256 (.0543) ***	-.1061 (.089)	-.16697 (.1268)		.0205 (.0175)
FathST2	-.410 (.052) ***	-.2621 (.0462) ***	-.0763 (.049)	.1661 (.0323) ***	-.0854 (.051)	-.0329 (.05176)	-.0087 (.015)	.02196 (.0087) *
FathST3	-.3585 (.044) ***	-.1653 (.0339) ***	-.0547 (.0348)	.1061 (.0227) ***	-.058 (.041)	-.0224 (.0397)	-.0129 (.020)	.0098 (.0054)
FathST4	-.239 (.037) ***	-.0955 (.0354) **	-.0315 (.020)	.0644 (.0169) ***	-.0013 (.043)	-.0197 (.04455)	-.0018 (.0092)	.0003 (.0048)
MarrST1					-.529 (.114) ***	-.8222 (.2078) ***		.0772 (.032) *
MarrST2					-.526 (.077) ***	-.4415 (.0726) ***	-.286 (.042)	.076 (.023) **
MarrST3					-.272 (.0535) ***	-.2491 (.0514) ***	-.016 (.0247)	.0605 (.0184) **
MarrST4					-.0839 (.049)	-.05414 (.0519)	-.0193 (.0288)	.0352 (.01155) **



Table 15 (continued)

	MarrST = 5				CensusST = 5			
	Birm 37-43	Birm 67-73	Norf 37-43	Norf 67-73	Birm 1851	Birm 81	Norf 1851	Norf 81
Prob of Status 5	.105	.0382	.263	.4773	.0447	.0375	.323	.3805
Age		.00226 (.003)		-.0039 (.0121)	.0009 (.0034)	.000070 (.0018)	-.0044 (.024)	-.021 (.009) *
Agesq		-.000021 (.00004)		-.000041 (.00016)	-6.84e- 06 (.00004)	.000013 (.00003)	-9.33e- 06 (.00024)	.00020 (.00009) *
Literacy	-.1025 (.024) ***	-.0282 (.01224) *	-.247 (.047) ***	-.2767 (.0476) ***	-.0025 (.0104)	-.0125 (.0099)	-.388 (.0895) ***	-.0737 (.0324) *
FathST1	-.485 (.070) ***	-.215 (.053) ***	-1.25 (.2259)	-1.137 (.1867) ***	-.0405 (.034)	-.0612 (.0469)		-.188 (.1504)
FathST2	-.372 (.042) ***	-.119 (.024) ***	-.654 (.0716) ***	-.8372 (.0633) ***	-.033 (.02)	-.01205 (.019)	-.139 (.13)	-.201 (.055) ***
FathST3	-.325 (.0336) ***	-.752 (.0164) ***	-.4692 (.059) ***	-.535 (.05115) ***	-.0223 (.016)	-.00821 (.01455)	-.207 (.125)	-.0899 (.0416) *
FathST4	-.217 (.0315) ***	-.0434 (.0163) ***	-.270 (.0554) ***	-.3246 (.0548) ***	-.00049 (.016)	-.0072 (.0163)	-.0290 (.1416)	-.0028 (.0437)
MarrST1					-.202 (.049) ***	-.301 (.084) ***		-.7068 (.2125) **
MarrST2					-.201 (.037) ***	-.162 (.0324) ***	-.4566 (.131) ***	-.6963 (.0635) ***
MarrST3					-.104 (.0224) ***	-.0913 (.0206) ***	-.263 (.1197) *	-.5542 (.04322) ***
MarrST4					-.032 (.019)	-.0198 (.0191)	-.3079 (.153) *	-.3228 (.04124) ***

One explanation as to why there were not consistently higher rates of upward mobility for Birmingham compared with Norfolk is that the differences in changes in occupational structure between the two regions were not large. In other words, there was no great difference in rates of structural mobility. One simple indicator of structural mobility is provided by comparing the marginal percentage distributions of origin and destination status and using them to calculate a dissimilarity index.

Table 16 Intergenerational marginal effects: Percentage of Grooms and their fathers in each occupational status category

	Birm 1837-43 Fathers	Birm 1837-43 Sons	Birm 1867-73 Fathers	Birm 1867-73 Sons
I	2.7	2.4	1.0	0.2
II	14.7	9.8	9.4	5.9
III	42.0	49.1	62.5	72.6
IV	19.8	23.0	17.8	14.4
V	20.8	15.7	9.3	6.8
Dissimilarity Index		10.3		10.15

	Norf 1837-43 Fathers	Norf 1837-43 Sons	Norf 1867-73 Fathers	Norf 1867-73 Sons
I	1.0	0.7	1.9	1.1
II	15.7	12.8	12.8	10.8
III	22.4	25.2	20.6	22.8
IV	21.5	26.2	15.8	20.15
V	39.3	35.1	48.9	45.1
Dissimilarity Index		7.47		6.575

Note: The dissimilarity index was calculated by summing across categories the absolute difference between fathers and sons for the percentage in a given category and then dividing the sum by two. It measures the overall change between categories required due to the change in distribution across categories.

Table 17 Career marginal effects: Percentage of Grooms at Marriage and at subsequent census in each status category

	Birm 1837-43 Occ at marr.	Birm 1851 Occ at census	Birm 1867-73 Occ at Marr	Birm 1881 Occ at census
I	1.5	0.5	0.3	0.3
II	7.5	14.1	5.1	7.2
III	55.4	53.3	74.4	66.8
IV	24.1	24.4	15.1	19.8
V	11.4	7.7	5.2	5.9
Dissimilarity Index		6.85		6.55

	Norf 1837-43 Occ at marr.	Norf 1851 Occ at Census	Norf 1867-73 Occ at marr.	Norf 1881 Occ at census
I	0.3	0	0.6	0.1
II	11.2	17.8	9.9	11.2
III	24.7	25.7	21.9	24.3
IV	30.4	24.6	20.2	24.1
V	33.4	31.8	47.3	40.3
Dissimilarity Index		7.65		7.55

The dissimilarity index was considerably larger for Birmingham in both time periods, when intergenerational patterns are considered. In particular, category III occupations (primarily skilled) expanded markedly from father to son in both time periods. However, when career patterns are considered, the dissimilarity index was actually somewhat larger for Norfolk in both time periods. Moreover, it is notable that for Birmingham, the skilled category actually declined in percentage terms between occupation at marriage and time of the census in the later time period. Despite the more limited extent of structural change, the probability of career upward mobility in Birmingham would still have been facilitated by the much larger relative size of the skilled category compared with unskilled than in Norfolk in both time periods.

### III. The Impact of Literacy on Occupational Mobility in Birmingham and Norfolk

Previous studies have found that signature ability at marriage was associated with upward intergenerational occupational mobility in Victorian England (Mitch 1992; Vincent 1989). How the impact of literacy varied between industrial and agricultural regions has received much less attention. And given the lack of evidence on career mobility, whether literacy was associated with career mobility after marriage has been barely explored. It is possible either that on average the mobility gap between literates and illiterates widened even further after marriage or that it narrowed as illiterates were eventually able to compensate for their initial disadvantage with age and experience.

Signature ability at marriage generally did have positive and substantial impacts on groom's occupational status at marriage, as Table 15 indicates in both the Birmingham

and Norfolk samples. The one exception to this was status 4, semi-skilled occupations. However, even in this instance for the case of Norfolk, a more detailed inspection of mobility tabulations indicates that this reflected offsetting movements with illiterates in skilled occupations at marriage more likely to move downwards relative to literates but literates in unskilled occupations at marriage more likely to move upwards into semi-skilled occupations relative to illiterates.

The impact of literacy in raising the probability of being in an occupation of higher status or of avoiding an occupation of lower status was greater in Norfolk than Birmingham for both time periods. The one exception to this was that of probability of entering semi-skilled occupations and as just noted above, this reflected the offsetting movement from skilled and unskilled origins according to literacy. The impact of literacy on intergenerational mobility clearly declined between the two time periods for Birmingham. While trends were less clear cut for Norfolk, there was also a general tendency to decline.

A substantial follow-up impact of literacy on occupational mobility after marriage was present at various status categories for the Norfolk 1881 sample and even more so for the Norfolk 1851 sample. Indeed for the Norfolk, 1851 sample, the follow-up effect on occupational status between marriage and census was actually larger than its effect on status at marriage. This indicates that over and above impact on occupation by time of marriage, roughly age 25, the follow-up, career impact of literacy to roughly the age of 35 could be sizable. For the 1881 Norfolk sample, the career impact of literacy was smaller than impact on occupation at time of marriage. This reflected a marked decline in this follow-up effect between the two time periods which may in turn rising literacy.

For Birmingham, no follow-up, career effect of literacy after marriage was evident for either time period, with the coefficient on literacy in predicting occupational status at time of the census being statistically insignificant at conventional levels.

More detailed analysis of mobility cross-tabulations indicates that the substantial career impact of literacy in Norfolk reflected primarily movement after marriage into semi-skilled, skilled, farm managerial and petty commercial occupations rather than entry into farming. This could reflect a greater functional role of literacy in keeping accounts in such occupations than in the artisanal crafts of Birmingham.

Conventional associations of industrialization with modernization and of agriculture with tradition might lead to a presumption that the impact of education on occupational mobility would be greater in industrial regions relative to agricultural ones. However, the impact of literacy on both intergenerational and career mobility appears to have been substantially greater in agricultural Norfolk than industrial Birmingham. These quantitative results are consistent with verbal reports from Parliamentary Commissions in the 1860's as to the value of elementary education in the two types of districts. A report on manufacturing districts in Warwickshire and Staffordshire for the 1861 Newcastle Commission noted that workpeople did not value education for their children because "they see some of the most prosperous men in the world who have attained this prosperity without any other education than that of the nail shop, the pit or the forge." (Newcastle Commission Report, vol.II, p.249). In contrast accounts in the 1868-9 Report on Women and Children in Agriculture note that more educated children in rural areas were more likely to seek more employment opportunities more

remunerative than those open to agricultural labourers (1868-9 Report on Women and Children in Agriculture, pp.37, 268).

#### IV. Literacy and Geographic Mobility and its relation to Occupational Mobility

Since the census provides information on place of birth as well as current residence, it provides some crude evidence on the extent of migration between birth and time of the census. The marriage register provides further evidence on residence at time of marriage, which for the samples constructed here would have been intermediate between birth and time of the census. Since the samples constructed here start with marriage register samples, they start with those who were married in a given location regardless of where they were born or where they moved to subsequently. Hence some consideration should be given to the migration propensities indicated in the samples both for their representativeness and for the relationships they reveal between migration and occupational mobility. Furthermore, the signature ability information provided on the marriage register permits an examination of the relationship between literacy and geographical mobility.

It is perhaps commonly presumed that less geographical migration occurs in rural, agricultural areas than in urban, industrial areas. And indeed Pooley and Turnbull (1998) find that the mean distance migrated for agricultural labourers was lower than for skilled manufacturing workers in Victorian England. Nevertheless, some studies of rural migration have found substantial amounts of short distance migration for farm labourers (Howkins 1992).

Table 18

Percentage with birth parish = residence at marriage = census parish

	Birmingham		Norfolk
1851	22.3%		39.7%
1881	36.8%	With Aston 50.4%	34.5%

Note: Aston was a parish quite close to Birmingham that was reported as place of residence at time of the Census by many of those who had married in Birmingham. Hence the results are reported for 1881 both excluding and including Aston with Birmingham

Using percentage of those who were in the same location at birth, marriage, and census as a measure of geographic immobility, this geographic immobility rate was lower in Norfolk than Birmingham in 1851 but relative rates reverse in 1881 (See Table 18). Admittedly, parishes could be quite small in Norfolk while Birmingham is here treated as one large parish; hence more refined measures of mobility are required for proper comparison. Nevertheless, the results here underscore the substantial migration, at least short distance, that occurred in rural Norfolk, a result holding for the majority of grooms in the sample. They also underscore the substantial persistence that occurred in

Birmingham in the later period, with about half of those marrying in the greater Birmingham having been born there and remaining there at least 10 years after marriage.

If one controls for occupational mobility patterns within regions, more distinctive patterns emerge. In Norfolk, career agricultural labourers, that is those who reported the occupation of labourer or agricultural labourer both at marriage and at the census, seem to have been somewhat less likely to migrate than those who reported higher status occupations in the census having started out as labourers at marriage. However, there is almost no difference between the two groups in the proportion reporting the same parish as birth place, marriage place and census parish.<sup>3</sup> This implies somewhat less overlap between those immobile at the two phases for career agricultural labourers than for those upwardly mobile after marriage. And a substantial proportion of agricultural labourers at marriage who were subsequently upward mobile were essentially geographically immobile. One interpretation of this result is that in many cases local connections played a role in upward mobility.

For Birmingham, the relatively low proportion of migrants for those who were in skilled occupations both at marriage and in the census is striking, especially the high proportion, who resided in Birmingham both at marriage and at the time of the 1881 census. However, the quite high proportion of those born outside Birmingham is also striking for those who were in unskilled occupations at marriage, a group which as noted above tended to have a high rate of subsequent upward mobility as reported in the 1881 census. It should be noted that the matched group who were linked between marriage and census may consist disproportionately of those who remained in the Birmingham area whereas the unmatched group may include many who moved elsewhere in England and indeed the world at large between marriage and the 1881 census. Nevertheless, the high proportion of those in skilled positions in Birmingham who reported the same parish at birth, marriage and census is notable.

Table 19 Percentage persisting between birth, marriage and census according to career occupational mobility.

	Marriage parish = Birth Parish	Marriage Parish = Census parish	Marriage Parish = Census Parish = Birth Parish	No. of Observations
Norfolk, 1881 Career Agricultural Labourers	52.6%	55.3%	39.4%	327
Norfolk, 1881 Status V at marriage moving to II, III, IV at Census	48.6%	47.7%	38.5%	109
Birmingham, 1881, Status V at Marriage	4.3%	82.6% (Including Aston in Birmingham)	4.3%	23
Birmingham, 1881 Status III at Marriage AND at Census	69.3% (including Aston in Birmingham)	95.2% (including Aston in Birmingham)	68.1% (including Aston in Birmingham)	251

What role did literacy play in migration? Whether migration would have been associated with improvements in well-being is unclear. Presumably, people did undertake geographical moves because they perceived that their own opportunities would be superior in their destination than in place of origin. However, in comparing migrants and non-migrants, at least two possibilities could have occurred. Some migrants could have been more opportunistic than non-migrants in pursuing better prospects than in ones place of origin. However, other migrants could have left because they did not fare as well as non-migrants in pursuing opportunities in their place of origin. Given these two possibilities and allowing for the possible role of literacy in enhancing responsiveness to new opportunities, it would seem ambiguous whether literacy would have raised or lowered the propensity to migrate. On the one hand, literacy may have cultivated responsiveness to change and pursuing better prospects elsewhere which would have raised the propensity to migrate. And some contemporary reports did indicate that

farmers and local elites in rural areas often opposed improvements to schooling on grounds that it would stimulate out-migration (1869-9 Report on Women and Children in Agriculture). On the other hand, literacy may have improved prospects of succeeding in ones place of origin and thus lowered the propensity to migrate. What follows is only a very preliminary consideration of the relationship between literacy, migration and occupational mobility. For a recent in-depth study see Long (2001).

Considering the Norfolk and Birmingham samples as an aggregate, that is for all occupational groups, some differences would seem present in the role of literacy. The Norfolk sample exhibited a considerable greater difference in migration tendencies between literates and illiterates than the Birmingham sample, with literates more likely to move than illiterates. In the case of Birmingham, literates were actually slightly more likely than illiterates to have the same census parish as marriage parish.

Table 20 Geographical persistence by Literacy

	Percentage Marriage Parish = Birth Parish	Percentage Marriage Parish = Census Parish
Norfolk 1881		
S	33.9%	43.0%
X	44.0%	53.5%
Birmingham 1881		
S	38.1%	53.4%
X	38.6%	50.2%

Within various occupational groups, the differences in migration tendencies between literates and illiterates were in general not large and what differences there were not consistently in one direction. For Norfolk career agricultural labourers linked to the 1851 census, illiterates actually exhibited a greater tendency to migration between birth and marriage than literates. However, literates did exhibit a slightly greater tendency to migration between marriage and census than illiterates. For Norfolk career agricultural labourers linked to the 1881 census the differences between literates and illiterates were within one percentage point in tendencies for marriage place to be same as birth place or same as census place. For those who were labourers at marriage in Norfolk during the period 1867-73 and who subsequently reported a higher status occupation in the 1881 census, illiterates exhibited a rather greater tendency for birth parish to differ from marriage parish and census parish in 1881 to differ from marriage parish. However, a somewhat higher proportion of illiterates than literates reported the same parish at birth, marriage and the census.

For those who reported an unskilled occupation at marriage in Birmingham during the period 1867-73, illiterates exhibited a considerably greater tendency for migration both between birth and marriage and between marriage and the time of the 1881 census than literates. However, for those reporting skilled occupations in Birmingham both at marriage and at time of the 1881 census, literates exhibited a slightly greater tendency for migration than illiterates.



In sum, controlling for occupational mobility no clear pattern of association between literacy and migration was evident. This would seem consistent with offsetting forces at work regarding any such association. In some instances, migration may have been associated with downward moves in status in other instances upward moves. Insofar as literacy promoted upward mobility, this would introduce ambiguity as to the presence and direction of any association between literacy and migration.

Table 21 Geographical persistence by Literacy and career occupational mobility

	Marriage Place = Birth Place	Marriage Place = Census Place	Marriage Place = Census Place = Birth Place	Number of Observations
Norfolk Career Agricultural Labourers				
1851				
S	57.1%	71.4 %		
X	51.1%	74.5%		
1881				
S	49.65%	54.55%		
X	50.5%	55.4%		
Norfolk 1881 Status at Marriage = V And moving to Status IV, III, or II in Census				
S	50.0%	51.6%	36.7%	60
X	46.9%	42.9%	40.8%	49
Birmingham 1881 Status V at Marriage				
S	8.3%	91.7%		12
X	0	72.7%		11
Birmingham 1881 Status III both at Marriage and at Census				
S	68.1%	93.7%	67.5%	191
X	70%	100%	70%	60

## V. Conclusion

This paper has reported procedures and results obtained from linking marriage registers with the 1851 and 1881 censuses for Birmingham and rural areas in Norfolk. Since the samples described here are based on populations who married in certain regions of England, they only capture a segment of the process of geographic mobility and associated occupational mobility for England as a whole. However, they do underscore the regional differences and contrasts in these mobility processes. Those starting out in Birmingham from unskilled origins whether parental or initial occupation, had quite high probabilities of experiencing upward occupational mobility. Probabilities for those of unskilled origin were considerably lower in rural Norfolk; but for those of higher origins mobility rates could at least equal if not exceed those in Birmingham. More strikingly, literacy offered considerably greater prospects for advancement for those in rural Norfolk than industrial Birmingham. Basic education could matter more to the aspiring farm bailiff or rural shopkeeper than for the nail-maker or gunsmith. The career impact of literacy over and above impact on initial occupation at marriage was especially sizable for agricultural Norfolk in the earlier time period. The results suggest differences in the migration patterns in the two areas with overall rates of migration being higher in Norfolk, but migration rates for the upwardly occupationally mobile being greater in Birmingham. There was no clear connection between literacy and geographic mobility.

Thus, the results here do indicate a positive association between industrialization and occupational mobility. But they also underscore that mobility did occur in agricultural areas and that education could play at least as great a role in facilitating mobility in agricultural as in industrial areas.

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