Farm servants in Victorian England: Evidence of census records and registers of servants.

Mikhail Kolosov

PhD in Economic History

The London School of Economics and Political Science

2024

Abstract.

This thesis offers a quantitative answer to a key question in the studies of agricultural labour in the later part of the nineteenth century: the persistence of farm service. There is consensus in the literature that farm service remained important. Various factors favourable to its continuation have been suggested, and the role of hiring fairs as the only public institution wholly dedicated to servants has been recognized. However, all published studies have been limited in scale and scope. Given the diversity of English agriculture, their findings cannot be generalized to form a coherent picture.

The central argument of the thesis is that a nationwide understanding of farm service can be achieved if statistical methods are applied to two sources known to historians but not yet used systematically for this purpose. These are the I-CEM database of census enumerators' books and the registers of hired servants.

The first substantive chapter of the thesis asks how many people worked as farm servants in the second half of the nineteenth century. It introduces a new computer model that uses a set of filters to identify farm servants in I-CEM from 1851 to 1911. Modelling shows that the existing estimates of the incidence farm service should be revised upwards. The decline of service was slow, and the number of servants in 1911 was still almost half of their number in 1851. Despite the contribution of alternative arrangements, living-in remained the dominant form, while the share of females remained stable throughout the period.

In the second chapter, the reasons for the survival of farm service are considered. The chapter examines a diverse set of factors that have been suggested in the literature to explain the incidence of service. By applying quantitative analysis to data on farm service and a range of potential explanatory variables, the thesis tests the contribution of a range of factors. The findings confirm the importance of settlement dispersion and the presence of farm animals, while also revealing an additional significant factor: the share of population working in agriculture. The family hiring system in Northumberland is explained as a rational response to the demands of labour-intensive agriculture in a remote area with low population density.

ii

In the third chapter, the thesis examines one of the main institutions that existed to allow farm servants to find employers, the hiring fair. In a detailed case study, the digitized records from hiring fairs in Wiltshire are used to demonstrate the difference between the masters' and servants' usage patterns, with the former hiring almost all their servants at a major local fair, and the latter using it for less than a third of their job moves, exploring other opportunities instead. Additionally, the analysis or registers produces new estimates for the value of in-kind payments and a female-male wage ratio. Finally, cross-referencing the registers with the census yields estimates for how well the servants performed their yearlong contracts. Declaration.

I certify that the thesis I have presented for examination for the MPhil/PhD degree of the London School of Economics and political Science is solely my own work.

The copyright of this thesis rests with the author. Quotation from it is permitted provided that full acknowledgement is made. This thesis may not be reproduced without my prior written consent.

I warrant that this authorisation does not, to the best of my belief, infringe on the rights of any third party.

I declare that my thesis consists of 50,201 words, excluding footnotes and bibliography.

Acknowledgements.

This thesis could not have been completed without the unwavering guidance and support of my supervisors, Professor Patrick Wallis and Professor Sara Horrell. At the beginning of my doctoral journey, I was an explorer with a clear idea of the destination but lacking both a solid roadmap and adequate supplies. Without their insights and direction, I would have lost my way. They encouraged me to learn and to apply new skills confidently.

I want to express my gratitude to the faculty, staff, and fellow graduate students in the Economic History Department. Each of you contributes to making the Department a unique academic centre with a friendly atmosphere of knowledge creation and sharing which I have enjoyed these years.

I am particularly thankful to Neil Cummins, who inspired me to embark on this endeavour and provided invaluable support over the past four years. My PhD journey made an important turn halfway through when I saw the opportunities that eluded me before. I'd like to thank Ian Gazeley and Chris Minns for their assurance and support during this critical time. I also appreciate the support of Jordan Claridge, whose deep knowledge of the period preceding the timeframe of this study helped me gain a broader perspective on my project.

My learning experience would not have been the same without the support of my PhD cohort: Ziming Zhu, Ruoran Cheng, Victor Perez Sanchez, Zane Jennings, and Sheila Pugh. I must also thank Tracy Keefe, Jennie Stayner, Helena Ivins, and Loraine Long for their assistance in resolving all administrative issues that could have hindered my progress.

Outside the department, I would like to express my gratitude to the Cambridge Group for the History of Population and Social Structure. I am especially thankful to Robert Bennett for guiding me through the complexities and limitations of census databases and sharing the output of the British Business Census of Entrepreneurs. I cannot thank Max Satchell for his support with electronic maps enough. I am also grateful to Joseph Day and Dan Bogart for sharing their findings with me. Regarding the agricultural aspects of my study, I was privileged to have received expert feedback and advice from Jeremy Burchardt. I wish to thank Richard Anthony for sharing his insights on contemporary developments in Scotland.

I would like to sincerely thank my examiners, Joyce Burnette and Xuesheng You, for reading my work and for their insightful comments. I thoroughly enjoyed our conversation, and the viva offered valuable perspectives for the future direction of my research. Their feedback has greatly helped me to refine the thesis, and I am deeply grateful to both.

Finally, last but not least, I must thank my family, Oxana, Andrew, and Anna, for their support over the past few years.

Contents.

DeclarationivAcknowledgementsvIntroduction1Chapter 1. A Computer Model for Identification of Farm Servants in Victorian Censuses: AlgorithmInd Key Findings101.1.Introduction101.2.1.2.The decline of farm service in the nineteenth century.121.3.1.3.Types of farm service.191.3.1.1.3.2.Bailiff system.251.3.3.1.3.4.Non-residential farm service.301.3.4.1.3.5.Excluded workers and systems.411.4.The integrated model.
Acknowledgements v ntroduction 1 Chapter 1. A Computer Model for Identification of Farm Servants in Victorian Censuses: Algorithm 10 1.1. Introduction. 10 1.2. The decline of farm service in the nineteenth century. 12 1.3. Types of farm servants and their identification in censuses. 19 1.3.1. Traditional farm service. 20 1.3.2. Bailiff system. 25 1.3.3. Family hiring. 30 1.3.4. Non-residential farm service. 37 1.3.5. Excluded workers and systems. 41 1.4. The integrated model. 42
ntroduction.1Chapter 1. A Computer Model for Identification of Farm Servants in Victorian Censuses: Algorithmand Key Findings.101.1.Introduction.101.2.The decline of farm service in the nineteenth century.121.3.Types of farm servants and their identification in censuses.191.3.1.Traditional farm service.201.3.2.Bailiff system.251.3.3.Family hiring.301.3.4.Non-residential farm service.371.3.5.Excluded workers and systems.411.4.The integrated model.42
Chapter 1. A Computer Model for Identification of Farm Servants in Victorian Censuses: Algorithmand Key Findings.101.1. Introduction.101.2. The decline of farm service in the nineteenth century.121.3. Types of farm servants and their identification in censuses.191.3.1. Traditional farm service.201.3.2. Bailiff system.251.3.3. Family hiring.301.3.4. Non-residential farm service.371.3.5. Excluded workers and systems.411.4. The integrated model.42
10101.1.Introduction.101.2.The decline of farm service in the nineteenth century.121.3.Types of farm servants and their identification in censuses.191.3.1.Traditional farm service.201.3.2.Bailiff system.251.3.3.Family hiring.301.3.4.Non-residential farm service.371.3.5.Excluded workers and systems.411.4.The integrated model.42
1.1.Introduction.101.2.The decline of farm service in the nineteenth century.121.3.Types of farm servants and their identification in censuses.191.3.1.Traditional farm service.201.3.2.Bailiff system.251.3.3.Family hiring.301.3.4.Non-residential farm service.371.3.5.Excluded workers and systems.411.4.The integrated model.42
1.2. The decline of farm service in the nineteenth century.121.3. Types of farm servants and their identification in censuses.191.3.1. Traditional farm service.201.3.2. Bailiff system.251.3.3. Family hiring.301.3.4. Non-residential farm service.371.3.5. Excluded workers and systems.411.4. The integrated model.42
1.3. Types of farm servants and their identification in censuses.191.3.1. Traditional farm service.201.3.2. Bailiff system.251.3.3. Family hiring.301.3.4. Non-residential farm service.371.3.5. Excluded workers and systems.411.4. The integrated model.42
1.3.1.Traditional farm service.201.3.2.Bailiff system.251.3.3.Family hiring.301.3.4.Non-residential farm service.371.3.5.Excluded workers and systems.411.4.The integrated model.42
1.3.2. Bailiff system.251.3.3. Family hiring.301.3.4. Non-residential farm service.371.3.5. Excluded workers and systems.411.4. The integrated model.42
1.3.3. Family hiring.301.3.4. Non-residential farm service.371.3.5. Excluded workers and systems.411.4. The integrated model.42
1.3.4. Non-residential farm service.371.3.5. Excluded workers and systems.411.4. The integrated model.42
1.3.5. Excluded workers and systems.411.4. The integrated model.42
1.4. The integrated model42
1.4.1. The combined algorithm42
1.4.2. Settings and sensitivity46
1.4.3. Comparison with the Howkins and Verdon study50
1.4.4. Comparison with Census Reports54
1.5. Key characteristics of farm servants in 1851-1911
1.5.1. Number and share of servants
1.5.2. Types of servants61
1.5.3. Servants' demographics63
1.5.4. Geography of farm service67
1.6. Conclusion70
Appendix 1.1. Estimates for farm servants and labourers from the 1831 Census Report72
Appendix 1.2. Revised estimates for farm workers using Higgs's method74
Appendix 1.3. Regular expressions used in identifying farm workers
Appendix 1.4. Improved coding of farmers, bailiffs, and their households
Appendix 1.5. Identification of agricultural labourers
Chapter 2. The Persistence of Farm Service in England from 1851 to 1911: Causes and Contexts82
2.1. Introduction
2.2. The drivers of farm service
2.3. Methodology90

2.3.1.	Farm demand	96
2.3.2.	Local labour supply	102
2.3.3.	Competition for workers.	106
2.3.4.	Market integration.	108
2.4. Th	e key findings	113
2.4.1.	Data preparation and preliminary analysis.	113
2.4.2.	Results of general models.	119
2.4.3.	Results of special models.	127
2.5. Co	nclusion	132
Appendix	2.1. Matching continuous parishes in 1851-1891 with those of 1901-1911	134
Appendix	2.2. Finding people working with animals in censuses	136
Appendix	2.3. GIS workflows	138
Appendix	2.4. General regressions for shares of servants, complete output	141
Appendix	2.5. Special regressions, complete output	144
Chapter 3. F	arm Servants in North Wiltshire: the Evidence of Hiring Fairs, 1837–1860	148
3.1. Int	roduction	148
3.2. Hi	ring fairs in the 'Cheese Country'	150
3.2.1.	Geography of fairs in North Wiltshire	152
3.2.2.	The Chippenham hiring fair	153
3.2.3.	The Wotton Bassett hiring fair	154
3.2.4.	Registers of hired servants	159
3.3. Se	rvant characteristics	160
3.3.1.	Demographics of servants	161
3.3.2.	Subsequent roles of dairy workers.	165
3.4. W	ages and residence.	167
3.4.1.	Servants' wages	168
3.4.2.	Gender wage differential.	172
3.5. Us	age and performance	175
3.5.1.	Usage of the Wooton Bassett fair by servants	175
3.5.2.	Usage of the Wootton Bassett fair by masters	
3.5.3.	Contract performance	183
3.6. Co	nclusion	186
Appendix	3.1. Matching register of servants and census: process and formulas	188
Conclusion		191
Bibliography		195

List of figures.

Figure 1.1. Share of farm servants, orthodox view.	14
Figure 1.2. Share of farm servants, revisionist view	16
Figure 1.3. Identification of classic farm servants	21
Figure 1.4. Members of farming households, 1891	22
Figure 1.5. Boarders and servants in bailiffs' households working in agriculture and	transport, 1851-
1911	28
Figure 1.6. Identification of horselads.	29
Figure 1.7. Geographic distribution of horselads, 1891	
Figure 1.8. Identification of hinds and bondagers.	
Figure 1.9. Demographics of female labour in agriculture, 1891	34
Figure 1.10. Female share in agricultural labour, 1851-1911	35
Figure 1.11. Identification of non-resident servants	
Figure 1.12. Share and mean age of animal attendants, 1891	40
Figure 1.13. The combined algorithm of the farm servants' model.	43
Figure 1.14. Sensitivity diagrams, 1851 and 1891.	49
Figure 1.15. Share of servants, model vs. Howkins and Verdon, 1851	52
Figure 1.16. Incidence of service, model vs. governmental reports	53
Figure 1.17. Number of male farm servants by county, model and Census Reports, 1	.851 and 186155
Figure 1.18. Number of female farm servants by county, model and Census Reports,	, 1851 and 1861.
	56
Figure 1.19. Number and share of farm servants in England	60
Figure 1.20. Number and share of farm servants by type	62
Figure 1.21. Key demographic characteristics of farm servants from 1851 to 1911	64
Figure 1.22. Age and female share by type of farm servant, 1851 and 1911	65
Figure 1.23. Age distributions for farm boys and nominally non-agricultural farm ser	vants, 1851 and
1911	66
Figure 1.24. Incidence of farm service in 1851 and 1911.	68
Figure 1.25. Incidence of alternative forms of farm service in 1851 and 1911	69
Figure 1.A.1. The algorithm for improved coding of farmers.	79
Figure 1.A.2. The algorithm for identification of agricultural labourers.	
Figure 2.1. The share of farm servants by parish, 1851 and 1911	
Figure 2.2. Histograms for the share of servants by parish, 1851 and 1911	92
Figure 2.3. The determinants of the incidence of farm service.	93

Figure 2.4. Pasture share and horse density, 1881.	98
Figure 2.5. Animal hands vs. Agricultural Returns, 1861 to 1911.	99
Figure 2.6. Workers per master and average farm size, 1881	101
Figure 2.7. Population density and pauperism.	103
Figure 2.8. Enclosure and family hiring	105
Figure 2.9. Agricultural focus and city distance.	106
Figure 2.10. Weighted jobs and terrain ruggedness.	
Figure 2.11. Rail distance and turnpike density.	110
Figure 2.12. Wheat price, shillings per bushel	111
Figure 2.13. Time trends for selected variables, main vs. complete dataset	115
Figure 2.14. Relationships between explanatory variables and share of farm servants	116
Figure 2.15. The impact of horse density, integral, and by year.	118
Figure 2.16. Time trends, 1851 to 1911	121
Figure 2.17. Agricultural statistics and exceptional parishes, 1881.	124
Figure 2.18. Population density, agricultural focus, and exceptional parishes, 1881	126
Figure 2.19. Coefficients for agricultural focus in general and special models	
Figure 2.20. Family hiring and farm size	129
Figure 2.A.1. Mismatched continuous parishes.	135
Figure 3.1. Hiring fairs in North Wiltshire in 1800-1860.	153
Figure 3.2. Number of hired servants, Wootton-Bassett.	156
Figure 3.3. Servant age density, Chippenham	
Figure 3.4. Occupations of servants by year, Wootton Bassett.	164
Figure 3.5. Gender of hired servants, Chippenham and Wootton Bassett	165
Figure 3.6. Subsequent positions of dairy workers, Wootton Bassett	166
Figure 3.7. The gender gap in total wage by component	173
Figure 3.8. The female-male wage ratio by age for resident servants.	175
Figure 3.9. The average number of hirings by cohort in five years	178
Figure 3.10. CPR vs. days to census	
Figure 3.A.1 Flow diagram for a cohort of servants	

List of tables.

Table 1.1. Occupational titles in Wilson Fox Report and census returns, Glendale, 1891-1893	36
Table 1.2. Sub-groups of farm servants, 1851 and 1891	47
Table 1.3. Comparison with Howkins and Verdon's study, summary for 1851	51
Table 1.4. Hired agricultural labour in England from 1851 to 1911	59
Table 1.A.1. Kussmaul's estimates for share of farm servants in 1831 and Gritt's revision	72
Table 1.A.2. Revision of Census Reports for agricultural labour for 1851 to 1871	74
Table 1.A.3. Textual search functions and regular expressions	75
Table 2.1. Variables and data sources.	95
Table 2.2. Summary statistics	96
Table 2.3. Data availability (percentage of continuous parishes).	112
Table 2.4. The correlation matrix.	117
Table 2.5. General regressions for share of servants.	120
Table 2.A.1. Number of farm workers by keyword, 1851	136
Table 2.A.2. Complete output of three general models	141
Table 2.A.3. Complete output of four special models	144
Table 3.1. Gender balance by occupation, Wootton Bassett	163
Table 3.2. Terms of payment, Chippenham and Wootton Bassett	168
Table 3.3. Linear regressions for servants' wages.	171
Table 3.4 The Wootton Bassett farmers with resident servants in 1851	181
Table 3.5 Contract performance rate	184

Introduction.

Isaac planted crops in that land and the same year reaped a hundredfold, because the Lord blessed him. The man became rich, and his wealth continued to grow until he became very wealthy. He had so many flocks and herds and servants that the Philistines envied him.

Genesis 26:12-14.

In a fundamental study published in 1981, Ann Kussmaul provided a detailed review of farm service in the early modern period.¹ She linked the incidence of service to population trends and food prices arguing that its most recent peak occurred in the mideighteenth century. After that, farm service and the closely related institution of hiring fairs fell into a permanent decline. Ending her analysis in 1851, she provided her view of further developments in the later part of the century in the final section of her book titled 'Extinction'. By that she meant the replacement of servants with day labourers, thus dating the major institutional aspect of the Agricultural Revolution: the emergence of a tri-partite system of agriculture, consisting of landlords, tenant farmers and landless labourers. As the chronology of the Agricultural Revolution is uncertain, her work provided valuable input for Mark Overton's influential study.² However, in the forty years since *Servants in husbandry* saw the light of the day researchers have uncovered new evidence showing that service remained vital in many parts of the country well into the twentieth century. Yet, whether this or the survival of hiring fairs challenges the conventional narrative of a nationwide decline in service remains uncertain due to a lack of comprehensive data.

Farm servants were paid workers who lived within the home of their employer and received board and lodging as well as cash wages. Unlike day labourers, who were hired on a daily or task-specific basis, farm servants were employed for longer periods, usually a year. This made them particularly suited for year-round agricultural tasks such as tending to livestock, ploughing, and dairying.³ For many, service was a transitional phase in the life cycle, bridging the gap between childhood and adulthood. During these years the individuals

¹ A. Kussmaul, *Servants in husbandry* (1983).

² M. Overton, *Agricultural revolution in England. The transformation of the agrarian economy 1500-1850* (1996).

³ J. Whittle, 'Introduction: servants in the economy and society of rural Europe', in J. Whittle (ed), *Servants in rural Europe* (2017), pp. 1-19.

accumulated skills and resources necessary to start their independent household at marriage. Since accumulating resources took time, marriage was often delayed, contributing to what is known as the European Marriage Pattern. Stephen Caunce argued that, historically, 'service' did not imply permanent subordination. Rather, it referred to a longterm relationship involving a specific commitment to an employer. This broader sense of 'service' persists today in terms like 'civil service' and 'armed services'.⁴ It is this wider definition of service, which may or may not include residence, but does involve a long-term contract of employment that is used here.

In 1688, Gregory King estimated that hundreds of thousands of servants were employed in the households of farmers, tradesmen, artisans, handicraftsmen, and both Temporal and Spiritual Lords.⁵ In the households of innkeepers, servants handled food and drink, while those employed by shopkeepers stocked shelves and collected payments from customers. Others were what would later be known as 'domestics', employed to uphold the family's status and attend to the personal needs of its members. During the eighteenth century, servants made up between one-third and one-half of the hired agricultural labour force. Among those aged fifteen to twenty-four, approximately 60% were servants, meaning that more than half of the English population at the time passed through this experience.⁶

Kussmaul's book, as the only monograph fully dedicated to farm servants, organizes our understanding of this institution into three key historical periods. Farm service was an ancient practice, with one of the earliest known references appearing in the Old Testament. In the land of Gerar when Isaac became a substantial farmer, he hired servants to tend to his livestock, an event thought to have occurred between 2000 and 1500 BCE.⁷ In England, references to farm servants can be found in medieval demesne records.⁸ Importantly, the obligation of individuals not in permanent employment to make themselves available for service is explicitly mentioned in the fourteenth-century Ordinance of Labourers (1349) and

⁴ S. Caunce, 'Farm servants and the development of capitalism in English agriculture', *AgHR* 45, 1 (1997), pp.52-53.

⁵ G. King. *Two tracts*. Ed. by G. E. Barnett (reprint 1936).

⁶ Kussmaul, *Servants*, pp. 3-4.

⁷ <u>https://bibleproject.com/guides/book-of-genesis/</u> [accessed 1 Oct. 2024].

⁸ See, for example, J. Claridge and J. Langdon, 'The composition of famuli labour on English demesnes, c. 1300', *AgHR* 63, 2 (2015), pp. 187-220.

the Statute of Labourers (1350).⁹ Subsequent labour laws were even more stringent. Under the Statute of Cambridge (1388), no servant could leave their hundred without a letter of permission bearing the King's seal, while the legislation of 1406 prohibited parents from placing their children in apprenticeships or any urban occupation unless they possessed 20 shillings of land or rental income per year.¹⁰ From the 1980s onward, these legislative changes, along with their causes and consequences, began to attract the attention of social and legal historians; however, ancient sources on farm service are sparse, and gaps in our knowledge of its early history should be accepted as inevitable.

The early modern period was covered by Kussmaul. Her conclusions on the decline of service based on the analysis of the seasonality of marriages were later confirmed by K. D. M. Snell through studies of paupers' settlement examinations.¹¹ However, Kussmaul's work faced criticism for overlooking alternative forms of service and for generalizing findings from the Southeast of England to the entire country.¹² Additionally, her analysis of marriage seasonality was questioned, as other historians pointed out factors such as the Marriage Act of 1653, which caused a sharp dip in marriages during the mid-seventeenth century.¹³ The assumptions underlying her review of the census of 1831 were shown to be too simplistic and ignore the regional specifics in the provision of family labour.¹⁴ Despite this, her analysis withstood the test of time and at the very least, provides a benchmark against which future contributions can be judged.

More surprisingly, there is yet no consensus on the developments after 1851. Most historians argue that farm service persisted longer than Kussmaul suggested; however, Nigel Goose's analysis of Hertfordshire supports earlier estimates.¹⁵ The resilience of service in northern England has been linked to non-traditional forms, such as living-in in a bailiff's

¹³ D. Woodward, 'Early modern servants in husbandry revisited', *AgHR*, 48, 2 (2000), pp. 141-150.

⁹ D. Hay, 'England, 1562-1875: the law and its uses', in D. Hay and P. Craven (ed) *Masters, servants and magistrates in Britain and the Empire, 1562-1955* (2004), p. 62.

¹⁰ S. Cohn, 'After the Black Death: labour legislation and attitudes towards labour in late-medieval western Europe', *EcHR* 60, 3 (2007), pp. 460 and 476-477.

¹¹ K. D. M. Snell, Annals of the labouring poor. Social change and agrarian England 1660–1900 (1985), pp. 67-103.

¹² A. Howkins, 'Peasants, servants and labourers: the marginal workforce in British agriculture, c 1870-1914', *AgHR* 42, 1 (1994), p. 58.

¹⁴ A. J. Gritt, 'The census and the servant: a reassessment of the decline and distribution of farm service in early nineteenth-century England', *EcHR* 53, 1 (2000), pp. 84-106.

¹⁵ N. Goose, 'Farm service, seasonal unemployment and casual labour in mid nineteenth-century England', *AgHR* 54, 2 (2006), pp. 274-303.

family.¹⁶ Meanwhile, Sarah Holland discovered a higher-than-expected incidence of classic farm service in the West Riding of Yorkshire.¹⁷ Typically, our knowledge of more recent periods is deeper, but two factors contribute to this gap: the lack of visibility of farm servants to contemporaries and their limited representation in censuses. The first issue relates to settlement patterns. In areas with nucleated settlements, where villages were close by, there was less need for resident servants since labour could be drawn from nearby communities. In contrast, in more dispersed rural areas with a sparse population, the need to import living-in personnel was higher. Hence farm servants were often confined to isolated farmsteads. They only came into towns for hiring fairs, which acted as labour exchanges, markets, and social gatherings.

However, most contemporaries saw these events as relics of the feudal past, which, according to Michael Roberts, 'could play no part in the progressive national epic'.¹⁸ The main source of evidence on hiring fairs is local newspapers, but most coverage consisted of brief advertisements for upcoming events. Reports on fairs that had already taken place were scarce and often focused more on instances of drunkenness and misbehaviour than on the number of contracts, occupations, or employment conditions—details that are crucial for historians. Consequently, the historical record on these remains patchy.

The most objective and complete contemporary source of occupations was the population census. Starting in 1801 the decadal population censuses of Great Britain began collecting detailed information on every individual's residence, demographic characteristics, and occupation, although occupational data is only deemed reliable for both women and men from the Census of 1851. This has made the published Census Reports a major data source for historical occupational studies. Unfortunately for agricultural historians, the utility of this source is somewhat limited. After 1871, the distinct components of agricultural labour—farm servants and day labourers—were merged into a single category. Another limitation is that the Census Reports were published at a level of a county

¹⁷ S. Holland, 'Farm service and hiring practices in mid-nineteenth-century England: the Doncaster Region in the West Riding of Yorkshire', in J. Whittle (ed), *Servants in rural Europe* (2017), pp. 183-202.
¹⁸ M. Roberts, "Waiting upon chance": English hiring fairs and their meanings from the 14th to the 20th century', *J. of Hist. Sociology*, 1, 2 (1988), p. 124.

¹⁶ S. Caunce, Amongst farm horses. The horselads of East Yorkshire (2016).

and in a limited form at a level of registration district. As agricultural markets operated at a smaller spatial scale this creates a data granularity problem.

One important complication in the study of farm servants relates to the evolving definition of the role itself. Alternative forms of service significantly diverged from the traditional model of living in a farmer's household. In one system, the responsibility for overseeing farm servants was shifted to farm bailiffs. In another arrangement, entire families were hired together and provided with farm cottages. In other cases, farm servants lived in a village and in the censuses were reported as heads of household or the head's sons rather than servants. They are still united by their contractual relationship to the farmer, but no longer linked by the same physical, social and personal proximity in their household.

Moreover, even when an individual's status as a servant is confirmed, distinguishing between farm and domestic service roles is often challenging. In 1776 Adam Smith clearly differentiated between the two. Farm servants were 'productive' as they contributed directly to their master's business, whereas domestic servants were deemed 'unproductive' working to support the host families' lifestyle.¹⁹ However, in practice, the distinction was far more fluid. Female servants, in particular, frequently combined household duties such as washing and cleaning with tending to farm animals and, during peak agricultural seasons, assisting with fieldwork.²⁰ Seeing the household as a single production unit, the contemporaries had little concern for fine distinctions between servants' roles. As a result, terms like 'house servant', 'domestic servant', and 'servant in husbandry' were often used interchangeably.²¹ This lack of clarity renders census data for female farm servants unreliable, leading many researchers to limit their studies to males only.

The first part of this study addresses the problem of lack of historical evidence by suggesting a new reading of two sources known to historians but not yet used systematically for the analysis of farm service. These are the electronic database of census enumerators' books (CEBs) where individual household census returns were transcribed into a uniform format, and some surviving registers of hired servants. The database was created by the I-

¹⁹ A. Smith, *An inquiry into the nature and causes of the wealth of nations* (2 vols, 1796), vol. 1, p. 329.

²⁰ N. Verdon, *Working the land. A history of the farmworker in England from 1850 to the present day* (2017), p. 42.

²¹ E. Higgs, 'Occupational censuses and the agricultural workforce in Victorian England and Wales', *EcHR*, 48, 4 (1995), pp. 707-708; Snell, Annals, p. 283.

CEM project in the early 2000s and includes the transcription of CEBS for all censuses taken from 1851 to 1911 except 1871 both in their original and coded forms. The registers were maintained at hiring fairs held in two market towns of Wiltshire, Chippenham and Wooton Bassett, and list all hiring transactions in the period from 1837 to 1860. Besides the names of the parties and their parishes, the clerks recorded other important details such as age, occupation, wage, and terms of payment.

CEBs were the primary reporting documents which the local contractors responsible for collecting household returns sent to the Census Office in London for further processing and publishing. Historians started using this source on a local basis in the 1980s and found the share of farm servants²² derived from CEBs was above the official Census Reports virtually in all parishes or groups of parishes they studied. The most substantial work was published in 2008 by Alun Howkins and Nicola Verdon and covered 28 parishes in each of the seven Midland and southern counties: Berkshire, Norfolk, Nottinghamshire, Oxfordshire, Somerset, Staffordshire, and Sussex in the censuses of 1851, 1871, and 1891²³. However manual processing of CEBs is extremely time-consuming while a diversity of forms of farm service introduces additional complexity.

To address the challenges of big data processing, Chapter 1 introduces a computer model for the identification of farm servants in census records. This model recognizes seven types of farm servants: nominally agricultural, nominally non-agricultural, horselads (farm servants living in bailiffs' households), hinds (heads of families in family hiring system), bondagers (hinds' daughters or sons), animal attendants (mature non-resident servants), and farm boys (young non-resident servants), grouping them into four hiring systems: classic service, bailiff, family, and non-residential. Unlike previous studies, this approach enables both a nationwide view of farm service and a more comprehensive account of the contributions made by female workers. An essential aspect of the model is its verification, which involves comparing its results with findings reported by Howkins and Verdon, as well as with contemporary Census Reports.

²² Number of farm servants divided by the sum of farm servants and day labourers.

²³ A. Howkins and N. Verdon, 'Adaptable and sustainable? Male farm service and the agricultural labour force in midland and southern England, c. 1850–1925', *EcHR* 61, 2 (2008), pp. 467–495.

The modelling indicates that previous estimates regarding the incidence of farm service need to be revised upward. The decline of farm service was gradual, with the number of farm servants in 1911 still approximately 43% of the number recorded in 1851. Despite the emergence of alternative arrangements, living-in remained the predominant form of service, accounting for 90% of all farm servants. Additionally, contrary to earlier claims suggesting a diminished role for female farm servants, the proportion of women in these positions remained stable throughout the observed period.

Chapter 2 examines the factors influencing the incidence of farm service and how these factors have changed over time. Importantly, in addition to calculating the number and proportion of farm servants on a national scale, the model developed for this study can generate estimates at various levels of aggregation, starting from the parish level. The analysis utilizes the continuous parish, a geographic unit created by the Cambridge Group for the History of Population and Social Structure, which maintained fixed boundaries throughout the study period.

The factors influencing farm service are categorized into four main groups: farm demand, local labour supply, competition for workers, and market integration. Data on indicators of each of these elements is collected to facilitate an understanding of where and why farm service persisted. Findings from the analysis confirm the significance of settlement dispersion and the presence of farm animals as key drivers of farm service. Additionally, an important new factor is identified: the share of the population engaged in agriculture. This effect is explained by a positive correlation of this parameter with the number of workers per master (farmer or bailiff). In turn, a higher number of workers on a farm usually meant more labourers rather than servants.²⁴ The incidence of farm services was greater near a major city, while the relationship between farm size and service was non-linear, showing a stronger positive correlation for small farms of up to 58 acres. The chapter also explores the family hiring system in the north of Northumberland, which is presented as a rational response to the demands of labour-intensive agriculture in a region characterized by low population density.

²⁴ Kussmaul, *Servants*, pp. 130-132. Kussmaul did not provide explanation for this finding, but it can be related to practical difficulty of housing and controlling more than a few servants in a farmhouse.

The second part of the study turns to the key institution that facilitated farm service: hiring fairs. It also changes focus, from the national to the local. Contracts made at hiring fairs were verbal and the registers of servants used in Chapter 3 are rarely available documents. Kussmaul discovered their existence while examining the records of three hundred hiring events, finding only one area—Holland Part of Lincolnshire—where lists of servants were maintained. She stressed the potential of this source but only used the Lincolnshire records to trace the career moves of selected individuals. My search for evidence of this type yielded another set of records maintained in two market towns of North Wiltshire. Their emergence can be related to the uniqueness of these fairs as 'new' events that were introduced as late as 1836. Both in Chippenham and Wootton Bassett the driving force was a local agricultural community motivated by increased competition for labour, caused by the cheese boom of the early nineteenth century. Dairymaids, engaged as living-in servants, were particularly sought after, and in early years constituted over 80% of all hired servants.

To use the potential of this source this chapter continues to emphasize female labour; however, when male data is available, it is included to determine some of the key characteristics of those hired as farm servants and the employment contract. The analysis of Wootton Bassett reveals differing usage patterns between masters and servants: masters predominantly hired their servants at the local fair, while servants utilized this fair for less than a third of their job changes, instead exploring the opportunities offered at various other fairs. Additionally, the analysis or registers produces new estimates for the value of inkind payments and a female-male wage ratio. Finally, cross-referencing the registers with the census yields estimates for how well the servants performed their year-long contracts.

Covering a pivotal period in English history, this study offers new insights into the dynamics of labour during the later stages of the Industrial Revolution. Increased agricultural productivity supported industrial growth by providing sustenance for a growing population with a decreasing number of workers. This released labour for cotton mills, coal mines, and ironworks; however, the transition was more complex than simply a movement of people from one type of work to another. Losing labour in absolute terms, farmers maximized the output of their remaining workforce by hiring a relatively larger number of farm servants. In certain regions, diverse factors—such as social change and dispersed population—led to the

increased use of unorthodox forms of service. Nonetheless, on a national scale, the institution maintained its traditional practices and demographic characteristics.

Chapter 1. A Computer Model for Identification of Farm Servants in Victorian Censuses: Algorithm and Key Findings.

1.1. Introduction.

Starting in 1851, the population censuses of Great Britain began collecting detailed information on every individual's residence, demographic characteristics, and occupation. This made the published Census Reports a major data source for historical occupational studies. Unfortunately, for agricultural historians, the utility of this source is somewhat limited. After 1871, the distinct components of agricultural labour—farm servants and day labourers—were merged into a single category. As a result, the decline of farm service, a significant aspect of the Agricultural Revolution, can only be confidently traced from this source over a span of twenty years. Influential local studies informed by oral testimonies of retired workers, autobiographies, and contemporary periodicals demonstrated a continuation of service well into the twentieth century.²⁵ However, whether the orthodox view of the nationwide decline of service should be revised remains unclear due to the lack of systematic evidence.

This work proposes a solution through the computer processing of Census Enumerators' Books (CEBs). The CEBs were the primary documents sent by local enumerators to the Census Office in London. Guided by tabulation rules and equipped with occupational dictionaries, census clerks used these documents to produce the published summary reports. Fortunately, the original CEBs have also been preserved and have attracted scholarly interest since the 1980s. Studies of agricultural labour based on this source have revealed discrepancies with the Census Reports, suggesting an underrepresentation of farm servants in the official publications. Nevertheless, manual processing of the manuscript CEBs is time-consuming, limiting the scale of these studies to samples of parishes from selected counties and making it difficult to generalize the findings on a national level.

²⁵ S. Caunce, Amongst farm horses. The horselads of East Yorkshire (2016); W. Castle, Ron Creasey: Last of the horselads (2012); M. Bouquet, Family, servants and visitors. The farm household in nineteenth and twentieth century Devon (1985).

Since the early 2000s, however, the digitization of CEBs as part of the Integrated Census Microdata (I-CEM) project has provided a new opportunity.²⁶ The CEBs from the censuses of 1851 to 1911, except for 1871, are now available as a digital database and can be processed automatically. The model presented in this article extends the earlier manual processing work. In addition to filling the gap in understanding the composition of farm labour between 1881 and 1911, it offers valuable additional benefits. The important aspects of the tabulation policy implemented by the original census clerks were unclear and its application was inconsistent.²⁷ In contrast, this model employs an algorithm based on a transparent set of rules, ensuring that observed changes are real and not artefacts of changing definitions. While the original tabulation rules were influenced by contemporary ideas about family structure and the division of labour in the household economy, the new algorithm adopts a modern perspective.²⁸ Moreover, Census Reports on occupations were published only at the county level or, on a limited scale, at the registration district level. This model resolves the issue of data granularity by generating a list of workers that can be aggregated at any level, starting from individual parishes.

The analysis suggests that the official figures for the number of farm servants in 1851 and 1861 should be revised upwards. Additionally, it provides new estimates for 1881 to 1911, a period not covered by published statistics. The decline in the number of farm servants was slow and prolonged, with approximately 132,000 individuals employed in 1911 compared to 301,000 in 1851. Despite the importance of alternative forms of service in certain localities, the traditional 'living-in' arrangement remained the backbone of the institution and at the national level accounted for about 90% of participants. This dominance of the classic model contributed to the stability of the demographic characteristics of farm servants. The geographical analysis confirmed the long-standing contrast between the high-service North and the low-service South, with the dividing line gradually shifting northward throughout the study period.

 ²⁶ K. Schurer and E. Higgs, 'Integrated Census Microdata (I-CEM), 1851-1911' (data collection). UK Data Service, 2023 [accessed 20 May 2024]. Available from: DOI: http://doi.org/10.5255/UKDA-SN-7481-2.

²⁷ E. Higgs, 'Occupational censuses and the agricultural workforce in Victorian England and Wales', *EcHR*, 48, 4 (1995), p. 703; E. Higgs, 'The tabulation of occupations in the nineteenth-century census, with special reference to domestic servants', *Local Pop. Studies* 28 (1982), p. 60.

²⁸ The categorization of relatives in Census Reports suggests that the clerks assumed a multi-generational household model, while the allocation of women's labour to the domestic domain reflects the Victorian ideology of 'separate spheres'. See Section 3 for more details.

This chapter is structured as follows: Section 1.2 discusses the historiography of farm service in the nineteenth century, with a particular focus on quantitative estimates. Section 1.3 introduces the typology of farm service and suggests the methods for identifying the different types of servants in the I-CEM database. Section 1.4 explains the model, its settings, and sensitivities. To validate the findings, this section also includes two methods of verification: micro-level comparison with the largest CEB-based study conducted by Alun Howkins and Nicola Verdon, and macro-level comparison with the Census Reports. Section 1.5 highlights the key findings, and Section 1.6 concludes.

1.2. The decline of farm service in the nineteenth century.

The classic account of farm service was published by Ann Kussmaul in 1981.²⁹ From parish records she estimated that in the early modern period, 'servants in husbandry' made up between a third and a half of hired labour in agriculture. The popularity of farm service fluctuated over time, peaking in the mid-eighteenth century. Following this peak, there was a steady decline, and by the mid-nineteenth century, farm service had become 'extinct' in the South and East, while remaining significant in the North and West. K. D. M. Snell supported Kussmaul's conclusions, noting a progressive reduction in yearly hirings.³⁰ This trend, subsequently reproduced in a number of influential texts,³¹ aligns with the broader context of the agricultural revolution. Servants were less suited to large farms,³² and in the 'progressive' tripartite model of English agriculture—which included landlords, tenant farmers, and proletarian workers—their niche was taken over by day labourers.

Orthodox reasoning confined the survival of service to remote areas with small farms and rugged terrain, implying its association with the backward state of farming.³³ Yet from as early as 1984, there were dissenting voices, and critiques of both the methodology and the

²⁹ A. Kussmaul, *Servants in husbandry* (1983).

³⁰ K. D. M. Snell, Annals of the labouring poor. Social change and agrarian England 1660-1900 (1985), p. 76. ³¹ For example, A. Armstrong, Farmworkers. A social and economic history (1988), p. 62 and M. Overton, Agricultural revolution in England. The transformation of the agrarian economy 1500-1850 (1996), p. 180.

³² Overton, *Agricultural revolution*, p. 182.

³³ Kussmaul, *Servants*, p. 130.

results of early research gradually gained momentum.³⁴ Particularly informative were the studies focused on the North of England. Stephen Caunce³⁵ and Gary Moses³⁶ argued that in the East Riding of Yorkshire, farm service made a crucial contribution to highly efficient capitalist farming. Concluding an important discussion on the role and nature of farm servants, Howkins and Verdon insisted that farm service was not a remnant of the archaic past but an adaptable system compatible with the needs of progressive agriculture.³⁷ In the new environment, the sense of equality between farmers and their servants was lost; however, new approaches to housing servants helped large employers navigate the social gap.

Proponents of both views have supported their reasoning with a substantial body of statistical information. However, the last national-level statistics are from 1871, as in later censuses farm servants were combined with day labourers. While the early Census Reports and their reinterpretation are a crucial part of this discussion, most studies are dedicated to a limited geographic area, from a parish to a county. To ensure comparability, this review will use a relative indicator: the share of servants in the hired agricultural labour force. Despite the risks of oversimplifying regional diversity in English agriculture, this approach is necessary to systematically organize the data and understand the arguments presented in the existing literature. I will start with the findings reported by Kussmaul and then move to the revisionists' evidence.

The earliest data point comes from Arthur Young's works, which Kussmaul referred to as 'an agricultural census of sorts'. From 1768 to 1770, Young visited 355 farms and recorded the labour force composition, noting 1,482 farm servants (both male and female) and 1,401 labourers. This indicates that farm servants comprised 51% of the labour force, as shown by the first point on the left in Figure 1.1. Given that most farms he visited were large, this estimate likely understates rather than overstates the importance of servants.

³⁴ B. Short, 'The decline of living-in servants in the transition to capitalist farming: a critique of the Sussex evidence', *Sussex Archaeological Collections* 122 (1984), pp. 147-64.

³⁵ Caunce, Horselads.

³⁶ G. Moses, *Rural moral reform in nineteenth-century England. The crusade against adolescent farm servants and hiring fairs* (2007).

³⁷ A. Howkins and N. Verdon, 'Adaptable and sustainable? Male farm service and the agricultural labour force in midland and southern England, c. 1850–1925 1', *ECHR* 61, 2 (2008), pp. 467-495.





The next dataset, collected by the Cambridge Group for the History of Population and Social Structure, includes 43 listings of parish populations from 1777 to 1831. The major input was the Westmorland population survey of 1787, which covered 31 parishes and found 387 servants and 169 labourers, indicating a 70% share of servants.³⁹ In Figure 1.1 the Westmorland survey is represented by a single point, while the other 12 points represent parishes in various counties of the South and Midlands. The lowest shares of 14% were reported in Dorset in 1800 and Cambridgeshire in 1831. Note that these estimates may overstate the importance of servants. Firstly, the parish lists do not differentiate between farm and domestic servants, resulting in all farmers' servants being counted as farm servants. Secondly, the size of the labouring population is equated to the number of

³⁸ Share of farm servants = Number of farm servants / (Number of farm servants + Number of labourers) x 100.

³⁹ L. Ashcroft (ed), *Vital statistics. The Westmorland 'census' of 1787*, Curwen Archive Trust (1992).

householding labourers, excluding resident children of labourers, craftsmen, and tradesmen who could work on a farm.

Another early source is the Buckinghamshire Posse Comitatus of 1798, which listed all men aged fifteen to sixty. In the 102 predominantly agricultural parishes of the county, servants accounted for 44% of all hired workers. The disadvantage of this source is that the servants to farmers cannot be separated from other servants and, as with the parish lists, farm servants cannot be distinguished from domestic servants. Therefore, the share of servants is somewhat exaggerated although, as a balancing factor, some labourers may have worked in an industry other than agriculture.

The next point in Figure 1.1 represents the result of Kussmaul's creative review of the 1831 Census Report.⁴⁰ Although the original report combines farm servants and day labourers under 'labourers employed in agriculture', Kussmaul combined this data with information on farmers to estimate the proportion of servants. Her findings supported her argument about the significant regional differences between the high-service North and the low-service South: the highest proportion of servants, over 50%, was found in Westmorland, Lancashire, and Cumberland, whereas in Buckinghamshire, Wiltshire, and Dorset, it was below 20%. The national average was 29%, likely an understatement, as the report only included males aged twenty and over, and many servants were younger. The three last data points are for mid-Victorian Census Reports of 1851-1871 which provided more detailed information on occupations. From the orthodox perspective, these are regarded as authoritative sources, though their representation of agricultural labour has been subjected to critique and revision.

To summarize these observations, Figure 1.1 also includes a fitted trend line. It serves only as a rough summary, as the observations are biased in diverse ways and range in their coverage from individual parish listings to national figures. Nonetheless, it clearly demonstrates the downward trend in the contribution of farm servants to the agricultural labour force. Late eighteenth-century data indicate approximately equal numbers of farm servants and day labourers. By the end of the period, and according to the relatively reliable 1871 census, the share of farm servants had declined to 14%. Without additional

⁴⁰ Kussmaul, *Servants*, pp. 170-171.

information, one might conclude that farm service would become insignificant by the end of the century. The statistical evidence from revisionist historians is depicted in Figure 1.2.





No new data is available before 1831, indicating general agreement on the high prevalence of farm service during that period. The earliest point reflects A. J. Gritt's scrutiny of Kussmaul's reinterpretation of the 1831 census.⁴¹ Gritt reclassified the 'occupiers not employing labourers', whom Kussmaul considered small farmers, as labourers and adjusted their numbers to include their family members. This category was more prevalent in Lancashire and other northern counties; hence his correction reduced the North-South

⁴¹ A. J. Gritt, 'The census and the servant: a reassessment of the decline and distribution of farm service in early nineteenth-century England', *EcHR* 53, 1 (2000): pp. 84-106.

divide and lowered the share of servants in England to 19%. He did not publish his findings in absolute terms, and I reproduced his analysis to generate the national figures (see Appendix 1.1).

The Reports for other censuses have also been revisited. As early as 1988, Alan Armstrong had 'no doubt' that female farmers' relatives, farm servants, and domestic servants were often conflated, a concern echoed by Snell and Verdon.⁴² In 1995, Edward Higgs provided quantitative estimates to correct the underreporting of various agricultural categories. Three adjustments impacted the counts of farm servants and labourers. To the former Higgs added female servants of farmers with domestic titles who in his opinion spent half of their time on agricultural tasks. The ranks of labourers were expanded by accounting for agricultural workers erroneously recorded as general labourers, and making a provision for those women whose work in fields was not recorded as it contradicted the Victorian stereotype of the 'angel at the hearth'. The analysis based on Higgs's method is presented in Appendix 1.2 and suggests roughly a 20% increase in the agricultural labour force. The revision of farm servants was more radical and their share of agricultural labour force increased in comparison to Census Reports by 2% in 1851 going up to 5% in 1871.

The other points in Figure 1.2 represent findings from regional studies based on manuscript CEBs. Researchers examined the CEBs for selected areas, identified farm servants and day labourers, and compared the share of servants to their share derived from the Census Reports. Recognizing the complexity of categorizing female workers, they limited their analysis to males. Howkins and Verdon conducted the most comprehensive study, which included seven Midland and southern counties: Berkshire, Norfolk, Nottinghamshire, Oxfordshire, Somerset, Staffordshire, and Sussex.⁴³ For each county, 28 parishes were included for the censuses of 1851, 1871, and 1891. Their results, presented as county averages, dominate the chart in Figure 1.2. In both 1851 and 1871, where a comparison with the official publication is possible, the proportions of servants consistently exceeded those in the Census Reports. Two counties, Staffordshire and Nottinghamshire, showed a share of servants over 30%, with no discernible trend towards decline. Findings for other counties

⁴² Armstrong, *Farmworkers*, p. 95, Snell, *Annals*, p.95, N. Verdon, *Working the land*. A history of the farmworker in England from 1850 to the present day (2017), p. 26.

⁴³ Howkins and Verdon, 'Adaptable'.

align more closely with the orthodox view, although the speed of decline varies greatly, with Sussex dropping from 14% in 1851 to 4% forty years later, while Somerset only decreases from 13% to 8%.

Nigel Goose structured his analysis differently, focusing on the 1851 census in a single county, Hertfordshire. He examined 136 parishes, covering the county almost completely. The traditional view holds that farm service in Hertfordshire was in rapid decline, with census data indicating that only 7.9% of workers were servants. In his initial article, he presented results for the St. Albans district, arguing that the share of servants was 15.5%—almost twice the official estimate.⁴⁴ However, later Goose found that the incidence of service was lower in most other districts, estimating the county average at 9.1%, which was closer to the official publication.⁴⁵ The chart includes his results for each of the 12 districts. Two other studies, though limited in scope, are included because they represent the earliest and the latest contributions to the subject. Published in 1984, Brian Short's analysis of Sussex was the first critique of Kussmaul's suggestion of the early decline of farm service in the Southeast. His analysis of the Weald confirmed the declining trend, but as late as 1871, 19 out of 68 labourers (13%) in the parish of Plumpton were living-in.⁴⁶ Sarah Holland's work is the most recent publication and the only quantitative study of CEBs in the North.⁴⁷ In 1851, in six villages around Doncaster, the share of servants varied from 16% to 45%, with the mean shown in the chart at 23%.

The summary line, representing a broad approximation of the trend, is nearly flat. It starts with Gritt's estimate of 20%, suggesting that by 1831 a phase of rapid decline had ended. The subsequent decrease was gradual; farm service remained important and by 1891, servants made up 15% of agricultural labour. While no estimates are available for later years, the rate of decline, approximately 1% per decade, suggests that by 1911 the servants' share could be around 13%.

⁴⁴ N. Goose, 'Farm service in southern England in the mid-nineteenth century', *Local Pop. Studies* 72 (2004), pp. 77-82.

⁴⁵ N. Goose, 'Farm service, seasonal unemployment and casual labour in mid nineteenth-century England', *AgHR* 54, 2 (2006), pp. 274-303.

⁴⁶ Short, 'Decline', p. 160.

⁴⁷ S. Holland, 'Farm service and hiring practices in mid-nineteenth-century England: the Doncaster Region in the West Riding of Yorkshire', in J. Whittle (ed), *Servants in rural Europe* (2017), pp. 183-202.

1.3. Types of farm servants and their identification in censuses.

Traditionally farm servants differed from other categories of workers by their longterm contracts, residence in the masters' households where they were boarded, and lumpsum cash payment at the end of their contracts. Two main factors complicate the task of finding these individuals in the census. First, contractual arrangements were outside the scope of the census and neither the length of a contract nor terms of payment were documented. Therefore, we need to find a way to process available information to find indirect evidence of arrangement classed as 'farm service'.

This task is complicated by the second problem: some forms of the institution deviated from the classic arrangement. Which systems of employment were farm service and which were not? The consensus informed by the reports by Arthur Wilson Fox published at the turn of the twentieth century and recently reiterated by Stephen Caunce⁴⁸ emphasizes the primacy of long-term commitment. This extends the concept of service to include some forms that did not require living-in, boarding, or end-of-year payment. The central argument advanced in this section is that the participants of each form of service can be found using three census entries: the occupation of the head of the household, the individual's relationship to the head, and his or her occupation. At the same time, each form of service requires a specific solution and in what follows I go form-by form and provide a description, reference to scholarly evidence, and the algorithm for identification. My objective is to outline the main principles; hence I reserve some important details for a more technical discussion of the model in the next section.

Most of the qualitative evidence is taken from the reports of the Royal Commission on Labour (1891-1894), which investigated labour conditions across various industries, including agriculture. One of the Assistant Commissioners was Wilson Fox, whose reports were particularly noted for their thoroughness and quality.⁴⁹ Later Wilson Fox went on to serve on several other governmental commissions; working for the Board of Trade, he produced influential reports on wages, labour relations, and working conditions in Britain, which will also be referred to. Importantly, both the reports of the Royal Commission on

⁴⁸ S. Caunce, 'Farm servants and the development of capitalism in English agriculture', *AgHR* 45, 1 (1997), p. 51.

⁴⁹ G. H. Wood, 'Arthur Wilson Fox, CB', *J. Royal Statistical Society*, 72, 1 (1909), pp. 64–66.

Labour and subsequent reports by Wilson Fox were based on the information collected in 1892. Hence the main quantitative source used in developing and testing the algorithm is the I-CEM for 1891, although some parts of the analysis also require examining the database for other years.

1.3.1. Traditional farm service.

A classic farm servant was an unrelated individual living in a farmer's family⁵⁰ and working in agriculture. Hence the logic is to find farmers, move to their households, then to unrelated members and, finally, select those working in agriculture (see diagram in Figure 1.3). Farmers were a distinct occupational category in all censuses and we start with a list of farmers' households. The next step, relationship, seems straightforward, as a 'servant' was a recognized category. However, two groups, distant relatives and 'no relationship given', require attention.

Peter Laslett argued that co-resident relatives 'not belonging to the immediate family' were servants.⁵¹ But who was the immediate family? Census Reports contain a dedicated category for farmers' children, grandchildren, siblings, nieces and nephews, who are presented separately from farm servants. However, Leonore Davidoff noted that in Western societies there were few formal duties expected of uncles and aunts and this provided a degree of flexibility in how this and other second-degree relationships were interpreted.⁵² In her study of CEBs for the Doncaster region in 1851 Holland even found children and grandchildren recorded as living-in farm servants.⁵³

⁵⁰ P. Laslett, 'The institution of service', *Local Pop. Studies*, 40 (1988), p. 58.

⁵¹ P. Laslett, 'Characteristics of the Western family considered over time', J. Family History 2, 2 (1977), p. 90

⁵² L. Davidoff, *Thicker than water: Siblings and their relations,* 1780-1920 (2012), p. 166.

⁵³ Holland, 'Farm service', p. 190.





Hence, the position of a relative was not always determined by the degree of kinship; nonetheless, processing a large volume of data requires a universal approach where most relationships would fit. The suggested solution is based on the notion of a nuclear family. To the nucleus of family heads and their children are added parents, grandparents, siblings, uncles and aunts. The relatives outside this group are potential servants. The importance of relatives is illustrated by Figure 1.4.A which shows the number of non-nuclear members of farmers' families in 1891. Siblings cannot be servants, but grandchildren, nephews, and nieces can be. Other relatives are less significant.

⁵⁴ A minority of servants in farmers' households (in 1851, ca 8,000, or 3% of all) were neither farm nor domestic. The two largest groups were nurses (1,348) and millers (662).





On the right side of Figure 1.4.A is another substantial group composed of the returns where no relationship was stated. Goose reported on the 'suspicious' census entries for farm servants who were described as 'servants' by relationship but had a blank occupational column.⁵⁵ The reason was that 'servant' was both a relationship and an occupation, and many householders struggled to understand the difference. Other confused respondents chose not to explain the relationship. At the same time, kin relationships, especially those on the maternal side, were often left unreported. Caroline Verney and Janet Few provide an example of two servants of Devonshire farmer James Hartnoll, who were, in fact, the grandchildren of his sister. ⁵⁶ Hence the distinction between 'unreported' relations

⁵⁵ Goose, 'Farm service' (2004), p. 78.

⁵⁶ C. Verney and J. Few, 'Is blood thicker than water? Farm servants and the family in nineteenth-century north Devon', *Local Pop. Studies* 91 (2013), p. 22.

and distant relatives on one side, and servants on the other is uncertain, and these groups are added to servants.

The final step is to identify individuals involved in farming. The first group includes those whose occupational titles leave little room for interpretation, such as 'farm servant', 'dairy maid', and 'ploughman'. Note that farm servants were commonly confused with day labourers and the 'agricultural labourers' resident in farming households should be classed as farm servants. To this category should be added workers in the sector presently referred to as 'transport and logistics'. Servants in this function supported their master's business, hence carters, waggoners and ostlers employed by a farmer were farm workers. In the discussion that follows, this group will be referred to as farm servants with agricultural occupational titles, or nominally agricultural farm servants.

Other servants, usually described in Victorian sources as 'domestic', present a more complex case. Adam Smith argued that while domestic servants provided personal benefits to their employers, their labour was 'unproductive' in economic terms, as it 'adds to the value of nothing' and makes no contribution to national wealth.⁵⁷ However, in farming households, the dividing line was uncertain. K. D. M. Snell observed that contemporaries used the terms 'servant', 'servant in husbandry', and 'house servant' and their variations interchangeably.⁵⁸ Edward Higgs noted the difficulty in separating occupations on a farm, especially a small one.⁵⁹ In 1913, Mary was the only servant on a 90-acre farm in Welcombe, Devon. She had two sets of work clothes. In the mornings, she wore a 'trouser' apron, made from a flour sack cut open and sewn into an apron. Her outdoor work included milking the cows, hand-feeding the calves, and tending to the pigs and poultry. Afterwards, she removed the trouser and put on a clean apron. She set the table for dinner and moved on to other indoor chores such as cleaning, washing dishes and the milk separator, and sewing.⁶⁰

Another useful source is the register of servants maintained at the Wootton Bassett, Wiltshire hiring fair from 1837 to 1860. Besides the names of the individuals this document

⁵⁷ A. Smith, *An inquiry into the nature and causes of the wealth of nations* (2 vols, 1796), vol. 1, p. 329. ⁵⁸ Snell, *Annals*, p. 283.

⁵⁹ Higgs, 'Occupational censuses', p. 708.

⁶⁰ Bouquet, *Family*, pp. 77-78. Washing the separator shows that even her indoor chores overlapped between farm work and household tasks. Further examples of female servants combining diverse tasks on a farm can be found in Verdon, *Working*, pp. 42-43.

provides additional details: gender, occupation, wage, and terms of payment. ⁶¹ In October of 1860 two young women, Sarah Godwin and Rachael Legg, were hired to work as dairy maids. This information must be accurate as both masters and servants were motivated to record the important details of their agreement correctly. Six months later, in the census of 1861, both were returned as living-in servants, Sarah as a house servant and Rachael as a general servant.⁶²

In 1891, over 90% of 'domestic' servants in farming households were female, and this large group included 77,500 individuals. Figure 1.4.B shows that most were returned as 'general' and 'domestic' servants. The Census Office must have been aware of the potential confusion and in 1871 issued the following instruction:

the female servants of a farmer's family should generally be referred to 'farm servant (indoor)'; but if the duties of the servant are described as simply those of a household servant, such as 'Cook', 'Housemaid', 'General Servant', she should be referred to the suborder for domestic servants,⁶³

This suggests that the female servants working in agriculture should have been recorded under a universal occupational title of a 'farm servant'. However, this instruction was not implemented, as the records for 1891 show only 1,424 'farm servants' among 4,955 female servants with clearly agricultural job titles. Nevertheless, the Census Office made no attempts to achieve greater clarity, which Higgs attributes to their tendency to view a farming household as a single economic unit.⁶⁴

Most 'domestics', I suggest, should be recognized as 'productive' and referred to as farm servants with non-agricultural occupational titles, or nominally non-agricultural farm servants. At the same time, Higgs's reference to farm size is significant. Not all farms were small, and there was a notable social gap between a 'farmer 30 acres 4 men', on one side, and a 'landed proprietor of 308 acres employing 19 labourers' or 'gentle farmer master of

⁶² Unless stated otherwise hereinafter the names of servants and masters are taken from the de-anonymized version of I-CEM: Schurer, K., Higgs, E. (2024). Integrated Census Microdata (I-CEM) Names and Addresses, 1851-1911: Special Licence Access. [data collection]. 2nd Edition. UK Data Service. SN: 7856, DOI: http://doi.org/10.5255/UKDA-SN-7856-2

⁶³ Cited in Higgs, 'Occupational censuses', p. 708.

⁶¹ R. Church (ed), Wootton Bassett Wiltshire hiring fair records, Wilts. Family Hist. Soc. (3 vols, 1998).

⁶⁴E. Higgs, 'Women, Occupations and work in the nineteenth-century censuses', *History Workshop Journal* 23, 1 (1987), p. 69.

arts', on the other. As the households of large farmers clearly included some purely domestic servants the individuals who made the least contribution to farming should be filtered out. They are termed 'specialist servants' and include housekeepers, governesses, cooks, and nurses, who were usually female, and male butlers, valets, and footmen. Note that there is room for debate, as Jane Whittle argued that women's contribution in the form of housework or care work should also be considered productive.⁶⁵ In this case, all domestic servants become farm servants.

To summarize, the algorithm presented in Figure 1.3 finds classic living-in farm servants and categorizes them as either 'nominally agricultural' or 'nominally nonagricultural'. Other forms of service fundamentally differed from the classic model in that the participants did not live in farmers' families. Further in this section, they will be presented in the order of increasing distance between the servants' places of residence and the farm building. Physical distance can be seen as a proxy for how conceptually different the system is from the classic one.

1.3.2. Bailiff system.

The first alternative arrangement to be considered is servants living-in with a married bailiff or foreman. Like in the classic arrangement, farm servants were provided with board and lodgings, but the provision was delegated to a senior employee. The system was used where farms were large and a wide social gap between wealthy farmers and their servants effectively prohibited co-residence.⁶⁶

An authoritative analysis was published by Caunce, who collected testimonies of former farm servants in the 1970s.⁶⁷ At the turn of the twentieth century, they had been young unmarried men in charge of farm horses, known in the East Riding of Yorkshire as 'horselads'. Horselads worked the horses in the fields and took care of them in the stables; in

⁶⁵ J. Whittle, 'A critique of approaches to 'domestic work': Women, work and the pre-industrial economy', *Past* & *Present* 243, 1 (2019), p. 66.

⁶⁶ A. Howkins, 'The English farm labourer in the nineteenth century: farm, family and community', in B. Short (ed.), *The English rural community. Image and analysis* (1992), p. 90.

⁶⁷ Caunce, Horselads.
other parts of the country, these tasks were divided between ploughmen, who only did the fieldwork, and specialist horse keepers, who were responsible for the animals' care. The Yorkshire solution saved labour but the challenge was that the inexperienced youth were given a high-responsibility job virtually from the first day. The response was a highly efficient hierarchical system of management which Caunce compared to 'proto-Taylorism,' where the team of teenagers was controlled and supported by an experienced foreman who stepped in when help was needed.⁶⁸ Co-residence in a foreman's house was an essential part of supervision.

Reporting on this system in 1900 Wilson Fox commented that servants were 'boarded and lodged'.⁶⁹ Both terms are valid entries for the census returns and represent different relationships in a household. Boarders took meals with the family, whereas lodgers rented a room but generally lived more independently.⁷⁰ Hence servants should have been returned as boarders; at the same time, Kevin Shurer et al suggested that, whilst the Census Office aimed at clarity of definitions, in practice a clear-cut division was not possible. A counter-argument is that we are dealing with a specific category of householders, who were paid for boarding their charges and were more likely to see the difference than others. To find a solution, I checked how the horselads named and interviewed by Caunce were recorded. A search of 1911 and 1921 censuses for the 18 individuals⁷¹ yielded eight matches for farm servants in bailiffs' households. Six were returned as boarders, two as servants, and none as lodgers. In addition, a useful feature of the 1921 census⁷² is that its format includes the name of the individual's employer. This allows checking that a boarder in a bailiff's household worked at the same farm as the bailiff, i.e. was a farm servant. An alternative would be that he paid the householder for food and room but worked elsewhere, making him a day labourer. Significantly, all boarders passed this test.

This indicates that, in terms of their position in the bailiff's household, most farm servants should have been listed as boarders. But where did those described as being

⁶⁸ Caunce, 'Farm servants', p. 55.

⁶⁹ British Parliamentary Papers (hereinafter B.P.P.), 1900, Cd.346, LXXXII.557, Report by Mr. Wilson Fox on the wages and earnings of agricultural labourers in the United Kingdom, p. 14.

⁷⁰ K. Schürer, E. M. Garrett, H. Jaadla, and A. Reid, 'Household and family structure in England and Wales (1851–1911): Continuities and change', *Continuity and Change* 33, 3 (2018), p. 367.

⁷¹ The list is in Caunce, *Horselads*, pp. ix-xi.

⁷² Noi included in I-CEM but available at <u>https://www.findmypast.co.uk/1921-census</u> {accessed 1 July 2024].

servants to the bailiff come from? This looks like an error, but another explanation is possible, requiring a closer look at bailiffs. Some were in charge of home farms of large estates. Described as 'men of a superior station to the labourers'⁷³ they were unlikely to have hosted horselads, but may have had living-in domestic servants who were entirely engaged in household duties. The bailiffs on the farms of tenant farmers came from the ranks of ordinary labourers and could have been involved in the system presented by Caunce. However, when a resident farmer was absent, the bailiff's responsibilities went beyond managing horselads and included full responsibility for running the farm.

How did they report living-in horselads? The 1891 census return of Thomas Botham from Garton on the Wolds in the East Riding of Yorkshire provides an example of remarkably precise reporting. Thomas was a married head of the family and described himself as a 'farm servant foreman'. The five horselads living in his household were presented as 'fellow servants', which was exactly who they were under the bailiff system. However, 'fellow servant' was not a recognized relationship category for the Census Office. When processing Thomas's return in London, the clerks likely noted an error. In other cases, the enumerators must have advised a bailiff to choose between 'boarder' and 'servant' with many opting for the latter.

To study the bailiffs' reporting of horselads in more detail I selected the bailiffs' households from the I-CEM from 1851 to 1911 and counted boarders and servants whose occupations were in agriculture or transport (Figure 1.5).

⁷³ *B.P.P.*, 1893-1894, C.6894-XXV, Royal Commission on Labour. The agricultural labourer. Vol. V. Part I. General report by Mr. William C. Little, p. 35.

Figure 1.5. Boarders and servants in bailiffs' households working in agriculture and transport, 1851-1911.



In 1851 there were virtually no boarders, but by 1901 the number of boarders had caught up with the number of servants, suggesting either a rise in the popularity of the 'horselad' approach or improvements in reporting practices. A solution is to add servants to boarders but limit the selection to those working in agriculture and transport (Figure 1.6). Since there is little conceptual difference between bailiffs' boarders and servants, and their headcounts are relatively small, both groups have been combined into a single category labelled 'horselads'. Note that the bailiff system was not restricted to those working with horses. The system, however, is best-known thanks to Caunce's analysis of that particular group, and I retained the term as a category name for all servants involved in the bailiff system.





The hypothesis that the horselads can be found this way can be verified. To do this I compare the geographic distribution of horselads with the findings of the Royal Commission on Labour. According to the General Report, the bailiff system was most notable in Lincolnshire, Nottinghamshire, and the East Riding of Yorkshire.⁷⁴ I searched within I-CEM for bailiffs' households, focusing on the census of 1891 and grouping them by county. Having identified horselads as above, I produced two variables: the share of bailiffs who housed horselads, which is a proxy for the relative incidence of this form of hiring, and the total number of horselads in a county, illustrating the importance of the bailiff system in absolute terms. In Figure 1.7 the counties where this system was reported by the Royal Commission are represented with large dots. There is a good match, as the position in the top right corner shows that the three counties rank high on both variables.

⁷⁴ Little, *Report of 1893-1894*, p. 36.







Family hiring also developed in the North as an efficient way of importing labour. The participants were given farm cottages free of charge as part of their remuneration, but had no significant land of their own and worked fully for the farmer who provided them with housing. This system is placed further from the traditional approach as the participants did not live in a farm building and their households were headed by the senior male known as the 'hind' or, less commonly, a female referred to as a 'cottar'. Besides their own labour, the head agreed to provide the contribution of their children and typically only the wife and youngsters under ten did not work in the field.⁷⁵ Female labour was particularly appreciated,

⁷⁵ *B.P.P.*, 1893-1894, C.6894-III, XXXV.317, Royal Commission on Labour. The agricultural labourer. Vol. I. England. Part III. Reports by Mr. Arthur Wilson Fox, p. 105.

as evidenced by the 1893 statement that 'a man with two women [could] get 17s a week, and a better man with no women only 16s, and he may find it difficult to get engaged at all'.⁷⁶ This motivated the men who had no daughters to enter an arrangement with unrelated women known as the 'bondage system'.

The hind boarded and lodged a 'bondager' in his house and paid her the money he received from the farmer for her work. A typical census return was in 1851 submitted by Robert Atkinson, an agricultural labourer who lived in a cottage in Scremerston Town Farm, Berwick, Northumberland. We can be fairly certain that he worked on the same farm. At 33 years of age, Robert was unmarried, and his household included Ellen Douglass, a 20-year-old bondager. Later, the bondage system faced increasing moral criticism and was nearly extinct by the end of the nineteenth century. Note that in the census the designation 'bondager' was not exclusively used for unrelated individuals; for example, in the same year Robert's neighbour John Cairns from Inland Pasture Farm lived with his wife and six children and used the term to describe the occupation of his eldest daughter Robene, 16.

Under family hiring all agricultural workers were farm servants. Those living-in with a farmer or bailiff represented the two systems already discussed; to find servants within this third category we need to look at workers' households. Mature servants, who will be referred to as 'hinds,' were heads of families, while younger workers, referred to as 'bondagers,' were their dependents (Figure 1.8). This form of service dramatically changes the balance between farm servants and day labourers and, as a result, the borders of the area where it was used should be drawn as precisely as possible. The system was common in lowland Scotland⁷⁷; in England, it was reported in Northumberland. More specifically, James Caird observed in the northern part of the county a tract of 'excellent turnip land, held in large farms by intelligent cultivators. In contrast, the southern division had poor soils, the land was chiefly undrained and 'as badly farmed as any district' of England.⁷⁸ Caird's reference to turnips is significant, as this plant requires hoeing, weeding, thinning, and similar operations that are labour-intensive, but do not demand physical strength. The

⁷⁶ Evidence of Henry Bryson of Middleton quoted *ibid*, p. 102.

⁷⁷ R. Anthony, Herds and hinds. Farm labour in lowland Scotland, 1900–1939 (1997).

⁷⁸ J. Caird, *English agriculture in 1850–51*, second ed. (1968), pp. 369-371.

'intelligent cultivators' of turnips realised the benefits of hiring women who were paid less than men and used family hiring.

Figure 1.8. Identification of hinds and bondagers.



Two commissioners, Joseph Henley in 1868 and Arthur Wilson Fox in 1893 and 1905 reported this system in the district of Glendale. They also collected data on neighbouring areas, and at this point, their findings diverge. Henley was more conservative and suggested the incidence of family hiring was limited to Glendale, Berwick-on-Tweed, Belford, and Alnwick.⁷⁹ However, in 1905 Wilson Fox reported that the same approach was used in Northumberland and Durham, without providing finer subdivisions, which could imply wider geographic coverage or expansion after 1868.⁸⁰ This dilemma can be resolved using the census database. Whilst the existence, or otherwise, of family hiring cannot be observed directly from the census returns, the system had unique and observable consequences,

⁷⁹ B.P.P., 1867-1868, 4068 4068-I, XVII.1, 237, Commission on the employment of children, young persons, and women in agriculture (1867). First report of the commissioners, p. 56.

⁸⁰ B.P.P., 1905, Cd. 2376, XCVII.335, Earnings of agricultural labourers. Second report by Mr. Wilson Fox on the wages, earnings, and conditions of employment of agricultural labourers, p. 14.

related to women's work. In most of England, the practice of employing women in agriculture had almost entirely ceased by the end of the nineteenth century, with wives and daughters of small farmers providing the only exception.⁸¹ In contrast, Northumbrian women continued working in the fields. The female workers hired under the family system were unmarried daughters or bondagers. In the southern districts of Northumberland women 'went out to work' too, but these were married, and therefore older, individuals.⁸²

The districts in which family hiring occurred can be identified using two dimensions used in Figure 1.9. First, the female contribution to agricultural labour should be high. Second, the women workers should be young. To produce this chart, I selected the female agricultural workers from the I-CEM for 1891, excluding the members of farmers' households to remove the relatives of small farmers and classic farm servants. The four districts mentioned by Henley occupy a distinct and somewhat isolated position in the top left corner of the chart, corresponding to a high proportion and young age of female workers. This strongly suggests that in 1891 the system was limited to that area of Northumberland.

⁸¹ *Ibid*, p. 12.

⁸² First Report of the commissioners on the Employment of Children, 1867-1868, p. 56.

Figure 1.9. Demographics of female labour in agriculture, 1891.



However, it cannot be excluded that the incidence of family hiring changed over time. To check this possibility, the female share of agricultural labour was calculated for all districts of Northumberland and Durham from 1851 to 1911. To fit the results on one chart the data in Figure 1.10 is limited to the average for the four districts mentioned by Henley and five districts outside that had the highest average female share over the period.

Virtually all points are well below the line for the 'Henley area'. The exceptions are Darlington, Durham in 1851 and Hexham, Northumberland, in 1861. However, in later years, these districts were not even among the leaders. A possible explanation is that at the beginning of the period female participation in farming was more common and could be provided outside the family system. Hence it is safe to conclude that family hiring was limited to Alnwick, Belford, Berwick and Glendale in Northumberland.



Figure 1.10. Female share in agricultural labour, 1851-1911.

The final step is to see how the occupations of participants were returned in censuses. In his report of 1893 Wilson Fox included the names of individuals, parishes of their residence and work titles.⁸³ The latter were provided by the farmers and can be seen as an objective reflection of their economic roles. Not unexpectedly, some people have only arrived recently but 39 individuals remained in their jobs from at least 1891 and could be found in the CEBs (Table 1.1).

⁸³ Wilson Fox, Report of 1893-1894, pp. 118-134.

Table 1.1. Occupational titles in Wilson Fox Report and census returns, Glendale,1891-1893.84

	Census					
Wilson Fox	Agricultural or Farm Servant	Agricultural Labourer	Out(door) worker	Total		
Males						
Hind	5	11	0	16		
Ploughman steward	3	2	0	5		
Byreman	1	2	0	3		
Spademan	1	2	0	3		
Odd boy	poy 1		0	2		
Females						
Woman worker	Woman worker 0		9	10		
All occupations	11	19	9	39		

Male workers in diverse 'real life' occupations in the census identified themselves as farm servants or preferred the title of agricultural labourer. In contrast, farmers referred to all females as 'women workers', which suggests a common scope of responsibilities. With one exception all were recorded as 'out workers' or 'outdoor workers'. In the diagram in Figure 1.8 this occupation is added to the list of accepted work titles for farm servants.

⁸⁴ Census occupations are taken from https://search.findmypast.co.uk/search-world-records/1851-england-wales-and-scotland-census [accessed 1 July 2023].

1.3.4. Non-residential farm service.

In areas of nucleated settlement, farms were close to villages and the availability of labour obviated the need to house workers on a farm. Brian Short noted that as early as the 1770s some farm servants in East Sussex did not live with the families of their masters and were instead 'boarded out' and paid higher wages.⁸⁵ What do we know about them? According to the General Report of 1893, they were employed in exclusively male occupations of horsemen and cattlemen, and 'frequently have passed the period of early manhood', which makes them older than the classic farm servants.⁸⁶ Most were married and were provided with cottages; the unmarried 'lads' lodged with their older co-workers, as Hardy's Gabriel Oak did when he started working for Bathsheba Everdene.⁸⁷

Farm servant lodgers working for the same employer as their host did not report to them, which distinguishes them from horselads who were subordinated to the bailiff. Census records from 1921 include a place of work and show that the Maskew family in Easingwold, North Riding of Yorkshire, included two farm servants. John William Maskew, the 58-year-old head of the family, worked for farmer William Edwards as a 'huckster and farm servant tailor and labourer'. His lodger, Norman Corby, 18, worked for the same farmer, but under a less colourful title of 'farm servant horseman'. Non-resident servants are also recorded in the Wootton Bassett register of hired servants.⁸⁸ There non-residents accounted for 12% of all hirelings; they were exclusively male and received 2.3 times as much as living-in servants. Almost all worked with animals as dairymen, carters, or grooms.

Literature suggests that another group of non-resident servants included younger workers presented in the census as 'farm boys'. Alfred Hassell Smith identified in farm accounts from the late sixteenth-century Norfolk a group of 'harrowing boys' who were paid about half of the men's wages and suggested that they were non-resident apprentices undergoing training to become living-in farm servants.⁸⁹ These individuals were too young and inexperienced to justify the expense of lodging and boarding on the farms. Consistently

⁸⁵ Short, 'Decline', p. 162.

⁸⁶ Little, Report of 1893-1894, p. 37.

⁸⁷ T. Hardy, *Far from the madding crowd*.

⁸⁸ Wootton Bassett records.

⁸⁹ A. H. Smith, 'Labourers in late sixteenth-century England: a case study from north Norfolk [Part I]', *Continuity* and change 4, 1 (1989), p. 16.

with this view, Howkins described them as 'an inferior category for the very young male - the 'copper-hole Jacks' or 'backus boys'' who combined diverse low-skilled jobs.⁹⁰

Howkins also pointed out a critical distinction between villagers and other servants: the absence of a 'break point in their early twenties,' when leaving service dramatically changed the work, living conditions, and status. Unfortunately, the lack of movement between households complicates the identification of this group in the census. In or out of their employment in farm service, they were heads, family members, or lodgers; in other words, they were not considered servants by their relationship. There was no specific area where this system was exclusively used, and the only chance to find non-residents is to look for specific words in the description of their occupation. The algorithm presented in Figure 1.11 uses the two most common cases. The workers returned as 'farm servants' are labelled 'animal attendants' according to their most common line of work. For those recorded as 'farm boys' I kept the original title; to this category are added the 'farm servants' from the first group who lived with their parents. At the same time, the non-resident servants could also feature in censuses as agricultural labourers or more specifically as carters, waggoners, or ploughboys, making them indistinguishable from those hired by day or week. To this extent, this group will remain underrepresented.

⁹⁰ Howkins, 'Farm labourer', p. 96.





The output of this algorithm can be compared to the commissioners' presentation of the system published in 1893. It was reported as most common in Dorset where not only carters and stockmen but also non-specialized workers were hired for a year and lodged away from the farm.⁹² In Figure 1.12 the share of animal attendants is produced from the I-CEM for 1891. The data is grouped by county, and the horizontal axis shows the mean age of these individuals.

⁹¹ 'OUT' in the diagram indicates that these individuals are not non-resident farm servants. However, they may be part of another system of hiring; for example, members of farmers' households might be classic farm servants.

⁹² Little, Report of 1893-1894, p. 45.

Figure 1.12. Share and mean age of animal attendants, 1891.



The position of Dorset in the top right corner meets the expectation of the relative importance of this group; their mature age confirms that the algorithm identified the same category of workers which the commissioners had in mind. Somewhat unexpectedly one county, Hampshire, is even above Dorset. To explain this observation, note that William Bear, responsible for Hampshire, structured his submission differently from other commissioners. Rather than presenting the hiring systems as his colleagues did, Bear focused on the regularity of employment by specialization. This may have made it difficult for William Little, the author of the General Report, to include Hampshire in his review. Nonetheless, Bear found that carters and stockmen were 'almost invariably hired by the year' and provided with cottages but not boarded by their employers.⁹³ These fits Little's description of the system quoted above.

1.3.5. Excluded workers and systems.

The hiring systems presented above represent a variety of forms of farm service and collectively account for the majority of workers potentially identifiable as servants. At the same time, two groups of candidates are excluded. The first one is shepherds. Working independently and taking orders directly from the master, shepherds occupied a distinct and important position in the farm hierarchy,⁹⁴ as a flock of sheep in their charge often was of considerable value. Shepherds were hired for a year and provided with a cottage and garden rent-free. The length of engagement suggests that they could be classed as farm servants; however, in all other aspects — most notably, the absence of day-to-day supervision—their work was quite different. Census Reports classify shepherds as a distinct occupation, separate from both agricultural labourers and farm servants. In an influential book, Armstrong provided a summary of headcounts for 'agricultural labourers and shepherds' on one side, and farm servants on the other⁹⁵; more recently, Nicola Verdon distinguished between farm servants, agricultural labourers and shepherds.⁹⁶ The same approach is applied in this study.

The second excluded system involved housing and boarding farm servants in a separate accommodation adjacent to the main farm building.⁹⁷ This arrangement was very similar to the Scottish approach which involved lodging young unmarried workers in sparsely furnished sheds known as 'bothies', which was much criticized for its tendency to 'brutalize and demoralize' and promote restlessness and discontent.⁹⁸ In England the 'bothy system' was uncommon; nonetheless, Howkins and Verdon found evidence of its use. They processed the CEBs manually and segregated the returns by household within a farm. In a

⁹³ B.P.P., 1893-1894, C.6894-I, XXXV.1, Royal Commission on Labour. The agricultural labourer. Vol I. England. Part I. Reports by Mr. William E. Bear, p. 77.

⁹⁴ Little, Report of 1893-1894, p. 36.

⁹⁵ Armstrong, *Farmworkers*, p. 94.

⁹⁶ Verdon, Working, p. 58.

⁹⁷ Howkins and Verdon, 'Adaptable', p. 481.

⁹⁸ J. P. D. Dunbabin, *Rural discontent in nineteenth-century Britain* (1974), p. 134.

big-data analysis, this is problematic due to the lack of a universal system for consolidating returns from different farm buildings. Hence the bothy system is not used as an analytical category. However, its participants are included in the model but are assigned to different hiring systems. If all records of a farm were in the census combined to form a large household headed by a farmer the individuals employed in this way are added to classic servants. Alternatively, those listed as being in different dwellings would be interpreted as members of separate households. In this case, the inhabitants would be classed as nonresident servants or labourers depending on how they described their occupations.

1.4. The integrated model.

The previous section showed how farm servants of different types can be identified in census records. The next step is to combine these algorithms into an integrated model, which is schematically presented in Figure 1.13. The process of filtering out farm servants from the entire population is not unlike crude oil refining. Starting with the classic servants we extract the 'lighter fractions' and continue processing the residuals until the next component appears. Nonetheless, the algorithm is not a simple mechanical summary of the components presented earlier, and important issues need to be highlighted. Some of these are conceptual and require adding more components, and others reflect the specifics of working with the I-CEM.

1.4.1. The combined algorithm.

The first conceptual issue is straightforward: we filter out the unemployed and consider only the group labelled 'active population'. Out are retired workers and the inmates of institutions such as workhouses and prisons. Note that this must cause a misalignment with early Census Reports as until 1881 the Census Office included retirees into occupational counts. The second issue is more complicated and requires adding to the analysis of farmers a similar algorithm that focuses on other masters who are not recorded as farmers.





In the nineteenth century people still followed the earlier pattern of multiple occupations, but the Census clerks included in their reports only the main one.⁹⁹ It is very likely that the enumerators instructed the householders accordingly and many of them did not mention farming unless it was their primary business. Otherwise, it is hard to explain why in 1851 John Hill, blacksmith master from Marwood, Devon, employed William Weslake as a living-in farm servant.

However, the analysis for non-farmer masters is limited to those among their servants who are identified as working in agriculture, as those among their relatives and servants involved in transport could have been engaged in serving their main business. These parts of the algorithm, as well as the processing of bailiffs' households to identify horselads, are the same for all regions. The specifics of the family hiring system only become relevant in the final step, which is the analysis of workers' families. Outside the selected districts of North Northumberland, we only identify farm servants living outside the masters' households through a string search for the specific terms mentioned earlier; in the family hiring system, by contrast, all farmworkers within these families are classified as servants. Hinds are the heads of families, and bondagers are their dependents.

⁹⁹ L. Shaw-Taylor, 'Family farms and capitalist farms in mid-nineteenth-century England', *AgHR* 53, 2 (2005), p. 165.

Moving on to I-CEM, at its core is a transcription of paper documents. Each census entry—name, age, occupation, etc.—became a corresponding variable. In their original form, most entries were textual and were converted into character strings. Additionally, to simplify data processing, these entries were converted into numerical codes while preserving the initial entries. The essential component of this process was standardization, reducing the multitude of people's occupations to a finite list of codes corresponding to the Occupational Matrix. Standard codes not only increase the speed of processing but also address the significant variance in how the same information was presented in the original entries.¹⁰⁰

Despite its benefits, standardization also causes problems. First, while the Occupational Matrix has 797 codes, it lacks sufficient detail for agricultural labour. Most importantly, farm servants and day labourers were allocated to the same occupational code. Second, coding involved manual processing, which was challenging as some descriptions were lengthy and even contained references to different jobs. For example, in the censuses from 1851 to 1881 farmers were asked to report the acreage of their farms and the number of people they employed, and a typical entry reads as 'a farmer 36 acres employing 10 labourers & 2 servants in house'. One sentence combines farmers, labourers and servants; mistakes were unavoidable, and to correctly identify farm servants, two issues standardization and the correctness of coding—need to be addressed.

To deal with excessive standardization and differentiate agricultural occupations, the algorithm employs string processing of textual entries. Earlier we have seen that this approach is used for identifying non-resident servants in workers' households, but it extends beyond this example. When looking for people in servant positions in a family, I complement filtering by relationship code with searching for the words 'servant' and 'maid' and their abbreviated forms in the original description. The program then uses occupational codes to identify individuals working in agriculture and transport among the servants. Simultaneously, it searches for specific terms like 'farm servant', 'agricultural labourer', 'dairy maid', and 'farm boy'. In farmers' households, individuals listed simply as 'servants' are also included. Another important aspect is the exclusion of domestic servants with specialist

¹⁰⁰ E. Higgs, C. Jones, K.Schürer3, and A. Wilkinson, *The integrated census microdata (I-CEM) collection: a user's guide*, p. 151.

titles. Since most domestic occupations fall under the same code, a string search for job titles like 'cook', 'governess', and other excluded occupations is used to filter them out. In total, the flow of servants is composed of 22 sub-flows based on filtering by occupation, with 16 derived from string searches and only six from the I-CEM codes. The regular expressions used to identify farm servants are listed in Appendix 1.3.

Most farm servants lived in farmers' households, and since many farmers had more than one servant, accurate coding of farmers carries a premium compared to other occupations. A detailed study of I-CEM for 1851 revealed some miscoded records; for instance, 'a cordwainer employing 3 men' and a 'brickmaker employing 4 labs' were clearly not farmers. In I-CEM the household occupation was coded according to the first person listed in the household; however, this list sometimes did not start with the head. As a result, farming households were coded as involved in service when the first person was a servant or in education if the first person was a scholar. Households headed by retired farmers were considered farming. Socially, retirees remained farmers, but they were out of business, and their servants performed purely domestic functions. Importantly, there is an alternative to I-CEM coding: the British Business Census of Entrepreneurs (BBCE), which also contains farmers and covers the same censuses.¹⁰¹ BBCE lists are shorter and in 1851 include only 167,539 farmers compared to 224,405 farmers in I-CEM. However, while BBCE misses some farmers, it also includes fewer false positives. To combine the strengths of both approaches, I developed an integrated solution, presented in Appendix 1.4. To improve the coding of household occupations, only the families where the head or a close relative is an active farmer are recognized as farming households. The model for farm servants uses the new codes.

Another important occupational group is farm bailiffs. The bailiff's role in the model depends on the presence of their master. In a farmer's household, a bailiff is a senior servant and is classified as a farm servant with agricultural occupational title while his presence has no effect on the status of other workers. In contrast, if there is no farmer and a bailiff heads a household, the classification of its members, among whom may be many farm servants, depends on their relationship to this individual (see Section 1.3). Managing a group of

¹⁰¹ R. Bennett, H. Smith, C. van Lieshout, P. Montebruno, and G. Newton (2020). British Business Census of Entrepreneurs, 1851-1911. [data collection]. UK Data Service. SN: 8600, DOI: 10.5255/UKDA-SN-8600-2.

workers, these bailiffs are as crucial to the model as farmers. Although the number of bailiffs is much lower—only 11,446 in I-CEM for 1851—the headcount does not fully reflect their contribution to adapting farm service to the evolving needs of contemporary agriculture. In I-CEM, bailiffs are often confused with farmers, and better identification of farmers combined with an additional set of string searches improves the coding of bailiffs.

Finally, a few words about day labourers. This form of labour provision was an alternative to service, and labourers are not the primary focus of this work. However, many studies measure the relative importance of farm service by the ratio of servants to labourers and its variants. Additionally, the combined total of both groups is significant as it represents the entire pool of hired agricultural labour. As mentioned earlier, farm servants and agricultural labourers share the same occupational code in I-CEM. To isolate labourers, the model uses the algorithm described in Appendix 1.5.

1.4.2. Settings and sensitivity.

The filters in the model compare selected attributes of a record with pre-set 'base' values. If the attribute value falls within the specified range, the record is retained; otherwise, it is rejected. In setting these base values, I followed the recommendations of historians as outlined in Section 1.3. However, in some areas, there is no clearly articulated consensus, leaving room for debate. Below, I present the model's reactions to possible changes in these settings. For each deviation from the base settings, I explain the reasoning behind the original selection of parameters, review alternative approaches, and quantify the resulting change in the number of servants.

The study of sensitivity requires a closer examination of the internal workings of the model, as presented in Table 1.2. Most groups corresponding to different types of servants are composed of sub-groups, distinguished by their relationship to the head, occupation, or a string expression used to identify them. The first step is to assess whether there is a plausible basis for the complete exclusion or substantial reduction of any groups. The second step is to examine the largest sub-groups for potential removals or additions. The groups vary in size, and there is no reason for removing or radically reducing the largest—namely,

46

the nominally agricultural farm servants. Individuals recorded as servants in masters' households and working in agriculture match the definition of farm servants precisely.

Records	1851		1	1891	
	Number	%	Number	%	
FARMERS' HOUSEHOLDS					
Nominally agricultural					
Servants by relationship	146,138	48	69,917	38	
Distant relatives	6,810	2	4,316	2	
No relationship	4,762	2	1,621	1	
Other relationship	1,833	1	3,291	2	
Nominally non-agricultural					
Servants by relationship	97,248	32	62,560	34	
Distant relatives	4,430	1	2,865	2	
OTHER MASTERS					
Nominally agricultural	15,495	5	7,500	4	
BAILIFFS' HOUSEHOLDS					
Horselads					
Servants by relationship	3,354	1	3,053	2	
Boarders	7	0	1,512	1	
Other relationship	240	0	1,284	1	
FAMILY HIRING					
Hinds	3,370	1	1,431	1	
Bondagers	4,277	1	3,361	2	
NON-RESIDENT SERVANTS					
Animal attendants	4,263	1	11,241	6	
Farm boys					
Returned as 'Farm servant'	5,502	2	7,480	4	
Returned as 'Farm boy'	3,633	1	1,811	1	
TOTAL	301,362	100	183,243	100	

Table 1.2. Sub-groups of farm servants, 1851 and 1891.

The second largest group consists of farm servants with non-agricultural occupational titles. As explained in Section 1.3.1, the consensus is that these individuals contributed to

farming activities. However, the proportion of their time spent on agricultural work varied. Some, like the two dairy maids hired at the Wotton Bassett hiring fair, were fully engaged in agricultural labour but received non-agricultural titles because the distinction was not important for those completing the census returns. Others, such as Mary from Welcombe, devoted part of their time to household duties. Hence the sensitivity lies not in the headcount, but in the allocation of time to farming. The base case assumes 100% agricultural work, while a more conservative scenario limits their contribution to 50%. This reduces the number of farm servants by 50,839 or 16.9% in 1851 and by 32,713 or by 17.9% in 1891.

Moving on to sub-groups, note that three of them could potentially be treated differently. These are nominally agricultural farm servants working in transport and people with 'other relationships' in farmers' households and 'farm boys' living elsewhere. The 1851 list of farm servants includes 9,010 people employed in transport, with the most common occupation being waggoner, held by 3,382 individuals. Waggoners worked in farming and, in the East Riding, were senior farm servants in charge of a team of horselads. However, the transport group also includes 2,091 grooms, 947 carters, and 917 errand boys, who could potentially work as purely domestic servants. If the transport workers are excluded the number of farm servants goes down by 3.0% in 1851 and by 1.7% in 1891.

With respect to people with 'other' relationships with the head of the household note that most of them were farmers' children. The model treats them more carefully than other categories of relationship and only selects them as servants if they were recorded with occupational titles of 'farm servant' or 'farm boy,' which implied participation in service. The dilemma here is that on one hand, it is hard to argue with contemporaries, as the heads of families—who were their fathers—recognized them as farm servants. As noted in Section 1.3, this is the position taken by Holland. On the other hand, Laslett argued that close kin were not servants. Hence, the exclusion of this category forms the next sensitivity scenario and leads to a loss of 1-2% of the total number of farm servants.

Farm boys, in turn, included two sub-groups. Both were identified by a string search, but one was recorded as 'farm servants' and the other as 'farm boys.' The first sub-group is undisputed, but a question may arise about the extent to which a position described as 'farm boy' guarantees servant status. The base case, following Howkins, includes them as

48

farm servants, while the alternative scenario results in a 1% reduction in the total number of farm servants. The four conservative cases just discussed are visualised in Figure 1.14; their combined effect is the loss of 65,335 records (21.7%) in 1851 and 40,939 records (22.3%) in 1891.



Figure 1.14. Sensitivity diagrams, 1851 and 1891.

At the same time, some restrictions of the base case could be lifted, giving rise to more generous estimates. One peculiar group among farm servants with agricultural occupational titles is general labourers. Higgs argues that the Census Office used this term as a catch-all category for workers whose occupations were not explained clearly enough to place them in a more specific position.¹⁰² Hence, the base case assumes that in a farming environment, a 'labourer' worked in agriculture. At the same time, those presented as 'general labourers' are excluded. A detailed study of Northumberland showed that some people described themselves this way persistently from census to census, suggesting that

¹⁰² Higgs, 'Occupational censuses', p. 707.

they used the term 'general' to indicate that they combined jobs in different industries. In the first generous case, all general labourers living in farmers' households are included. This leads to an increase in the number of farm servants by 622 (0.2%) in 1851 and 1,299 (0.7%) in 1891. The second scenario builds upon Whittle's observation that in farmers' households, everyone made a contribution to agriculture. Consequently, all individuals in domestic service could be included. The addition of 'specialist domestics' boosts the number of farm servants by 8,836 in 1851 and 7,686 in 1891.

If we took both cases together, the generous scenario adds 9,458 records (3.1%) in 1851 and 8,985 or 4.9% records in 1891. Setting this estimate alongside the results for the conservative scenarios we can conclude that variations in the definition of farm service affect the model by between -22% and +5%.

1.4.3. Comparison with the Howkins and Verdon study.

Modelling automates data processing while allowing the imposition of present-day understandings of family structure and division of labour in the household economy on the selection of farm servants. Significantly, this is not the first study of CEBs. How well do my results match earlier findings? Previous studies processed CEBs manually, which limited their geographic coverage. The researchers identified individuals in servant positions living with farmers' families as farm servants, but they did not disclose their treatment of borderline groups such as relatives and servants with domestic titles. In some important details, their choices could differ from those suggested in this work, and yet the guiding principles were the same. Therefore, within the selected areas, the results should align.

The 2008 study by Howkins and Verdon stands out as the largest by far (see Section 1.2). The results for 1851 are included in their paper and provide an opportunity to test the model on a substantial sample of 196 parishes in seven counties. To ensure comparability, the model's output was limited to resident male servants; the share was produced as the ratio of farm servants to the sum of farm servants and male labourers.

Table 1.3 presents the results. While the authors studied 28 parishes in each county, some of the geographic units are villages and tythings which are not classified as census

parishes in I-CEM; however, three-quarters of the parishes could be successfully matched. The average correlation between the algorithm and their estimates of farm service is 0.87, indicating a very strong relationship. This relationship is visualized in Figure 1.15.A, which displays findings for Staffordshire. In this figure, each point represents a parish, with a 45degree line indicating where perfect matches would be located.

County	Number of matched parishes	Mean share, Howkins & Verdon	Mean share, Model	Correlation
Berkshire	21	14.0	13.4	0.95
Norfolk	26	5.7	5.5	0.77
Nottinghamshire	18	30.9	30.4	0.83
Oxfordshire	18	6.7	6.1	0.83
Somerset	19	13.0	13.7	0.93
Staffordshire	21	36.9	34.9	0.90
Sussex	23	14.2	14.7	0.88

Table 1.3. Comparison with Howkins and Verdon's study, summary for 1851.

High correlation can potentially occur when two sets of numbers exhibit a common trend but differ significantly in absolute values. However, this is not the case here, as the mean values by county are very close. Additionally, the results for seven counties are compared in Figure 1.15.B, showing a correlation between county means of 0.99.





The comparison can be extended to 1891; for that census Howkins and Verdon did not provide the results by parish but reported county means. The correlation with the model is nearly perfect 1.00 whilst the share of servants in the model is 1.5 percentage points higher than reported by the authors.

Howkins and Verdon also introduced a method of comparing quantitative findings with contemporary agricultural reports. They studied a set of authoritative sources published from 1867 to 1925¹⁰³ and searched for verbal references to the occurrence of farm service. These were placed in one of the four categories: dominant (a majority of young men live-in over most of a county), prevalent (they do so over a substantial part of a county), occasional, and insignificant. There was a strong correlation between the reports and their findings for the counties they studied.

Their method is applied to analyse the estimates generated by the model. The categorisation of counties by frequency of farm service is taken from Howkins and Verdon, and the model is run to produce the share of farm servants in the closest census, 1861 for

¹⁰³ Howkins and Verdon, 'Adaptable', p. 489.

the 1867 Report on the employment of children, young persons, and women in agriculture and 1891 for the Report on labour of 1893. An additional step is to convert the model's share of servants which is a number to a categorical variable used in the Reports. Did a 35% share of servants mean a prevalent or occasional position? To deal with this issue we need to define thresholds to split the values into quantiles. To make the two sources comparable the thresholds were selected to match the distribution of counties by the occurrence of service quantified by Howkins and Verdon. For example, the incidence of service was reported as insignificant in 5 counties, representing 16% of the 32 counties surveyed. Thus, the counties were ranked by the share of servants and the bottom 16% were placed in the "insignificant" category. The results are presented in Figure 1.16.A for the census of 1861 and Figure 1.16.B for 1891.



Figure 1.16. Incidence of service, model vs. governmental reports.

There is a good match in both cases, and the model correctly captures the visible increase in the "insignificant" category over time. The mismatches, where the sources suggest polar occurrences—dominant according to the Reports and insignificant according to the model—are limited to one county in case A and two counties in case B, where the commissioners reported dominance of service while the model is more conservative. Note

that an exact match is not realistic. Little explained that the districts studied by the commissioners were selected to reflect the diversity of agricultural systems, and it follows that they were not always representative of their counties.¹⁰⁴

1.4.4. Comparison with Census Reports.

The CEBs used by the model are the same sources utilized by the Census Office to produce their published reports. However, some deviation in the number of farm servants can be expected due to methodological issues. Specifically, the clerks' treatment of two categories—farmers' domestic servants and distant relatives—is unclear, and many of these individuals might have been classified under other categories of workers. In contrast, within the limits explained in Section 1.3, the model counts many of them as farm servants. Consequently, the number of farm servants in the Census Report should fall between the model's minimum estimate, which excludes the nominally non-agricultural farm servants and farmers' distant relatives, and the maximum, which includes these categories. The comparison is made by county to match the scale of the reports.

The clerks distinguished farm servants from agricultural labourers in the censuses of 1851, 1861, and 1871. However, as the 1871 census is not included in the I-CEM, the comparison is limited to the 1851 and 1861 Reports.¹⁰⁵ Note that the two categories where deviations are expected differed in size, with ten times more nominally non-agricultural farm servants than farmers' relatives (see Table 1.2). The former were predominantly female, necessitating a gender-specific analysis, which the format of the Census Reports allows.

The comparisons for male farm servants are shown in Figure 1.17, where vertical intervals represent the range of estimates generated by the model. The intervals are quite short as the number of males among farm servants with non-agricultural work titles was small. In both censuses, the results for most counties match the expectations as the data points are close to the 45-degree line of 'perfect matches'. The county of Northumberland stands out as the model's minimum estimates are almost four times as high as the figures

¹⁰⁴ Little, Report of 1893-1894, p. 11.

¹⁰⁵ B.P.P., 1851-1852, 1691, Census of Great Britain, 1851. Population tables. II; B.P.P., 1863, 3221, Census of England and Wales 1861. General Report and Population Tables Volume II.

reported by the Census Office. The discrepancy is due to family hiring. This system of farm service was only recognized by the Royal Commission on Labour in 1868; in earlier works the clerks must have recorded participants as labourers.

Figure 1.17. Number of male farm servants by county, model and Census Reports, 1851 and 1861.



In 1851 the model's estimates tend to exceed the Census Reports; outside Northumberland, the largest deviation is observed in Kent (Report: 4,994, model's minimum: 6,917). The relationship for 1861 is more balanced. There is a group of lowservice counties where the model is materially above the Reports, such as Bedfordshire (Report: 315, model's minimum: 571) and Suffolk (Report: 959, model's minimum: 2,026) but in other counties, the situation is reversed (e.g. in Cumberland the Report is 4,890 vs. model's maximum of 4,776). Note that in Section 1.4 the model's sensitivity was estimated on a national scale and the range from -22% to +5% should be seen as the minimum acceptable level of deviation. At the county level, the discrepancy may be higher. Most importantly, the correlation between the model and Census Reports is exceptionally high, with a value of 0.99 for both censuses.¹⁰⁶

Moving on to females, note the much longer intervals of values in Figure 1.18, which reflects a higher contribution of nominally non-agricultural farm servants. The largest deviations are observed in Northumberland and can be explained similarly to the findings for male servants. Importantly, most intervals cross the 45-degree line showing that the published figures fall within the model's ranges. At the same time, the relative positions of model vs. Reports differ significantly between censuses.

Figure 1.18. Number of female farm servants by county, model and Census Reports, 1851 and 1861.



In 1851, some intervals intersect the diagonal near their lowest point, while others barely touch it with their tops. The correlations with the Census Reports are 0.68 for the minimum estimates and 0.65 for the maximum estimates. This indicates a fairly strong relationship; at the same time, it is not clear which estimate should be related to the Reports. In contrast, the 1861 chart is markedly different. First, the pattern is much more

¹⁰⁶ This and further estimates exclude Northumberland; if the county is included the correlation is 0.95.

consistent, with the model's estimates generally above the Census Reports. Second, except for Northumberland, the estimates closely align with the published figures. At 0.91 the correlation with minimum estimates is particularly high.¹⁰⁷ Although this is lower than the correlation for male servants, it still suggests a very strong relationship. Looking at the clerk's marks on the original paper CEBs Michael Anderson noted that the way they tabulated housekeepers varied by county and became more consistent by the time they reached Wales which was at the final stage of data processing.¹⁰⁸ It can be suggested that their treatment of farm servants also evolved over time; while working on the 1851 census, they were on a learning curve and had developed a more standardized approach by 1861.

An important consequence is that the apparent decline in the number of farm servants and the corresponding rise in domestics over the decade were largely the result of evolving tabulation conventions. Edward Higgs and Amanda Wilkinson observed that the census was a male affair biased against accurately representing women's work.¹⁰⁹ To a large extent, occupational titles were social designations, and at every stage of the census—from enumeration to tabulation—clerks were influenced by their perceptions of women's 'proper' social role. Modelling farm servants allows us to correct this bias by addressing one significant aspect: the 'transfer' of female labour from agriculture to the more culturally acceptable domestic sphere.

Comparisons of the output of the model with the results of manual processing of CEBs and the findings of Parliamentary commissions demonstrated good matches. The correlation with Census Reports for male farm servants is very high too. For females, analysis is complicated by the presence of a large contingent of servants with domestic work titles. The approach taken in this study is to include most of them as farm servants; a comparative analysis suggests that in 1851 the Census Office did not have a consistent view on their classification, but by 1861 moved to a more restrictive position. However, new insights into the evolution of the tabulation conventions are only a by-product of modelling; the main

¹⁰⁷ For maximum estimates the correlation is 0.86.

¹⁰⁸ M. Anderson, 'Mis-specification of servant occupations in the 1851 census: a problem revisited', *Local Pop. Studies* (1998), p. 61.

¹⁰⁹ E. Higgs and A. Wilkinson, 'Women, occupations and work in the Victorian censuses revisited', *Hist. Workshop J.*, 81, 1 (2016), pp. 17-20.

result is a better understanding of farm service, which will be detailed in the following section.

1.5. Key characteristics of farm servants in 1851-1911.

The model is a powerful tool that generates lists of agricultural workers in England and categorises farm servants according to the typology outlined in Section 1.3. It allows for the selection of servants by type or system and makes it possible to count their numbers or shares by geographic unit, starting with a parish. Further insights can be obtained by linking the results for different censuses and tracking farm servants' geographic movements and career progress. However, the main objective of this chapter is to introduce the new model, and the analysis is confined to the core results. The main outcome of this work is a set of new facts about farm servants in the second half of the nineteenth century and the early twentieth century: the number of servants and their share in the agricultural labour force, their key demographic characteristics, and the spatial distribution of farm service.

1.5.1. Number and share of servants

The single most important finding is the estimates of the number of farm servants and agricultural labourers in England from 1851 to 1911, presented in Table 1.4. The data for 1851 and 1861 are revisions of Census Reports, while the information for the period from 1881 to 1911 is new.

Year	Farm servants			Agricultural labourers		
	Male	Female	Total	Male	Female	Total
1851	188,827	112,535	301,362	809,993	43,331	853,324
1861	149,007	105,755	254,762	829,846	49,032	878,878
1881	123,644	84,120	207,764	699,264	24,812	724,076
1891	115,062	68,181	183,243	630,852	14,980	645,832
1901	81,063	52,355	133,418	512,902	10,325	523,227
1911	79,245	53,075	132,320	579,507	15,056	594,563

Table 1.4. Hired agricultural labour in England from 1851 to 1911.

In Figure 1.19 these findings are visualised as the dynamics in absolute and relative number of farm servants.¹¹⁰ The graph in Figure 1.19.A shows a steady decline. However, this decline was gradual, and between 1901 and 1911, it was followed by a period of stabilization, likely due to the contemporary revival of agriculture. As late as 1911, there were over 132,000 farm servants—44% of their number in 1851 when farm service was not far from its peak. The charts also present the numbers from the Census Reports, both in their original form and as revised by Higgs. Working on his revision Higgs made high-level assumptions, which he described as 'heroic'.¹¹¹ This makes the close matches for 1851 and 1861 particularly noteworthy and suggests that he was being somewhat modest about what were doubtless well-informed judgements. The results for 1871 could also be close, but since that year is not included in the I-CEM, Higgs's data can only be compared to the average of the two neighbouring censuses.

Figure 1.19.B shows that the model's estimates for the share of servants are higher than those in both the Census Reports and Higgs's revision. The difference with Census Reports reflects the increased number of servants, whilst the discrepancy with Higgs arises from differences in counting agricultural labourers. As detailed in Appendix 1.2, the application of Higgs' method increases the number of labourers compared with the Census

¹¹⁰ Both the number of servants and the number labourers used to produce the share of servants are totals for both genders.

¹¹¹ Higgs, 'Occupational censuses', p. 711.

Reports. However, the model does not adopt his approach and instead reclassifies some labourers as servants. In 1851-1861, where a direct comparison is possible, the model's count of agricultural labourers is 5% below the Census Reports.





Importantly, all approaches consistently show a downward trend in the number of agricultural labourers, which further slows the decline in the proportion of farm servants compared to their number. From 1851 to 1871, the model's estimates are 4 percentage points higher than Higgs's, yet both follow a similar trajectory. Over the entire period, the model indicates a decrease in the share of servants from 27% to 18%, averaging a reduction of just 1.5 percentage points per decade.

1.5.2. Types of servants.

The next finding is the distribution of farm servants by type, presented in Figure 1.20.A. Given a relatively small number of people, family hiring and non-residential service are represented by the sum of the constituent types of servants; at the same time, the size of the classic system justifies breaking it into its components, nominally agricultural and non-agricultural servants. Over the entire period, farm servants with agricultural work titles remained the major group and accounted for over half of the total in all years except 1891 when their share dropped to 47%. Their predominant role, along with the position of nominally non-agricultural workers as the second-largest group, underpins the dominance of the classic system of service, which generally accounted for about 90% of the total. This share only decreased to 83%-84% in the censuses of 1881 and 1891. This finding provides context for a better understanding of the role of alternative systems of service (see Section 1.3). Most certainly, one or more of them could be very important in a particular place at a specific point in time; however, none had a major impact at the national level.

Figure 1.20.B excludes the classic form of service and instead highlights the contribution of alternative arrangements. For each year, this contribution is calculated as the ratio of servants of a specific type to the total number of farm servants. None of the five types listed ever exceeded 6% of the total. However, the rise of horselads from virtually zero in 1851 to 5% in 1901 and 1911 is noteworthy. This trend suggests that in Victorian England, the horselad system was a relatively new development, emerging only in the mid-century. By the end of the period, living-in with a bailiff had become the most significant alternative form of service. This, along with the concentration of this practice in the East Riding of Yorkshire and neighbouring counties (see Section 1.3), explains why most of the former farm servants interviewed by Caunce were horselads in their youth.¹¹²

¹¹² Caunce, *Horselads*.




The headcounts for both components of the non-residential system, animal attendants and farm boys, peaked in 1881-1891 before declining. As discussed in Section 1.3, identifying participants in this system the model relied exclusively on self-reporting. Therefore, the late-century decline could either indicate a real reduction in this form of hiring or reflect a growing reluctance among individuals to identify themselves as 'servants' or 'boys'. The rise of Joseph Arch's National Agricultural Labourers' Union in the 1870s and the associated rise of class consciousness might be relevant to this latter hypothesis.¹¹³ Lastly, the contribution of both forms of family hiring—hinds and bondagers—remained

¹¹³ NALU was established in 1872 and at its peak had 86,000 members. In the 1890s the union declined and was dissolved in 1896.

minimal, as the family system was confined to a limited area in the north of Northumberland.

1.5.3. Servants' demographics.

The traditional view holds that the rules governing farm service as an institution remained unchanged for centuries. These rules can also be interpreted as selection criteria that filtered in individuals with specific demographic characteristics. Most farm servants were young, unmarried, and, as female participation in agriculture declined, predominantly male. However, as discussed in Section 1.2, revisionist historians have challenged these assumptions. Alternative forms of service introduced new rules that were more inclusive of individuals from diverse backgrounds. Additionally, recognition of the contribution of livingin servants in domestic occupations to farming implies a change in the gender balance. In this section, I summarize the key demographic characteristics of farm servants as revealed by the model.

The graphs in Figure 1.21.A support the traditionalist perspective. Over the span of sixty years, the mean age of farm servants remained relatively stable, gradually rising from 22 to 23 years; the vast majority of them were single. However, contrary to the earlier view, a significant proportion of servants were female. As shown in Figure 1.21.B, the share of female servants averaged around 40% and varied within a narrow margin of just one percentage point. This stability in demographic characteristics is closely linked to the continued dominance of the classic hiring system.

Figure 1.21. Key demographic characteristics of farm servants from 1851 to 1911.



To gain a deeper understanding, it is essential to consider the demographics of different hiring systems. Age and marital status are closely related, and the analysis focuses on two variables: mean age and the share of female participants. Figure 1.22 presents these characteristics for each type of servant at the beginning and end of the period. The charts reveal a diversity of demographic characteristics. Figure 1.22.A highlights that in 1851 hinds, who were on average around 45 years old, were considerably older than other groups. Note that hinds needed to be of sufficient age to have children old enough to work. The only other group of mature individuals over 30 years old were animal attendants. They had to be old enough to maintain their own households; at the same time, their employment did not require the involvement of children, who could be and probably were in most cases, quite young. At the other extreme were farm boys, who were only 15.3 years old on average. The remaining types of servants were in their early twenties, aligning with the stereotype of a farm servant.





Farm servants with non-agricultural occupational titles are notable for being predominantly female, with women accounting for over 90% of this group. As discussed in Section 1.3, these individuals combined agricultural tasks with household duties. The second-largest group in terms of female representation are bondagers. Although the term has a female origin, in reality, women made up only 38% of this group. By the terms of his contract, a hind agreed to provide the labour of his children of both genders; the commissioners quoted earlier paid particular attention to girls and young women as their participation in farming was highly unusual. However, modelling indicates approximately equal shares of females and males. Another group with a notable female presence were animal attendants, who could often be the spouses of their male counterparts. Their presence indicates that the title 'animal attendant', when used to describe a servant type, should also be understood to include dairy work. Female participation in other types of farm service was insignificant.

A comparison of charts A and B in Figure 1.22 shows that the stability in overall demographic parameters noted earlier can be explained by the fact that the data points for the two largest types of farm servants representing the classic system barely moved. Other

types experienced more substantial changes. Regarding age, the main difference is the increase in the mean age of farm boys. Figure 1.23 compares their age distributions in 1851 and 1911 and also includes the second youngest group, nominally non-agricultural servants.

Figure 1.23. Age distributions for farm boys and nominally non-agricultural farm servants, 1851 and 1911.



Figure 1.23.A reveals that the increase in the boys' mean age was primarily due to the rise in the minimum age, which can be attributed to legislative changes. In 1851, there was no compulsory schooling, and some individuals began working as farm boys at age ten or even earlier. After 1870, a series of Education Acts gradually raised educational standards, and by 1911, school attendance was mandatory for children up to age 12. As a result, only 120 farm servants, a quarter of whom were farm boys, were below that age. The impact on nominally non-agricultural servants was similar but less pronounced, as by 1851, nearly all were already at least 10 years old (Fig 1.23.B). Therefore, the increase in the mean was smaller and was further offset by a reduction in the proportion of servants over 18.

Regarding female participation, the most significant change was a decrease in the female share of animal attendants to 13%. Within the family system, bondagers, true to their name, moved closer to 50% female share, while the share of women among hinds, who in this period should be more accurately described as 'hinds and cottars,' reached 12%. The reasons for these changes are unclear and an explanation would require a detailed local study. However, given the very small size of these groups (as shown in Figure 1.20), their impact on the overall demographics of farm servants was marginal.

1.5.4. Geography of farm service.

The farm servants identified by the model can be grouped and counted by various geographic units, starting from the parish level. However, since people often lived in one parish and worked in another, using larger units may provide a more accurate picture of employment patterns. For this analysis, the focus is on registration sub-districts, which were typically aligned with Poor Law Unions. A foundational analysis by Kussmaul offers a useful starting point. Using the 1851 Census Reports, she pointed to a stark contrast between the high incidence of service in the North and the low incidence in the South, with notable pockets of significant service in Kent, Sussex, and Norfolk.¹¹⁴

The model-based map in Figure 1.24.A differs from Kussmaul's map in two significant technical aspects. First, it includes all farm servants, whereas Kussmaul's analysis was limited to males aged twenty and over. Second, the spatial unit used here is smaller, as she used registration districts. Hence the spatial pattern is somewhat different: the new map emphasises the prevalence of family hiring in the north of Northumberland and indicates a higher incidence of service in the West. However, the main conclusions remain unchanged, with the North-South divide—illustrated by a dotted line running from the River Severn in the West to the Wash in the East—remaining distinctly prominent. The map in Figure1.24.B displays the distribution of service in 1911. There were no fundamental changes and the key

¹¹⁴ Kussmaul, *Servants*, pp. 131-132.

trend was a general reduction in the incidence of service. The decline was uniform and only varied from 8 percentage points in the Southeast to 10 percentage points in the West. The Southeast lost all pockets of high service while the North kept its leading position. A belt of Midland counties, from Herefordshire to Lincolnshire, crossed the imaginary threshold of high service, corresponding to the 1851 standards, and moved into a low-service category. As a result, the new borderline moved up to connect the north of Herefordshire to the Humber.





The development of alternative forms of farm service, presented in Figure 1.25 offers a much more dynamic picture.





Earlier we saw that these forms of farm service were less important on a national level then classic service. This was particularly true in 1851; Figure 1.25.A contains only one island of notice, the Northumbrian family hiring. The distribution of alternative forms was almost random, with occasional pockets of relative importance driven by either non-residential service, living-in with a bailiff, or both. The contribution of these arrangements to the agricultural labour force was limited to 5%. The map in Figure 1.25.B shows a very different distribution. Alternative forms of service ceased to exist in the South and in the West; at the same time, they concentrated on both sides of the Humber, in the East Riding of Yorkshire and Lincolnshire. In these areas, over 10% of all farmworkers were horselads.

1.6. Conclusion.

By the nineteenth century, farm service in England had passed its peak of importance. In 1851, the share of servants was high in the North and West, while in other parts of the country, service was confined to isolated geographic pockets. The orthodox view suggested a further decline, but revisionist historians provided evidence of the continued contribution of servants to agriculture in various regions. The debate is difficult to resolve because Census Reports stopped distinguishing farm servants from agricultural labourers after 1871. This work presents a model for farm servants that offers a solution. It uses digitized Census Enumerators' Books (CEBs) from the Integrated Census Microdata (I-CEM) and identifies participants in four hiring systems: classic service, living-in with a bailiff, family hiring, and non-residential service. The algorithm processes three census fields: the occupation of the head of household, the individual's relationship to the head, and their occupation, using both coded variables and original character strings.

To verify the model, I compared its output with the results of the manual processing of CEBs presented by Howkins and Verdon, as well as published Census Reports. The comparison with Howkins and Verdon's study showed a very high correlation of findings for male servants, with a correlation coefficient over 0.8 at the parish level and close to 1.0 at the county level. For the Census Reports, there is also a very good match for males. A comparative analysis for females demonstrates an evolution in the Census Office's approach to living-in servants in farming households with domestic occupational titles. In the 1851 Report, many of these individuals were counted as farm servants, while ten years later, they were excluded. To this extent, the reduction in farm service from 1851 to 1861 is a result of the changing tabulation of occupations. Modelling allows correcting this bias in the representation of female labour.

The key findings are the number of farm servants in England in the entire period from 1851 to 1911 and their distribution by hiring system. The classic system, which included farm servants with agricultural and non-agricultural work titles living within farmers' households, was dominant and accounted for 90% of participants. This supports the orthodox perspective, which prioritizes this form of service. As expected, both the number of servants and their share in hired agricultural labour declined over time; at the

70

same time, the decline was slow and as late as 1911 there were still over 130 thousand farm servants. This trend aligns closely with the views of revisionist historians. Most servants were young and unmarried individuals; over 90% of those with non-agricultural job titles were female while servants of other types were predominantly male; the key demographic characteristics varied by type of servant but remained stable over time. Over sixty years, the reduction of service was uniform across the country. By the end of the period, all pockets of high incidence of service disappeared in the South and East. In contrast, service remained strong in the North, where alternative forms, particularly living-in with a bailiff, played an important role. Appendix 1.1. Estimates for farm servants and labourers from the 1831 Census Report.

Table 1.A.1. Kussmaul's estimates for share of farm servants in 1831 and Gritt's revision.¹¹⁵

	Census Report - Summary for England			Kussmaul's Estimates			Gritt's Estimates			
County	Families employed in Agri- culture (F)	Occupiers employing Labourers (O1)	Occupiers not employing Labourers (O2)	Labourers employed in Agri- culture (W)	Agri- cultural Labourers (AL)	Farm servants (FS)	Share of farm servants	Agricultural Labourers (AL)	Farm servants (FS)	Share of farm servants
Bedford	11,364	1,330	474	11,588	9,560	2,028	17.5	10,271	1,791	14.8
Berks	14,047	1,711	458	14,802	11,878	2,924	19.8	12,565	2,695	17.7
Bucks	16,893	2,152	453	16,743	14,288	2,455	14.7	14,968	2,229	13.0
Cambridge	16,093	2,421	1,266	15,698	12,406	3,292	21.0	14,305	2,659	15.7
Chester	16,397	4,374	4,059	15,094	7,964	7,130	47.2	14,053	5,101	26.6
Cornwall	18,351	4,608	3,613	16,243	10,130	6,113	37.6	15,550	4,307	21.7
Cumberland	10,630	3,617	2,839	9,010	4,174	4,836	53.7	8,433	3,417	28.8
Derby	13,324	3,320	4,257	10,593	5,747	4,846	45.7	12,133	2,718	18.3
Devon	35,505	9,328	3,356	35,311	22,821	12,490	35.4	27,855	10,812	28.0
Dorset	14,601	2,243	967	14,056	11,391	2,665	19.0	12,842	2,182	14.5
Durham	8,408	2,229	1,544	7,556	4,635	2,921	38.7	6,951	2,149	23.6
Essex	34,589	4,561	888	38,234	29,140	9,094	23.8	30,472	8,650	22.1
Gloucester	21,185	3,675	1,846	20,927	15,664	5,263	25.1	18,433	4,340	19.1
Hereford	12,888	2,505	1,679	12,213	8,704	3,509	28.7	11,223	2,670	19.2
Hertford	13,268	1,518	399	14,700	11,351	3,349	22.8	11,950	3,150	20.9
Huntingdon	6,231	857	397	5,967	4,977	990	16.6	5,573	792	12.4
Kent	31,667	4,361	2,152	36,113	25,154	10,959	30.3	28,382	9,883	25.8
Lancaster	24,696	6,658	9,714	20,949	8,324	12,625	60.3	22,895	7,768	25.3
Leicester	12,352	2,656	2,145	10,542	7,551	2,991	28.4	10,769	1,919	15.1
Lincoln	35,749	6,901	6,204	32,167	22,644	9,523	29.6	31,950	6,421	16.7
Middlesex	9,882	1,050	490	11,376	8,342	3,034	26.7	9,077	2,789	23.5
Norfolk	37,610	5,229	2,718	37,466	29,663	7,803	20.8	33,740	6,444	16.0
Northampton	18,334	3,015	1,117	17,775	14,202	3,573	20.1	15,878	3,015	16.0
Northumberland	10,127	2,376	1,268	10,441	6,483	3,958	37.9	8,385	3,324	28.4
Nottingham	13,351	2,643	2,414	11,799	8,294	3,505	29.7	11,915	2,298	16.2
Oxford	15,304	2,054	458	15,998	12,792	3,206	20.0	13,479	2,977	18.1
Rutland	2,299	429	424	1,910	1,446	464	24.3	2,082	252	10.8
Salop	17,096	3,832	2,139	17,296	11,125	6,171	35.7	14,334	5,102	26.2

¹¹⁵ Kussmaul, *Servants*, pp. 170-171; Gritt, 'Census', pp. 98-104.

1										
Somerset	30,452	6,032	3,731	28,107	20,689	7,418	26.4	26,286	5,553	17.4
Southampton	22,761	2,774	1,234	24,675	18,753	5,922	24.0	20,604	5,305	20.5
Stafford	18,156	3,781	3,649	16,812	10,726	6,086	36.2	16,200	4,262	20.8
Suffolk	31,491	4,526	1,121	33,040	25,844	7,196	21.8	27,526	6,636	19.4
Surrey	14,647	1,873	727	16,761	12,047	4,714	28.1	13,138	4,351	24.9
Sussex	22,450	3,160	1,330	26,125	17,960	8,165	31.3	19,955	7,500	27.3
Warwick	15,880	2,838	1,142	15,644	11,900	3,744	23.9	13,613	3,173	18.9
Westmorland	4,454	1,435	1,685	3,474	1,334	2,140	61.6	3,862	1,298	25.2
Wiltshire	25,045	3,387	1,239	24,708	20,419	4,289	17.4	22,278	3,670	14.1
Worcester	14,654	2,636	1,260	14,590	10,758	3,832	26.3	12,648	3,202	20.2
York, East Riding	13,025	3,331	1,661	12,727	8,033	4,694	36.9	10,525	3,864	26.9
York, City	1,326	340	253	1,184	733	451	38.1	1,113	325	22.6
York, N. Riding	17,964	4,950	4,334	14,646	8,680	5,966	40.7	15,181	3,799	20.0
York, W. Riding	31,188	7,096	10,636	24,502	13,456	11,046	45.1	29,410	5,728	16.3
Total/Average	755,734	139,812	93,740	739,562	522,182	217,380	29.4	662,792	170,510	19.4

Kussmaul used the following formula:

AL = F - (O1 + O2); FS = W - AL

Gritt suggested that occupiers not employing labourers were 'peasant' farmers and should be classified as labourers; in addition, their households provided family labourers, estimated as one family labourer to every two households. His formula became:

 $AL = F - O1 + \frac{1}{2}O2$; FS = W + O2 - AL.

Appendix 1.2. Revised estimates for farm workers using Higgs's method.

Source / Revision	1851	1861	1871
Census Reports ¹¹⁶			
Male labourers	869,863	874,289	737,863
Female labourers	43,051	42,270	32,946
Male farm servants	155,136	129,539	108,714
Female farm servants	72,900	36,101	18,470
Female general servants	547,140	688,353	721,602
Male general labourers	296,114	277,727	466,143
Share of farm servants, %	20.0	15.3	14.2
General labourers missed in agriculture			
Male general labourers	296,114	277,727	466,143
% in agriculture, estimate ¹¹⁷	21.7	18.7	15.1
Add male general labourers allocated to agriculture	64,257	51,935	70,388
Underreported female labourers			
Male agricultural labourers revised	934,120	926,224	808,251
Female labourers as 1: 7.5 of males, estimate	124,549	123,497	107,767
Female agricultural labourers reported	43,051	42,270	32,946
Add estimate minus reported	81,498	81,227	74,821
Domestic servants of farmers			
25% of general servants in farmers' families	136,785	172,088	180,401
Add 1/2 to convert to full-time equivalent	68,393	86,044	90,200
Total farm servants	296,429	251,684	217,384
Female share, %	48	49	50
Total labourers	1,058,669	1,049,720	916,017
Share of farm servants, %	21.9	19.3	19.2

Table 1.A.2. Revision of Census Reports for agricultural labour for 1851 to 1871.

¹¹⁶ Census 1851, Population tables; Census 1861, Population tables; *B.P.P.*, 1873, C.872, Census of England and Wales, 1871. Population abstracts. Vol. III.

¹¹⁷ Phyllis Deane and W. A. Cole, *British economic growth 1688-1959*. *Trends and structure* (1962), p. 142.

Appendix 1.3. Regular expressions used in identifying farm workers.

Table 1.A.3 provides a list of regular expressions used in identification of farm workers. Expressions 1 to 6 relate to farm servants, and expressions 7 to 9 are applied to filter in agricultural day labourers. I start with servants and provide a brief description of which occupational group each regex applies to, how string search relates to a search by the I-CEM code, and which group of workers this element contributes to.

No	Function	Target word	Regular expression
1	Exclusion of non-target	Shepherd	'SHEP'
	groups.	General labourer	'GEN(ERAL)?\\s?\\s?L'
		Wife	'WIFE'
		Widow	'W(I)?D(O)?W'
		Labourer's son	'LAB(O)?(R)?(E)?(R)?(S)?\\sSON'
		Labourers' daughter	'LAB(O)?(R)?(E)?(R)?(S)?\\sDAU'
2	Addition of servants by	Servant	'SERVANT'
	relationship	Servant	'SERV'
		Servant	'SVT'
		Maid	'MAID'
3	Addition of 'farm	Farm servant	'FARM(ER)?\'?(S)?\\s?SER'
	servants and 'farm boys'	Farm servant	'F(\\s)?SER(V)?(T)?'
		Agricultural servant	'AG(R)?(I)?(C)?(U)?(L)?(T)?(U)?(R)?(A)?(L)?\\s?SER'
		Husbandry servant	'HUS(B)?(ANDRY)?\\s?SER'
		Servant in husbandry	'SER(VANT)?\\s?(IN)?HUS'
		Farm boy	'FARM(ER*S)?\\s?BOY'
4	Addition of generic	Servant	'^SER(V)?(AN)?(T)?\$
	servants	Servant	'^SER(V)?(EN)?(T)?\$'
		Servant indoor	'SERV(ANT)?\\sIN(\\s)?(D)?'
		Servant outdoor	'SERV(ANT)?\\sOUT(\\s)?(D)?'
		Door	'DOOR'
5	Addition of agricultural	Agricultural	'AGR'
	workers	Farm labourer	'FARM(ER)?(*)?(S)?\\s?LAB'
		Farm worker	'FARM(ER)?(*)?(S)?\\s?WOR'
		Farm assistant	'FARM(ER)?(*)?(S)?\\s?ASS'
		Agricultural labourer	'A(G)?\\s\\s?LAB'
		Dairy	'DAIRY'
	Exclude	Agent	'AGENT'
		Engineer	'ENGIN'
		Managress	'MANAGRESS'

Table 1.A.3. Textual search functions and regular expressions.

6	Exclusion of specialist	Housekeeper	'KEEPE'
	domestics	Laundry	'LAUND'
		Kitchen	'КІТСН'
		Scullery	'SCUL'
		Nursery	'NURS'
		Child	'CHILD'
		Governess	'GOVER'
		Chamber	'CHAMB'
		Lady	'LAD(A)Y'
		Lady's	'LADIES'
		Butler	'BUTLER'
		Footman	'FOOT'
		Valet	'VALET'
		Visitor	'VISIT'
		School	'SCHOOL'
		Page	'PAGE'
7	Identification of	Horseman	'HORSEM'
	agricultural labourers	Cattleman	'CATTLEM'
		Cowman	'COWM'
		Cowboy	'COWB'
		Dairymaid	'DAIRY\\s\\s?MAID'
		Dairywoman	'DAIRY\\s\\s?W'
8	Addition of day	Day	'DAY'
	labourers	Parish labourer	'PARISH\\s\\s?L'
9	Exclusion of industry	Porter	'PORT'
	workers	Railway	'RAIL'
		Builder	'BUILD'
		Domestic	'DOMES'
		Carman	'CARM'
		Carrier	'CARR'
		Watchman	'WATCH'
		Errand	'ERRAN
		Messenger	'MESS'
		Bank	'BANK'
		General	'GENER'
		Quay	'QUAY'
		Timber	'TIMBER'
		Private	'PRIVAT'
		Guard	'GUARD'
		Fish	'FISH'
		Corporation	'CORPOR'
		Contractor	'CONTRACT'
		Grocer	'GROCER'

1. Exclusion of non-target groups.

At the very start of the algorithm two occupational groups are excluded from active population: shepherds and general labourers. Also filtered out are members of labourers' families who may have the labourers' occupational code and produce false positives.

2. Addition of servants by relationship.

This search compliments filtering by relationship code and captures the individuals in servant relationship to the household head not coded by I-CEM as servants. It returns additional servants of farmers, masters with secondary occupation in farming and bailiffs. Note that this is the only string search in description of relationship as all other textual searches are done in the description of occupation.

3. Addition of 'farm servants' and 'farm boys'.

These are the individuals living in the households of farmers, masters with secondary occupation in farming and bailiffs described as 'farm servant' or 'farm boy'. Most of them are found by occupational code of agricultural workers but the occupations of some are miscoded. Hence the string search is done in parallel and produces additional nominally agricultural farm servants. The same regular expressions are also used to identify non-resident farm servants.

4. Addition of generic servants.

The occupations of these people are presented in generic terms such as 'servant', 'outdoor servant' and their variations. In farming household they are considered farm servants and added to the category of servants with agricultural work titles.

5. Addition of agricultural workers.

This search applies to servants and distant relatives of farmers and servants and boarders of bailiffs and returns the individuals in clearly agricultural roles. Similarly to point (3) above this search complements filtering by occupational code to avoid coding errors. At the same time, it returns some individuals such as farmers' agents that need to be excluded.

6. Exclusion of specialist domestics.

These are servants or distant relatives in farmers' households who had a clearly defined 'specialist' role outside agriculture and made the least contribution to farming: housekeepers, laundry maids, kitchen maids etc. They are excluded from the list of farm servants.

7. Identification of agricultural labourers.

Most day labourers are found by occupational code, but this part is added to capture the cases of miscoding.

8. Addition of day labourers.

This search is added to find the individuals presented as 'day' and 'parish' labourers among those coded as general labourers.

9. Exclusion of industry workers.

Some farmworkers had transport occupational titles. However, the addition of transport workers by occupational code also returns the individuals employed in industry, who need to be filtered out. Appendix 1.4. Improved coding of farmers, bailiffs, and their households.

The algorithm for farmers uses two lists: one from I-CEM and the other from BBCE (see Figure 1.A.1). Records common to both lists are accepted as true matches. Unique records are then searched for actual farmers using 14 string expressions designed to capture commonly used descriptions of this occupation. These records are combined to form the final list of farmers. To enhance the accuracy of coding farming households, retired farmers were excluded. Households were classified as farming if the head or close relatives of the head—including nephews—were active farmers. The algorithm's effectiveness was evaluated by applying it to a sample of the 1851 census, which included 1.6 million records from Berkshire, Cumberland, Devon, Lincolnshire, and Wiltshire. The balanced accuracy¹¹⁸ of identifying farming households improves from 0.94 to 0.99 compared to the original I-CEM coding.



Figure 1.A.1. The algorithm for improved coding of farmers.

¹¹⁸ A harmonic average of True Positive Rate and Positive Predictive Value.

The algorithm for bailiffs uses only I-CEM. It is based on string processing and searches for five ways the bailiff's occupation could be described, 'BAILIFF', 'FARM MANAGER', 'FARM FOREMAN', 'FARM STEWARD', and 'LAND STEWARD', and their variations. To filter out the court officials and law enforcement officers who could also be called bailiffs the search for bailiffs is followed by another string search, designed to exclude the occupations containing words such as 'COURT', 'TOWN', 'WATER' and 'WOOD'. The households where a bailiff was a head are coded as bailiffs. The balanced accuracy goes up from 0.78 in I-CEM to 0.98.

Appendix 1.5. Identification of agricultural labourers.

Most labourers maintained their own households; however, a minority lived in farmers' families as boarders or lodgers (Figure 1.A.2). In the next step, the farm servants identified earlier are filtered out. In addition to agricultural workers, transport workers such as waggoners, carters and horsemen are accepted. String search is used to filter out the general occupations (e.g. general cartman) and the individuals working for industries other than agriculture.

Figure 1.A.2. The algorithm for identification of agricultural labourers.



Chapter 2. The Persistence of Farm Service in England from 1851 to 1911: Causes and Contexts.

2.1. Introduction.

For around twenty years following Ann Kussmaul's seminal *Servants in Husbandry*,¹¹⁹ published in 1981, the historical community was content to accept the thesis of a rapid extinction of farm service in England in the second part of the nineteenth century. However, over time, researchers uncovered new evidence showing that service remained vital in many parts of the country well into the twentieth century. In 2009 Alun Howkins and Nicola Verdon summarized this shift in understanding, describing the institution as "adaptable and sustainable" and highlighting various factors contributing to its persistence.¹²⁰ Despite their analysis, and the contribution of other authors, the question of the factors facilitating the incidence of service has not yet been fully addressed. On the one hand, the scope of published studies is limited to a particular geographic area, usually a parish or a set of parishes, within a time frame of a year or two. On the other, the assessment of the factors that might explain its survival is purely qualitative, hence their relative importance and their interactions with each other has not been addressed.

To address this gap, I present the results of the first large-scale quantitative study of the factors influencing the incidence of farm service in Victorian and Edwardian England. It builds upon my research into the survival of farm service,¹²¹ in which I found that the decline was very slow and as late as 1911 there were over 132,000 farm servants, that is 44% of their number in 1851. Critically, 90% of farm servants were still engaged as classic living-in servants. The disparity between high-service North and low-service South persisted, with the dividing line gradually shifting northward, while the South lost the scattered pockets of high incidence of farm service it had previously possessed. This contrasts with most published studies, which connect the continuation of service with the rise of new forms of

¹¹⁹ A. Kussmaul, *Servants in husbandry* (1983).

 ¹²⁰ A. Howkins and N. Verdon, 'Adaptable and sustainable? Male farm service and the agricultural labour force in midland and southern England, c. 1850–1925 1', *ECHR* 61, 2 (2008): pp. 467-495.
¹²¹ Presented in Chapter 1.

the institution: living in a bailiff's household, family hiring and non-residential service. While recognising the contribution of alternative arrangements, we need an explanation that applies to the traditional form of service. In this study, I show that the most important factors contributing to its survival in a large number of rural districts across much of the North of England were the continued pastoral focus of farming, high usage of horses, dispersion of settlements, and a low share of agricultural population. The observed geographic distribution of farm service can be explained by the inverse pair-wise relationships between these parameters, and their interplay with other factors. Novel forms did matter. The alternative system of family hiring, for example, developed as an efficient way of sourcing labour; it significantly increased the share of servants, but because it was limited geographically to the northern part of Northumberland it only explains a small part of the survival of service.

This paper starts with an overview of the literature, which summarizes the existing literature on the conditions that have affected the incidence of service. There is a consensus on the effect of most factors, while the importance of others and even the direction of their influence remains unclear. In the methodology section, I introduce a conceptual model of the agricultural labour market, and present my hypothesis on the forces influencing the supply and demand sides. This is followed by an explanation of how the forces were transformed into observable variables, and how their estimates were obtained. I then present a number of econometric models that test the contribution of different factors and discuss the key findings of my analysis. The paper concludes by discussing the implications of my findings for our understanding of farm service and suggesting areas for further research.

2.2. The drivers of farm service.

The focus of this study is on the factors that contributed to the continuation of farm service. The emphasis on explaining survival should not obscure the fact that the overall trend in the nineteenth century was toward decline. Hence, this review starts with a discussion of the explanations for the decline of farm service suggested in the literature. Next, I move to the factors that were explicitly recognized as contributing to a higher incidence of service. There is a consensus on their effect; in contrast, there is a debate on

83

how some other factors that are of undisputed significance for farming in general affected farm servants. After covering these points, I conclude this review with a brief discussion of the development of transport networks. Published sources have not yet linked the growth of turnpikes and railways to farm service, but I argue that the transport revolution had important implications for agricultural labour.

In a broad historical context, the decline of farm service was linked to the Industrial Revolution. In a study of farm workers in urbanized areas in 1861, June Sheppard found that their share of the adult working population varied from 0.4% to 10% and was inversely correlated with town size.¹²² The general exodus of workers from agriculture led to fewer farm servants.¹²³ As this study is focused on agriculture, in the analysis industrialization will be represented by its opposite, agricultural focus. Instead of examining absolute figures, I will consider the share of farm servants within the agricultural labour force. In this regard, the effects of industrialization are less clear. For instance, on farms near the outskirts of Brighton, which by the time of her study had grown into a seaside resort with a population approaching 80,000, Sheppard reported both regular and seasonal workers; some of the former must have been farm servants, but their exact contribution remains uncertain.

The relative decline of service meant a relative rise in the alternative form of labour provision – day labouring. In a classic study, Kussmaul compared farm servants and day labourers to species that compete for the same environmental niche.¹²⁴ Hence, explanations for the decline of service stress the increasing relative benefits of hiring labourers. The downward trend started in the mid-eighteenth century and was prompted by the growth of population, the immediate consequence of which was rural unemployment. K. D. M. Snell noted that the labour surplus made it unnecessary for farmers to secure a workforce under yearly contracts.¹²⁵ In addition, pauperism pressed hard on the old system of poor relief. The new approaches, such as Speenhamland and the roundsman system, spread the costs of labour among all ratepayers of a parish. This increased the cost advantage of labourers over servants even further. Another consequence of rising poor rates was the growing resistance of farmers to yearly hirings due to their potential impact on the number of poor in the

¹²² J. A. Sheppard, 'Agricultural workers in mid nineteenth-century Brighton', *AgHR* 54, 1 (2006), p. 93.

¹²³ Howkins and Verdon, 'Adaptable', p. 478.

¹²⁴ Kussmaul, *Servants*, p. 120.

¹²⁵ K. D. M. Snell, Annals of the labouring poor. Social change and agrarian England 1660–1900 (1985), p. 88.

community, as a completed contract for the full year carried the right to settle in the parish of the master. In 1834 service was abolished as a head of settlement, leading some observers to expect a revival of service in the South of England, but this did not come true.

Kussmaul highlighted the effect of another factor, the rising price of provisions. The demand for food grew as the population increased. Starting from 1793, the problem was exacerbated by a series of poor harvests.¹²⁶ As payments in kind comprised a major part of servants' wages, inflation made them more expensive. In contrast, day labourers only received cash wages, which were relatively 'sticky'. In addition, the transition to cash payments forced workers to buy produce on the market, to the profit of farmers.¹²⁷

The next factor was the enclosure of land, which had profound implications for English agriculture. Karl Marx saw enclosure as 'land-grabbing' that enabled the creation of a proletariat who could meet the needs of large-scale capitalist farming.¹²⁸ The abundance of labour drove wages down, making labourers cheaper to hire than servants. However, later studies suggested a more nuanced approach, as enclosure also created new employment opportunities.¹²⁹ Another consequence of enclosure was the decline of smallholders. This reduced the inflow of young people, often the sons and daughters of small farmers, who were 'brought up in good principles' and entered service hoping to climb the 'farming ladder' and one day become farmers themselves.¹³⁰

The reduction in the relative economic importance of agriculture, rural unemployment, inflation of food prices, and enclosure were nationwide phenomena. In contrast, other factors were more specific in their geographic incidence and may have contributed to the lasting resilience of service. The consensus is that a pastoral aspect of agriculture was particularly important. Jane Whittle observed that long-term commitment and the everyday availability of farm servants made them best suited to working with farm animals. Pastoral farmers continued to employ farm servants as a consequence; at the same

¹²⁶ A. Armstrong, Farmworkers: a social and economic history (1988), p. 45

¹²⁷ Snell, Annals, p. 86

¹²⁸ K. Marx, *Capital*, vol. I (reprint 2019), p. 470.

¹²⁹ M. Overton, *Agricultural revolution in England. The transformation of the agrarian economy 1500-1850* (1996), p. 176.

¹³⁰ Kussmaul, *Servants*, pp. 119-121.

time, even arable farms required livestock to provide manure.¹³¹ Hence, even the latter employed farm servants, but did so to a lesser extent.

Kussmaul noted the effect of another factor of agricultural production. While the total number of labourers on a farm increased with the number of workers, the number of servants did not.¹³² Consequently, the proportion of servants was a declining function of the total number of workers per farmer. She studied a cross-section of English counties in 1851; if these findings are placed on a longitudinal dimension, it can be asserted that as the number of agricultural workers decreased over time, in areas where the number of farms and therefore farmers remained the share of servants should have increased. Hence this factor could have helped offset the impact of industrialization.

The next factor was the dispersion of settlements, which directly affected the availability of day labour. In many areas of the North of England, the population was sparse and farms were remote from villages. Where no guaranteed supply of labour to hire by the day was available, living-in service was, according to Howkins, an 'ideal solution'.¹³³ Dennis Mills labelled this pattern of settlement 'hamlet England'; it was dominant in the North but even the essentially 'champion' Southeast contained substantial pockets of hamlets.¹³⁴ Other topographic variables that need to be considered as positive explanations are elevation and ruggedness of terrain. The impact of elevation was noted by Howkins and Verdon, who observed an association between high ground and farm service, as lowland parishes of Berkshire, Oxfordshire, and Somerset returned a much lower number of farm servants in comparison to upland areas.¹³⁵ Elevation is a complex factor. Upland areas tend to have a higher degree of pastoralism and more dispersed settlements. The impact of these factors on farm service has already been noted. In addition to elevation, as the regions of high ground in England are relatively small, they are associated with a high degree of variation in elevation between neighbouring areas. The variation in elevation is commonly represented by the Terrain Ruggedness Index (TRI) and, as noted by Kussmaul, has a direct

¹³¹ J. Whittle, 'Introduction: servants in the economy and society of rural Europe', in J. Whittle (ed.), *Servants in rural Europe* (2017), p. 10.

¹³² Kussmaul, *Servants*, p. 132.

¹³³ A. Howkins, 'The English farm labourer in the nineteenth century: farm, family and community', in B. Short (ed.), *The English rural community. Image and analysis* (1992, pp. 89-90.

¹³⁴ D. Mills, *Lord and peasant in nineteenth century Britain* (1980), p. 18.

¹³⁵ Howkins and Verdon, 'Adaptable', p. 480.

impact on farm service.¹³⁶ She did not elaborate on this point, but it can be suggested that rugged terrain makes commuting to work more difficult, reducing the supply of labour, and therefore working in the same way as the dispersion of settlements.

Scholars have also noted a correlation between farm service and the availability of alternative employment opportunities. The Industrial Revolution and urbanization created many unskilled jobs with wages above those in agriculture. Kussmaul mentioned proximity to manufacturing facilities as one of the reasons for the survival of service in the North. Howkins and Verdon found the same effect in Nottinghamshire. In the West of the county, workers were attracted by the growing coal mines; in the South, villagers could be employed in framework knitting.¹³⁷ These were attractive to all rural workers, but farm servants had a contract for a year and this ensured that they did not move out of agriculture, in this period at least. In return, they received valuable benefits: job security, board, and lodgings. The movement of people in search of better jobs can be categorized as either short-distance (intraregional) or long-distance (interregional) migration, and both types should be taken into account.

The last factor that contributed to the continuation of farm service was the emergence of new forms of service, which developed alongside the traditional living-in arrangement. The new forms allowed farmers to overcome difficulties that would otherwise lead them to abandon hiring servants. The traditional arrangements implied a close association between a farmer and a servant. When a social gap widened enough to make corresidence in the same household troublesome, large arable farmers of the East Riding of Yorkshire delegated the boarding and lodging of 'horse lads' to the 'hinds', farm foremen.¹³⁸ This arrangement shifted servants from one household to another, but did not change their number. Most other new forms had the same effect, except for family hiring, which increased the population of farm servants. Under this system, found in the North of Northumberland, the head of the family was provided with a cottage for his family under the condition that their children and, most importantly, daughters were also available to

¹³⁶ Kussmaul, *Servants*, p. 130.

¹³⁷ Howkins and Verdon, 'Adaptable', p. 480

¹³⁸ S. Caunce, Amongst farm horses. The horselads of East Yorkshire (2016), pp. 246-250.

work.¹³⁹ In a typical case, only the wife and young children did not work. Hence the number of servants per farmer increased.

In addition to the many factors listed above scholars mention two other aspects of farming, but note that their impact remains unclear. The first of these is the presence of farm horses, the primary source of power in agriculture until the 1930s. In the North of England, farm servants had full responsibility for working the horses in the fields as well as caring for them in the stables.¹⁴⁰ This was an efficient system of labour organization, which Stephen Caunce compared to proto-Taylorism.¹⁴¹ In other parts of the country, however, there was a separation of work tasks between dedicated horsemen and ploughmen. In this system, only the head horseman was a farm servant, and the relationship between the number of horses and the number of servants was much weaker.

The second aspect is farm size. Service has traditionally been associated with smaller farms. Kussmaul used the 1851 county-level statistics to demonstrate that this connection persisted, as the average number of servants per farmer was relatively stable and did not increase with farm size. Instead of servants, larger farmers hired more day labourers.¹⁴² However, Snell noted that Kussmaul's study of marriage seasonality, as well as his own research into settlement examinations, show that farm service had its heyday in the early eighteenth century, a period notorious for the decline of small farmers and owner-occupiers.¹⁴³ Howkins and Verdon argued that the width of the social gap between farmers and servants depended on farm acreage; small farmers accepted the traditional living-in arrangement, whilst large farmers shifted their servants to adjacent accommodations. This affected the form of service rather than the number of servants, hence there was no straightforward connection between farm size and the incidence of service.¹⁴⁴

Thus far my review has concentrated on factors that have been identified by historians as having directly influenced farm service. Yet another important contemporary

¹³⁹ British Parliamentary Papers (hereafter B.P.P.), 1905, Cd. 2376, XCVII.335, Earnings of agricultural labourers. Second report by Mr. Wilson Fox, pp. 14-15.

¹⁴⁰ *B.P.P.*, 1893-1894, C.6894-XXV, Royal Commission on Labour. The agricultural labourer. Vol. V. Part I. General report by Mr. William C. Little, p. 37; W. Castle, *Ron Creasey: last of the horselads* (2012).

¹⁴¹ S. Caunce, 'Farm servants and the development of capitalism in English agriculture', *AgHR* 45, 1 (1997), p. 55.

¹⁴² Kussmaul, *Servants*, pp. 130-132

¹⁴³ Snell, Annals, p. 95

¹⁴⁴ Howkins and Verdon, 'Adaptable', p. 481

development was the transformation of the transport sector, which facilitated large-scale occupational changes and has not been discussed in connection to farm service. The transport revolution involved two means of inland transport, turnpike roads and railways. Starting from the second half of the eighteenth century, turnpikes and stagecoaches dramatically increased the speed of travel. In 1700 the travel time between London and Manchester was around 90 hours, but by 1787 it had fallen to 24 hours.¹⁴⁵ Following the 'turnpike mania' of 1750-1770, construction slowed down, with the last Turnpike Act authorized by the Parliament in 1836. At that time, railways stepped up as the fastest and cheapest form of transport, and another boom, 'railway mania', developed. Railways reduced the London to Manchester travel time to 5 hours, 40 minutes by 1850 and eventually to 3 hours, 30 minutes by 1910. Between 1839 and 1851 the railway network increased by 8,522 km and regional lines were formed around the large and medium towns. The network continued to expand and by 1881 nearly 25,000 km of rail lines reached every region of England and Wales.¹⁴⁶

Both forms of transport were developed by profit-seeking enterprises, which focused on connecting prosperous urban centres.¹⁴⁷ In these, having a rail station led to higher population growth and shifted the occupational structure out of agriculture.¹⁴⁸ Rural locations were not a priority, but those that lay between two urban centres gained a railway earlier.¹⁴⁹ The implications were two-fold. Initially, rail transport stimulated rural economic growth by providing access to wider markets for agricultural produce. Longer-term, however, rail freight increased competition and depressed prices.¹⁵⁰ Changes in production required alterations in the balance between servants and labourers, and my analysis of farm service

¹⁴⁸ Bogart et al, 'Railways, divergence', pp. 1 and 14.

¹⁴⁵ D. Bogart, *The turnpike roads of England and Wales*, The Cambridge Group for the History of Population and Social Structure,

https://www.campop.geog.cam.ac.uk/research/projects/transport/onlineatlas/britishturnpiketrusts.pdf [accessed 20 Apr. 2023], p. 27.

¹⁴⁶ D. Bogart, X. You, E. Alvarez-Palau, M. Satchell, and L. Shaw-Taylor, 'Railways, divergence, and structural change in 19th century England and Wales', *J. urban economics*, 128 (2022), p. 4.

¹⁴⁷ A. Rosevear, D. Bogart, D., and L. Shaw-Taylor, 'Did turnpiking improve the quality of roads in England & Wales?-new evidence using Geographic Information System mapping and contemporary reports.' *University of Cambridge CAMPOP Working Paper Series*, 10 (2021), p. 3.

¹⁴⁹ I. Gregory and J. Marti-Henneberg, 'The railways, urbanization, and local demography in England and Wales, 1825–1911', *Soc. Science Hist.*, 34, 2 (2010), p. 205.

¹⁵⁰ R. M. Schwartz, 'Rail transport, agrarian crisis, and the restructuring of agriculture: France and Great Britain confront globalization, 1860–1900', *Soc. Science Hist.*, 34, 2 (2010), p. 231.

in North Wiltshire provides a relevant example.¹⁵¹ Here until the 1860s the improving transport connections fuelled the demand for the main local product, farm cheese. Farmers needed more dairy maids, who were hired as resident farm servants, and went as far as introducing new hiring fairs and rewards for the best servants. Later on, competition with higher quality Cheddar from Somerset and cheaper product from the US drove the Wiltshire cheesemakers out of business. Access to the Great Western Railway allowed them to find another niche supplying liquid milk to London. This business was much less labour-intensive and the demand for farm servants went down.

The development of transport networks concludes the list of factors included in this study. In the next section, I demonstrate how the factors are quantified and incorporated into my research.

2.3. Methodology.

This section outlines the methodology of my research. First, I define the dependent variable, time frame, and spatial units. Next, I present a framework for analyzing the regional incidence of farm service and explain how the factors introduced in the previous section are transformed into explanatory variables. Finally, I describe which data sources were used and how they were processed.

The dependent variable is the share of farm servants in the agricultural labour force. The latter also includes the second component, day labourers, so that:

$$Share of farm servants = \frac{Number of farm servants}{Number of farm servants + Number of day labourers}$$

The estimates of the number of servants and the number of labourers were obtained from my model of farm service, which uses the I-CEM database and applies a system of filters to find agricultural workers and place them into a proper occupational group. I produced the

¹⁵¹ See Chapter 3.

share of farm servants for all decadal censuses from 1851 to 1911 except 1871 which is not included in the database. The results for the first and the last years are presented in Figure 2.1. There were no fundamental changes in the spatial distribution of farm service, and the contrast between the high-service North and low-service South persisted. The reduction in the incidence of service was uniform and only varied from 8 percentage points in the Southeast to 10 percentage points in the West. The Southeast lost all pockets of high service while the North-South border moved approximately 40 miles further north.





Changes in the distribution of the incidence of service can also be illustrated by histograms, presented in Figure 2.2. Both distributions are left-skewed and contain the full range of values from 0 to 1. At the same time, in 1911 a notable number of parishes moved from the middle part of the diagram to the left where the share of servants is low. The dotted line, showing the median, moved from 0.25 to 0.15.

Figure 2.2. Histograms for the share of servants by parish, 1851 and 1911.



The model of farm service, presented in Chapter 1, can work at any level of aggregation used in the censuses, from parish to county. Most existing quantitative research has been done at a county level, which has the benefit of reducing the complexity of analysis, but the 'exceptionally diverse physical structure of this island,' highlighted by Alan Everitt,¹⁵² makes a county a suboptimal choice for the study of agriculture. Cross-sectional studies often use smaller units such as parishes or the units of the order above them, registration subdistricts (RSDs). However, the boundaries of these units have changed over time, so for time series analysis the Cambridge Group for the History of Population and Social Structure (Campop) have aggregated neighbouring parishes into continuous units (ConPars) with fixed geographic borders. Yet another difficulty is that the reorganization of local government in the 1890s led to alterations to many parish boundaries. To deal with this issue, Campop produced two sets of ConPars, one for 1851 to 1891 and the other for 1901 and 1911.¹⁵³ Nonetheless, many changes were small, and in the work here the two sets have been combined into a single set of continuous parishes for the entire period from 1851 to 1911.

¹⁵² A. Everitt, Landscape and community in England (1985), p. 14.

¹⁵³ I am grateful to Dr Max Satchell for sharing the data and providing his support.

The matched parishes covered about 88% of the area of the country. The mismatched areas were lost for further analysis, however, most of these were in urban areas, which are less important for this study than continuously observing rural ones. The benefit of having a continuous time series for 60 years is deemed to outweigh the costs. The details of matching the continuous parishes of 1851-1891 with those representing 1901-1911 are presented in Appendix 2.1.

The approach to explaining the variation in the incidence of farm service is visualized in Figure 2.3. The inputs are the factors, presented in the previous section.





The factors are grouped into four categories: farm demand, local labour supply, competition for workers, and market integration. The impact of some factors, most notably farm size and unemployment, permitted both the supply- and demand-side explanations. These factors were positioned where most scholars placed them, which helped me to structure the discussion but had no impact on the results as the regression models presented in Section 2.4 take all factors as independent inputs regardless of the mechanics of their influence.

At the core of the diagram is the interaction of two parameters, demand for and supply of farm labour. These factors caused farmers to change the proportion between servants and labourers in their labour force. The third group reflects the competition for labour between agriculture and other sectors, by quantifying the share of population employed in agriculture and the availability of opportunities for alternative employment. Finally, the indicators for labour market integration show how easily these opportunities could be accessed via short- or long-distance migration. In addition to the factors shown in the diagram the model includes the price of wheat, which serves as a proxy for the price of provisions and so the cost of boarding servants for farmers.

The next step is to quantify the factors. Each one should be represented by a measurable variable, estimated for all ConPars in the period from 1851 to 1911. In the remaining part of this section, I review the list of variables and explain how this was done. For a minority of variables, the value was only available at a higher level (county) or for some, but not all, censuses. In a summary form, the quantification of the factors is presented in Table 2.1.

Table 2.1.	Variables	and data	sources.154

Factor	Variable	Definition	Source				
Farm Demand							
Pastoralism	pasture share	Pastoral to all cultivated land	Agr. Returns				
	cow people	% of people working with cows	I-CEM				
Farm horses	horse density	Horses per 1 acre of cultivated land	Agr. Returns				
	horse people	% of people working with horses	I-CEM				
Workers per master	workers per master	Number of workers per farmer plus bailiff	I-CEM				
Farm size	farm size	Average farm acreage	BBCE				
Local Labour Supply							
Settlements dispersion	population density	Population by area, in log form	I-CEM, Campop				
Unemployment	pauperism	% of paupers in population	I-CEM				
Enclosure	enclosure	Incidence of enclosure in previous 10 years	Campop				
Family hiring	family dummy	Selected districts in Northumb.	Gov. Reports				
Competition for Workers							
Agricultural focus	agricultural focus	% of agricultural workers in active population	I-CEM				
Opportunities long- distance	city distance	Distance to the nearest of 12 major cities	GIS				
Opportunities short- distance	weighted jobs	Weighted sum of non-agricultural jobs within 5km	I-CEM, GIS				
Market Integration							
Terrain ruggedness	TRI	Difference in elevation between neighbouring areas	GIS				
Railways	rail distance	Distance to the nearest rail station	Campop				
Turnpike roads	turnpike density	Sum length of turnpike roads by area	Campop				
Control							
Wheat price	wheat	Wheat price index	Gregory Clark				

¹⁵⁴ References are provided later in this section, where each variable is discussed.

I use three types of sources. Some variables were derived from the census directly, using occupational codes or searching for keywords or relevant numbers in individual records, and aggregating the information by geographic unit. The estimation of others required working with geographic data. Most of the latter were taken from shapefiles produced by Campop. Finally, I obtained farming statistics from contemporary Agricultural Returns. Summary statistics are shown in Table 2.2.

Variable	Mean	Std. Dev.	Min	Max
servant share, %	30.1	26.0	0.0	1.0
pasture share, %	58.9	15.6	23.7	90.3
horse density	4.50	0.84	2.47	6.61
workers per master	5.33	4.74	0.09	200
farm size	192	203	1	6,600
population density	0.16	1.16	0.00	80.76
pauperism	2.51	6.26	0.00	170.22
enclosure	0.01	0.12	0	1
family hiring	0.01	0.11	0	1
agricultural focus	29.37	16.44	0.00	95.45
weighted jobs	1.05	3.84	0.00	237.82
city distance	57.00	34.64	0.00	178.31
terrain ruggedness	8.82	6.88	0.20	73.68
rail distance	4.45	3.42	0.05	59.96
turnpike density	2.85	3.57	0.00	65.28

Table 2.2. Summary statistics.

2.3.1. Farm demand.

I will start with the factors of demand for labour, which are directly connected to agricultural production. The main source of agricultural statistics is annual Agricultural Returns, first produced in 1866.¹⁵⁵ A limiting factor is that the results were published at a

¹⁵⁵ B.P.P., 1867, 3941, LXXI.781, Agricultural Returns for Great Britain; *B.P.P.*, 1881, C.3078, XCIII.589, Agricultural Returns for Great Britain; *B.P.P.*, 1890-1891, C.6524, XCI.1, Agricultural Returns for Great Britain; *B.P.P.*, 1903, Cd. 1616, LXXXII.1, Board of Agriculture. Agricultural statistics; *B.P.P.*, 1912-1913, Cd. 6021, 6056, 6272, 6385, 6588, CVI.1, Board of Agriculture and Fisheries. Agricultural statistics.

county level, and we have to accept the county average as a proxy for any of its ConPars. The returns included the acreage under different crops and the number of livestock and can yield two alternative indicators of pastoralism. The first approach is to measure the share of total cultivated land used for pastoral purposes:

 $Pasture \ share = \frac{Area \ under \ permanent \ pasture \ or \ grasses}{Total \ cultivated \ area}$

Alternatively, we can look at a particular category of livestock, and as servants have been most actively involved with dairying, focus on cattle density defined as:

$$Cattle \ density = \frac{Number \ of \ cattle}{Total \ cultivated \ area}$$

The correlation between these two indices in 1866 was 0.83. Further analysis has shown that whilst there is very little difference between models using either index, the one based on *pasture share* performs more consistently. Hence this variable was selected for further analysis.

The next factor, the presence of farm horses, was quantified by the variable horse density as:

$$Horse \ density = \frac{Number \ of \ horses}{Total \ cultivated \ area}$$

The spatial distribution of agricultural statistics is presented in Figure 2.4. For these and other variables, which will be shown later, I used the information for 1881, which was the first year when there were no constraints on data availability. The contrast between the two maps, which is best visible in East Anglia and the North, is because horses were primarily used in arable agriculture. Note a degree of similarity between pastoralism and the share of servants, presented earlier.


As the returns do not cover the period of this study completely, we need another way to assess the factors affecting labour demand. I studied people's occupations in census records and identified the individuals working with a particular type of animal. The occupations were not coded at this level of detail, and I used string searches and experimented with different keywords and formulas trying to maximize the correlation with Agricultural Returns. The final selection of keywords is presented in Appendix 2.2. The estimates for the percentage of people working with animals were defined as:

$$Cow hands = \frac{Individuals working with cows}{Area}$$

and

 $Horse \ hands = \frac{Individuals \ working \ with \ horses}{Area}$

To compare my findings with published statistics I produced the mean values by county. The results are presented in Figure 2.5. Even in the best years, the correlations between the relevant pairs 'cow hands – pasture share' and 'horse hands – horse density' are less than perfect (Figure 2.5.A).





Part of the problem is that the people identified by a string search did not necessarily work in agriculture. Dairymaids could be employed in retail, selling milk in urban areas; even more importantly, horses were the main source of power throughout the economy, and many horsemen worked in the transport industry. In addition, the data for censuses and Agricultural Returns were collected by different governmental bodies, which employed different officers and used geographic boundaries that matched less than perfectly. Finally, the reliability of the early Agricultural Returns suffered from the lack of cooperation of farmers, who were reluctant to disclose sensitive information for purposes they did not fully understand.¹⁵⁶

¹⁵⁶ T. Pratt, 'The cattle census of 1866', *Rural Hist. Today*, 45 (2023), p. 4.

At the same time, the level of 0.35 to 0.50, achieved in 1861 to 1891, is acceptable for a statistical analysis. After that, both correlations visibly go down. The reason is that from 1901 the Census Office became more interested in the details of agricultural occupations, aiming to reduce the number of people in the catch-all category of 'General labourer', and disaggregated the occupational category of 'Agricultural labourer, farm servant' into the subcategories of individuals 'in charge of cattle' and those 'in charge of horses'.¹⁵⁷ Figure 2.5.B shows that the number of 'horse hands', found in the records, shot up, making the last two censuses incomparable with the earlier ones. Because of this, this method was not used for 1901 and 1911; in earlier censuses, the priority was given to Agricultural Returns, but the 'animal hands' approach was used for 1851 when these are not available.

Two other factors in the demand group are workers per master and farm size. Note that in Section 2.2 I referred to Kussmaul's analysis of the effect of the number of workers per farmer; however, later studies highlighted the importance of the bailiff system¹⁵⁸ and in this work a more general parameter of workers per master is used, defined as:

$Workers \ per \ master = \frac{Farm \ servants + Labourers}{Farmers + Bailiffs}$

Figure 2.6.A presents the geographic distribution of this variable. No clear relationship with service incidence is apparent in this case, though the lower values observed in the high-service North suggest a potential negative correlation.

At the same time, the similarity between maps A and B suggests that the number of workers per master is more closely linked to another aspect of agricultural production: farm size. The only county where the two maps notably differ is Cumberland, which can be attributed to the dominance of sheep farming and cattle rearing. These required extensive pastureland but fewer workers compared to dairy or arable farming. The reports of farm acreage made in the census of 1851 was the first attempt to collect this data. Scholarly opinion on the reliability of this information is divided. The problem was that the average acreage reported in 1851 was well below the Agricultural Returns, which from 1870 also

¹⁵⁷ M. Woollard, 'The 1901 census: an introduction', *Local Pop. Studies* (2001), p. 34.

¹⁵⁸ See Section 2.2.

included this data. Mills pointed out that whilst the 1851 Census Reports contained a full set of tables derived from this data, further publications made only partial use of the material that was still being collected, demonstrating the Census Office's lack of confidence in the statistics they had gathered.¹⁵⁹ Other historians have, however, praised the census returns as 'the only comprehensive survey of the size of farms in England and Wales'.¹⁶⁰ Leigh Shaw-Taylor explained the discrepancies by the fact that the Agricultural Returns included parttime smallholdings in addition to proper farms.¹⁶¹





As smallholders had no servants, this omission is not critical. Hence, this study uses the farm acreages, reported in the censuses. This data was processed by the British Business

¹⁵⁹ D. Mills, 'Trouble with farms at the Census Office: an evaluation of farm statistics from the censuses of 1851-1881 in England and Wales', *AgHR*, 47 (1999), p. 58.

¹⁶⁰ D. Grigg, 'Farm size in England and Wales, from early Victorian times to the present', *AgHR*, 35, 2 (1987), p. 181.

¹⁶¹ L. Shaw-Taylor, 'Family farms and capitalist farms in mid-nineteenth century England', *AgHR*, 53, 2 (2005), pp. 159-164.

Census of Entrepreneurs (BBCE), which extracted each farmer's submission from the I-CEM database.¹⁶² In this study, the BBCE file was joined to the main I-CEM database to place farmers in their ConPars; after that, the acreage was summarized by ConPar to produce the mean farm size as

$$Farm \ size = \frac{\sum Acreage}{Reporting \ farmers}$$

The map in Figure 2.6.B shows a discernible clustering of large farms in the extreme North (Northumberland) and in the southern belt passing through Dorset, Wiltshire, and Hampshire. This variable could not be produced for some areas as there were no farmers who reported their acreage. In most cases, however, these were urban areas where no agricultural activity took place.

2.3.2. Local labour supply.

Now I move to the factors of labour supply and start with the dispersion of settlements. One way to quantify this factor is to use GIS to analyse a spatial distribution of settlement types and use a map designed by Mills.¹⁶³ However, many areas fall in between the two ideal types of 'champion' and 'hamlet'; besides, the map is based on farming regions, and their borders can only be drawn approximately and changed over time. A simpler approach, taken here, is to use population density as a proxy. This is a continuous numeric variable which is relatively easy to produce. The only difficulty is that whilst the I-CEM database contains the population data for all parishes, the areas are often missing. However, the areas of parishes in the Campop shapefile correlate with the census at 0.99. Hence, the areas were taken from the shapefile, and population density was produced as:

$Population \ density = \frac{Population \ of \ ConPar}{Area \ of \ ConPar \ polygon}$

¹⁶² R. Bennett, H. Smith, C. van Lieshout, P. Montebruno, and G. Newton (2020). British Business Census of Entrepreneurs, 1851-1911. [data collection]. UK Data Service. SN: 8600, DOI: http://doi.org/10.5255/UKDA-SN-8600-2.

¹⁶³ Mills, *Lord and peasant*, p. 8.

The workflow for this analysis and other GIS variables is presented in Appendix 2.3. The output for population density is shown in Figure 2.7.A. Here and in further analysis it is used in a log form. The population density was the highest in London and the major industrial centres: Manchester, Liverpool, Birmingham, and Newcastle. The shape of a thinly populated northern region resembles the area with a high share of farm servants depicted in Figure 2.1.

Unemployment is a modern concept, and nineteenth-century sources cannot be consulted. This factor was quantified using a contemporary notion of pauperism. Paupers were identified in I-CEM using two complementary methods, a search by occupational code 5200 (pauper/ almsperson) and a string search for a 'pauper' in the verbal description of occupation. Importantly, after the reforms of 1834, poor relief was administered by Poor Law Unions, created by grouping neighbouring parishes. In this system, management of workhouses was centralized, and the parishes where a workhouse was located appeared in the census as having a larger population of paupers.



Figure 2.7. Population density and pauperism.

To avoid distortion, this variable was produced by registration subdistrict, which was typically the same as a Poor Law Union. The number of paupers was divided by the active population of RSD, in thousand people:

$$Pauperism = \frac{Paupers}{Active population} * 1000$$

The map of pauperism is presented in Figure 2.7.B. Note that a degree of reverse relationship exists between this parameter and population density, as both were ultimately related to the availability of employment. The main urban centres had the highest population density and lowest pauperism.

The estimate for the next variable, the incidence of enclosure, is based on a map produced by Campop. The shapefile includes all locations that had an enclosure act from 1700 to 1911.¹⁶⁴ For each census, I identified the ConPars, which had an enclosure within their borders in the previous 10 years. The variable *enclosure* was set at one for these parishes, and zero otherwise. By the time covered in this study, the peak of enclosures was over, and yet, over 300 parishes were affected in the decades of the 1840s and 1850s. After that, the activity went down to 8 parishes in the 1890s and 4 in the 1900s. Figure 2.8.A shows the results for 1881.

¹⁶⁴ M. Satchell, L. Boothman, D. Bogart, and L. Shaw Taylor, Parliamentary enclosures, c.1700-1911, GIS shapefile, https://www.campop.geog.cam.ac.uk/research/projects/transport/data/enclosures.html [accessed 1 Sep. 2023].



The quantification of the last supply factor, family hiring, required drawing the borders of the area where this form was dominant. Researching this question, I applied two approaches. First, the members of governmental commissions, Joseph Henley in 1867 and Arthur Wilson-Fox in 1893 and 1905, provided a list of the Northumberland districts where they observed this mode of sourcing labour.¹⁶⁵ Second, an immediate consequence of family hiring was an increase in female participation in agricultural labour, which I analyzed using I-CEM and summarized by registration district.¹⁶⁶ The two approaches matched, and the dummy for family hiring was set at one for the parishes in the districts of Glendale, Berwick-on-Tweed, Belford, and Alnwick, and zero otherwise (see Figure 2.8.B).

¹⁶⁵ B.P.P., 1867-1868, 4068 4068-I, XVII.1, 237, Commission on the employment of children, young persons, and women in agriculture (1867). First report of the commissioners, p. 56; *B.P.P.*, 1905, Cd. 2376, XCVII.335, Earnings of agricultural labourers. Second report by Mr. Wilson Fox on the wages, earnings, and conditions of employment of agricultural labourers, p. 14.

¹⁶⁶ The analysis is presented in Chapter 1.

2.3.3. Competition for workers.

Turning to the parameters of competition for workers, the first factor to consider is agricultural focus, defined as the proportion of the active population employed in agriculture. To produce an estimate for this variable I counted the number of people in agricultural occupations, i.e. farm servants, day labourers, and farmers, and divided the total by the active population of a ConPar:

$$A gricultural focus = \frac{Farm \ servants + Labourers + Farmers}{Active \ population}$$

The map, presented in Figure 2.9.A illustrates the fact that in 1881 the population of the main urban areas primarily worked in industry, while those living in East Anglia had limited prospects for employment outside agriculture.

Figure 2.9. Agricultural focus and city distance.



To assess the attractiveness of opportunities at a long distance (Figure 2.9.B), I followed a simple approach, used by Dan Bogart et al, and measured the distance from the centre of a ConPar to the nearest largest city.¹⁶⁷

City distance = min(Distances to 12 major cities)

The list of cities includes those that ranked among the ten largest in England at least once during the study period: London, Liverpool, Manchester, Birmingham, Leeds, Bristol, Sheffield, Bradford, Newcastle, Kingston-Upon-Hull, Nottingham, and Plymouth, that is twelve cities in total.¹⁶⁸ A comparison of maps A and B reveals a predictable positive correlation between agricultural focus and distance from cities, which is particularly pronounced in the South. East Anglia stands out as the largest region removed from major urban centres.

The next variable was designed to represent the pull of employment opportunities within a short distance. I started with the I-CEM and counted the number of people, employed outside agriculture, in each ConPar. After that, I used GIS to identify the ConPars within 5 km of the target. The indicator of alternative opportunities within a short distance was produced as

$$Weighted jobs = \sum_{Distance < 5km} \frac{Non - agricultural workers}{Distance}$$

Here the count of near neighbours in non-agricultural employment represents the degree of job opportunities outside of farming. The maximum distance corresponds to the average distance of farm servants' moves between consecutive jobs reported by Kussmaul from her study of settlement examinations in Hertfordshire and Suffolk.¹⁶⁹ It can be assumed that they had this distance in mind when contemplating their moves out of agriculture as well. Note that I experimented with distances up to 20 km and obtained similar results. The spatial distribution of weighted jobs is presented in Figure 2.10.A.

¹⁶⁷ D. Bogart et al, 'Railways, divergence', p. 5.

¹⁶⁸ Bennett, R. J., 2012, Urban Population Database, 1801-1911, [data collection], Robson, B., University of Manchester, Department of Geography, accessed 14 Feb. 2024, SN: 7154, DOI: http://doi.org/10.5255/UKDA-SN-7154-1

¹⁶⁹ Kussmaul, *Servants*, p. 57.



Most opportunities for alternative employment were concentrated in the industrial areas of Lancashire and around the capital, which makes the picture similar to the map of population density in Figure 2.7.A.

2.3.4. Market integration.

The factors, grouped under the heading of 'market integration', reflect how easily one could access a parish through common transportation methods such as trains, stagecoaches, and on foot. I begin with the underlying topographic factor: the ruggedness of the terrain. It is represented by the terrain ruggedness index (TRI), developed by Shawn Riley et al. in 1999.¹⁷⁰ Their approach involves imposing on a map a square grid and computing the sum change in elevation between a grid cell and its eight neighbours. The application of

¹⁷⁰ S. Riley, S. DeGloria, and R. Elliott, 'A terrain ruggedness index that quantifies topographic heterogeneity', *Int. J. of Sciences*, 5, 1-4 (1999), pp. 23-27.

this method is limited by the resolution of the underlying digital elevation model (DEM), and I used the Global Terrain DEM, provided by the Environmental Systems Research Institute (ESRI), which has a high 2-meter resolution. The map in Figure 2.10.B shows a strong association of this index with elevation, as the main area of a high TRI in the North closely matches the path of the mountain ridge running from the Cumbrian mountains through Yorkshire dales to the Pennines.

During the period covered by this study, rail was a superior form of transport. By 1851, there were 1,686 railway stations across England, Scotland, and Wales. Railways connected all major population centres, but some regions in Wales and the Southwest remained underserved, and the network continued to grow. A simple indicator of access to rail is the distance from the centre of a ConPar to the nearest rail station:

Rail distance = min(Distances to rail stations)

Campop produced the shapefiles of rail stations from 1851 to 1881. Further developments were associated with the rationalization of existing network rather than new construction. The map in Figure 2.11.A shows that in 1881 only a minority of parishes were further than 7 km from a rail station.

For turnpike roads I used a digital map of the turnpikes in 1851, produced by Campop.¹⁷¹ By that time, the turnpike boom was over and the network had reached its maximum coverage. As the vast majority of ConPars had at least one turnpike road within their borders, the commonly used indices, such as the existence of a turnpike or distance from a parish to a turnpike fail to adequately reflect the difference between better- and worse-served areas.

¹⁷¹ D. Bogart, A. Rosevear, and M. Satchell, Turnpike roads of England and Wales 1667-1892, GIS shapefile, www.campop.geog.cam.ac.uk%2Fresearch%2Foccupations%2Fdatasets%2Fcatalogues%2Fdocumentation%2Ft urnpikeroads16671892.pdf [accessed 20 Apr. 2023].



A more precise indicator is the density of the road network, calculated as the total length of turnpikes within a ConPar, divided by its area:

$$Turnpike \ density = \frac{\sum Length \ of \ turnpike \ roads}{Area}$$

The map in Figure 2.11.B shows a connection between turnpikes and population density presented in Figure 2.7.A earlier, although the correlation is less than perfect as there are some gaps in the densely populated area around London.

The last variable in the model is the wheat price. By 1851 the national market was well-integrated and the price was the same for all areas. This data was summarized by Gregory Clark ¹⁷² and the time trend is presented in Figure 2.12. The decline in the last quarter of the century was caused by the competition with grain supplies from the US.

¹⁷² G. Clark, 'The price history of English agriculture, 1209–1914', *Research in Econ. Hist.*, 22 (2004), pp. 41-123.





I conclude this section by reviewing data availability and highlighting critical data gaps that impact the structure of the subsequent analysis. Table 2.3 presents data availability for each variable, defined as the ratio of ConPars with available data to the total number of ConPars in a census. For 1901 and 1911, the number of ConPars from 1891 was used, representing the maximum possible number of parishes. As explained earlier, the main loss of data occurred in the following decade when the borders of 1,400 or 13% of the total number of continuous parishes changed. In 1911 another 694 or 5% of parishes were affected. However, as noted earlier, these were urban parishes, where the expansion of population necessitated administrative reforms. Urbanization affected the availability of dependent variable too, as the share of servants could not be defined for areas without agricultural workers. From 1851 to 1881, there were only about a hundred such parishes, increasing to 204 in 1891, and surging to 1,310 by 1911.

Year	1851	1861	1881	1891	1901	1911
servant share	98.7	98.6	98.3	98.3	86.7	70.8
pasture share	-	98.4	98.4	98.4	87.1	82.0
horse density	-	98.4	98.4	98.4	87.1	82.0
cow hands	100.0	100.0	100.0	100.0	-	-
horse hands	100.0	100.0	100.0	100.0	-	-
workers per master	97.8	97.9	97.5	97.2	86.4	70.2
farm size	91.0	93.1	93.2	-	-	-
enclosure	100.0	100.0	100.0	100.0	87.1	82.0
population density	100.0	100.0	100.0	100.0	87.1	82.0
pauperism	100.0	100.0	100.0	100.0	87.1	82.0
family hiring	100.0	100.0	100.0	100.0	87.1	82.0
agricultural focus	100.0	100.0	100.0	100.0	87.1	81.4
weighted jobs	100.0	100.0	100.0	100.0	87.1	82.0
city distance	100.0	100.0	100.0	100.0	87.0	82.0
rail distance	100.0	100.0	100.0	100.0	87.0	82.0
terrain ruggedness	99.9	100.0	100.0	100.0	87.0	82.0
turnpike density	100.0	100.0	100.0	100.0	87.0	82.0

Table 2.3. Data availability (percentage of continuous parishes).

In addition, the information on some variables was either not collected or its utility was limited by changing definitions. A systematic gathering of agricultural statistics began only in 1866, when the first Agricultural Returns, limited in their scope, were produced. Consequently, there is no agricultural data for 1851; for 1861, we must rely on the 1866 data for pasture share, and the 1870 data on horse density. Later the Agricultural Returns were collected annually, and from the 1881 census onward, I used the information for the same year. The alternative measures of agricultural activity, cow and horse hands, could potentially be produced for all censuses, but as the tabulation rules changed in 1901, the censuses of 1901 and 1911 have to be excluded. Farm sizes were only included in the censuses up until 1881. From 1870 farm acreage was covered by the Agricultural Returns, but this information was only published at a county level and as noted above, the two methods do not match well. As neither approach covers the entire period of this study, the census was chosen as a more detailed source, but this meant a data gap from 1891 to 1911.

The other data gaps are of minor importance. Even when farm acreage was collected some farmers failed to submit this information. The Agricultural Returns for London were

not produced until 1901 but the agricultural activity in the capital was insignificant and can be ignored. Finally, the latest data on rail stations is for 1881, and I used this data for all later censuses. However, further additions were marginal.

2.4. The key findings.

To test the impact of factors proposed in the literature on farm service and use the information from both dimensions, cross-sectional and time series, the data were gathered into a panel dataset. Two types of models were produced: general to assess the relative importance of factors, and specific, to consider the impact of selected factors in detail. In this section I present my findings; however, before doing this, I explain how I produced the main dataset, and what alternatives were explored.

2.4.1. Data preparation and preliminary analysis.

My objective was to assess the impact of all factors, presented earlier, and I aimed at including as many variables for as many years as possible. In this respect, the main limiting factors were a major loss of parishes with agricultural workers in 1911 and the lack of agricultural statistics for 1851. The exclusion of urban areas in 1911 is not a problem in itself, as farm service should be studied in a rural environment. However, balancing the dataset would require excluding these areas for the entire period, and a number of parishes that were rural earlier would be lost. Hence the main dataset was limited to the period from 1861 to 1901, but an additional regression was run for 1861 to 1911 to check if any new dependencies emerged in the last decade. Losing the opportunity to study farm service in 1851 is also suboptimal; that year farm service was not far from its peak and even southeast England had substantial high-service pockets. To control for the impact of potential geographic bias towards the North I produced the third dataset, which instead of Agricultural Returns includes the 'animal hands' statistics, available from 1851 to 1891. These three regressions comprise a set of 'general' models.

In addition, I developed three specific models to explore effects that could not be examined using the general models. The first model incorporates the number of workers per master, a variable excluded from the general regression due to multicollinearity, as will be explained shortly. The second model focuses on family hiring, where this parameter, previously one of the explanatory variables in the general models, becomes an independent variable. Lastly, the third model includes farm size—an important parameter that was excluded from the main dataset because it is only available for three out of the six censuses.

The next step is to consider the time trends in explanatory variables and their impact on the share of servants. This analysis below is presented for the main dataset. As its composition varied by census it was balanced by including only the parishes for which the information for all four censuses from 1861 to 1901 was present. The potential number of units meeting this requirement equals the minimum number of parishes from 1861 to 1901 for which all data except farm size are available, and stands at 10,088. In reality, the number of parishes is 9,831, due to some mismatches in data availability across censuses.

The dataset is representative of the rural areas of England but contains some deviations from the complete dataset for the entire country (Figure 2.13). The difference is due to the exclusion of some urban areas. There is no data for London prior to 1901, as agricultural statistics for the capital were not collected. Additionally, as explained in Section 2.3, more parishes were excluded in 1901 and 1911 due to border changes and the lack of agricultural employment. A comparison of time trends for the main (balanced) dataset with the complete version shows a good match for most variables, including the share of servants. However, the population density is visibly lower, as is the index of weighted jobs. The last observation, in particular, highlights the importance of balancing a dataset, as the unbalanced version shows a sharp decline in weighted jobs from 1891 to 1901 which could lead to a misleading interpretation of the impact of this variable.



Figure 2.13. Time trends for selected variables, main vs. complete dataset.

Figure 2.14 gives scatterplots of the share of servants against each of the explanatory variables in the main dataset. Besides population density, two other variables, pauperism and workers per master, were used in a log form to reduce the gap between the extreme values. In addition to the main dataset, a diagram for farm size is included, based on a balanced dataset for 1861 to 1881. Each diagram contains the estimated regression line, corresponding to a simple linear regression of the share of farm servants on the variable in question. As the simple regressions ignore the contribution of other variables, they only present the first iteration of the analysis. Nonetheless, this is a useful starting point; most of the scholars quoted in Section 2.2 spoke about associations, rather than more complex relationships, and their suggestions are essentially hypotheses on simple regressions, that can be tested against the new evidence.



Figure 2.14. Relationships between explanatory variables and share of farm servants.

The effects of most variables are well aligned with the literature, with a few exceptions. Notably, the correlation of service with *horse density* appears negative. At the same time, the regression line is relatively flat, which can be related to the coexistence of different systems of managing horses, as noted in the literature review. Following the logic of competition for labour at a local level, the sign for *weighted jobs* should be positive but

this is not the case. Better transport connections are expected to increase the incidence of service and yet service seems stronger at a higher distance from rail stations and in areas of lower density of turnpike roads.

The limitation of simple regressions is that they ignore the interdependencies between variables, which can be quantified by pair-wise correlations, presented in Table 2.4.

No	Variable / No	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
			-	-		-	-		-	-			-	
1	pasture share	1.00	0.42	0.49	0.03	0.31	0.06	0.10	0.45	0.48	0.13	0.35	0.15	0.16
				-		-	-	-				-	-	-
2	horse density		1.00	0.01	0.06	0.08	0.03	0.26	0.08	0.32	0.02	0.21	0.03	0.09
	log (work.										-	-		-
3	/master)			1.00	0.07	0.23	0.04	0.04	0.60	0.27	0.05	0.28	0.03	0.03
						-		-	-	-		-	-	
4	log (pop density)				1.00	0.01	0.02	0.07	0.46	0.12	0.38	0.11	0.28	0.40
-						4 00	0.05	-	0.40	0.40	-	-	0.40	-
5	log(pauperism)					1.00	0.05	0.02	0.19	0.13	0.07	0.05	0.13	0.02
6	a mala a uma						1 00	-	0.02	0.01	-	0.01	0.00	-
0	enclosure						1.00	0.01	0.02	0.01	0.01	0.01	0.06	0.00
7	family hiring							1 00	0.07	0.01	-	0.02	0.06	-
/								1.00	0.07	0.01	0.02	0.03	0.00	0.02
8	agricultural focus								1 00	0 33	0.21	0.23	0.22	- 0.26
0	agriculturar locus								1.00	0.55	-	-	0.22	-
9	city distance									1.00	0.17	0.11	0.14	0.14
												-	-	
10	weighted jobs										1.00	0.02	0.15	0.14
	<u> </u>													
11	TRI											1.00	0.22	0.10
														-
12	rail distance												1.00	0.15
13	turnpike density													1.00

Table 2.4. The correlation matrix.

The coefficients above 0.3 are in bold. A correlation between *pasture share* and *horse density* is negative because horses were more commonly used in arable, as opposed to pastoral, agriculture. Hence, when pastoralism is not controlled for, the impact of *horse density* on farm service is contaminated by the negative association between this variable and *pasture share*. Similar explanations can be offered for three other variables, the impact of which was noted as unexpected, as they are closely related to population density. Weighted jobs are positively correlated with this variable. Because of this, a lower level of

farm service in parishes with better opportunities for non-agricultural employment could reflect the higher availability of workers in general, rather than the effect of opportunities as such. As noted in Section 2.2, the quality of transport connections correlates with population density too. When the latter is omitted, the decline of service in places better served with roads or having a rail station nearby might be because of higher population density.

Another important finding is the strong correlation of 0.60 between *agricultural focus* and *workers per master*. When testing regressions that included both variables, the variance inflation factor (VIF) was 11.5, indicating multicollinearity. Because of this, workers per master was excluded from the main regression. Since this variable had the lowest availability of estimates (refer to Table 2.3), its exclusion allowed for retaining 103 parishes in the dataset that had agricultural workers but no masters, thereby accounting for alternative forms of farm service.

Panel data regression not only controls for various confounders but also incorporates a temporal dimension. In this respect, the complexity comes from the fact that the impact of predictors changed over time. Figure 2.15 illustrates this for horse density.





In these charts, the parish data was summarised by the county. The chart on the left shows the general trend, which is the same as the one in Figure 2.14. In the right-hand chart the observations are grouped by year. The presence of horses had a strong effect in the early years, and a much lower impact in 1901 when the line is almost horizontal. Further analysis has shown that the impact of other variables also varied by year. To deal with this issue, I fitted a regression model with a time interaction for all variables.

As the dependent variable is a proportion, bounded between zero and one, it was logit transformed, using the formula:

$$logit(share) = log(\frac{share}{1 - share})$$

The independent variables were standardized,¹⁷³ to allow a comparison of their contribution.

2.4.2. Results of general models.

Table 2.5 presents the summary outputs of three general models. For each model, the table below shows the values for the starting year, e.g. 1861 for Model 1. Importantly, time interaction in the main model is statistically significant at p=0.05 for at least one year for all variables except enclosure, pauperism, and weighted jobs. The full table, presented in Appendix 2.4 includes 55 additional lines showing the estimates for five time interaction terms for 11 variables.

¹⁷³ Standardization involves transforming the values of a variable to have a mean of zero and a standard deviation of one: Z = sd(X) / (X - mean(X)).

	Model 1	Model 2	Model 3
	1861-1901	1861-1911	1851-1891
(intercept)	-1.30 ***	-1.30 ***	-1.31 ***
	(0.02)	(0.02)	(0.01)
pasture share	0.45 ***	0.48 ***	0.12 ***
	(0.04)	(0.04)	(0.02)
horse density	0.47 ***	0.46 ***	0.06 *
	(0.03)	(0.04)	(0.02)
log(population density)	-1.17 ***	-1.25 ***	-1.30 ***
	(0.03)	(0.04)	(0.03)
log(pauperism)	-0.03	-0.05	0.82 ***
	(0.03)	(0.03)	(0.05)
factor(enclosure)	-0.17	-0.13	-0.22
	(0.12)	(0.12)	(0.13)
factor(family hiring)	11.40 ***	9.92 ***	11.26 ***
	(0.11)	(0.12)	(0.10)
agricultural focus	-1.00 ***	-0.89 ***	-0.95 ***
-	(0.03)	(0.03)	(0.03)
city distance	-0.16 ***	-0.12 ***	-0.27 ***
	(0.03)	(0.03)	(0.02)
weighted jobs	0.06	0.09 *	0.07 **
	(0.04)	(0.05)	(0.03)
TRI	-0.11 ***	-0.10 ***	-0.06 *
	(0.03)	(0.03)	(0.02)
rail distance	-0.01	-0.01	-0.02
	(0.02)	(0.02)	(0.02)
turnpike density	0.01	0.03	-0.11 ***
	(0.03)	(0.03)	(0.03)
wheat price	0.69 ***	0.66 ***	0.13 ***
	(0.02)	(0.02)	(0.01)
R ²	0.39	0.33	0.39
Adj. R ²	0.39	0.33	0.39
Num. obs.	39324	38155	43524

Table 2.5. General regressions for share of servants.

*** p < 0.001; ** p < 0.01; * p < 0.05

Temporal change is visualized in Figure 2.16, which shows all coefficients except family hiring on the same scale. That system drove the share of servants up in a small area in Northumberland but a comparison of its effect with that of other variables is meaningless as there were no other areas of family hiring in England. All other variables are split into four groups presented in Section 2.3: farm demand, local labour supply, competition for workers, and market integration; time-invariant variables are represented with horizontal lines, corresponding to the estimates for the first year. The points for 1861 to 1901 are connected; they are taken from the main model and are considered the most reliable. The estimates for 1911 are from the second model, and the ones for 1851 are from the third. This information is included to check for evidence of any important trends emerging beyond the interval covered by the main model.



Figure 2.16. Time trends, 1851 to 1911.

The following conclusions can be made. First, the findings are robust, as the signs of statistically significant coefficients are the same across the three models. Second, the signs match the directions of impact suggested in the literature; the only variable where my findings require new interpretation is agricultural focus, as the impact of this factor has not been assessed earlier. Third, the factors can be grouped into three categories: consistently

important, intermittently important, and relatively unimportant. In the remaining part of this section, I will go through these groups and start with the least important ones.

Of the least importance are five factors: enclosure, weighted jobs, rail distance, turnpike density, and terrain ruggedness (see Figure 2.16). The negative sign of enclosure in 1891 shows that the proletarianization of smallholders had a higher impact on service than the increase in demand for labour. In 1901 and 1911 the effect was reversed as the demand side became more important. At the same time, the effect was limited. On one hand, labour supply and demand factors balanced each other; on the other, by the time of this study, the peak of enclosure had already passed. The effect of weighted jobs is positive and small; this suggests that the competition for labour between agriculture and industry played out at a larger scale than the daytime walking distance, and the migration to a factory job was, from a worker's perspective, quite different from moving between positions in agriculture. Finally, all the factors capturing market integration are relatively unimportant. There are some interesting trends, for example, the sign for rail distance changes from positive in 1861 and 1881 to negative in later censuses. The main reason must have been the time lag between the construction of a line and its impact on people's movement. In addition, the main progress was in building peripheral lines, which must have been used primarily by the resident rural population and had little effect on migration to cities. More generally, however, by 1851 the country markets were well-integrated, and further developments in this area had little effect on farm service. The coefficient for TRI is negative at the beginning but then changes sign; this could be another indication of the connection between the incidence of farm service and escape from rural areas, which rugged terrain makes somewhat more difficult, but the effect is small, and this observation is not statistically significant.

The importance of city distance and pauperism changed over time. In 1861, and probably earlier, as indicated by the estimate for 1851, farm service decreased with distance from a large city, but the decline was modest. However, the coefficient increased over time and by 1901 at -0.56 became comparable with the most important variables. The longdistance migration of workers, searching for a better life in major cities, was a bigger drain on farmers' labour resources than short-distance moves and provided a strong motivation to retain the workers as farm servants. The usage of this approach increased over time as the

122

rural pool of labour was depleted. The coefficient for another variable, pauperism, has in the main model a small negative value, suggesting that as per the review in Section 2 oversupply of labour increased the competitive advantage of day labourers over servants. Yet in Model 3 the value of this coefficient in 1851 is quite high at 0.83. This finding is less robust than others as it is only supported by one model, but there is a degree of consistency as the time effects are significant and from 1861 to 1891 drive the coefficient to a level close to the main model. Hence, it can be suggested that in 1851 and probably earlier another effect of pauperism was in place, as poverty pressed people into service and forced them to accept lower pay, negating the cost advantage of day labourers. Over time the standard of living improved, and this factor lost its significance.

The four main factors explaining the persistence of farm service were pasture share, horse density, population density, and agricultural focus. I will start with the presence of farm animals. The coefficients are positive in all models and in the main one have similar values and demonstrate minor variations over time. Note that the coefficient for horses changes sign compared to a simple regression and becomes positive. The lower estimates in the model for 1851-1891 should be attributed to the fact that the correlation of the Agricultural Returns with the 'animal hands' approach is limited to about 0.4 rather than a real trend. Despite their similarity, in the context of earlier studies the findings for pasture share, on the one hand, and horse density on the other should be positioned differently. The contribution of farm servants to pastoral farming is well-established, and the observed importance of this variable confirms this, rather than suggesting anything novel. In contrast, the finding that servants were equally important for working with horses is new. It demonstrates that this activity was not limited to unorthodox forms of service such as the Yorkshire 'horse lads', but involved traditional living-in servants.

Continuing the analysis of the impact of pastoralism and horses, note the strong negative correlation between these factors (see Table 2.4). Figure 2.17.A demonstrates this relationship for 1881. The scatterplot is divided into quadrants based on the median values of the variables, represented by dashed lines.¹⁷⁴ The correlation is less than perfect as parishes in Quadrant 1 had low values of both parameters and parishes in Quadrant 3 were

¹⁷⁴ Median is used because the distribution is asymmetric.

high in both. Nonetheless, It can be expected that the share of servants in Quadrant 1 should be low, and in Quadrant 3 a high incidence of service should be found. Spatial analysis demonstrates that this is generally true, although there were exceptions, shown on the map in Figure 2.17.B.





Parishes of the first type, labelled 'unexpectedly high', are those from Quadrant 1 that possess an above-average share of servants. Conversely, the parishes with unexpectedly low percentages of farm servants represent the mirror image of this situation: both factors of agricultural production are high, placing them in Quadrant 3, but the proportion of servants is low. Most parishes from the former category were located in Lincolnshire, with additional areas in the belt extending south through Northamptonshire, Oxfordshire, and reaching Hampshire, along with another cluster in Kent. Examples of unexpectedly low incidence of service are found in Yorkshire, Lancashire, Herefordshire, and Middlesex.

There are two complementary ways to rationalize these findings. First, we can look at the variables within the model. A comparison of the two types of exceptional parishes

reveals that the unexpectedly high-service places had significantly lower population density (in log form: -3.2 vs. -1.1). The values for TRI (5.7 vs. 10.7) and weighted jobs (7.8 vs. 0.9) also differed, but since population density was much more important, this part of the explanation must rely on the effect of that variable. Second, there were factors not included in this analysis. While the model incorporates all variables suggested in earlier research, there are always additional influences that may not be prominent at a national level but are significant locally. For instance, much of the land in Lincolnshire was reclaimed marshland, where cultivation was labour-intensive. This could have increased competition for labour, that is, had an effect similar to that of better opportunities for non-agricultural employment.

Two other consistently important factors are the dispersion of settlements and agricultural focus. The contribution of the former has just been demonstrated in the analysis above. The coefficient for population density is negative and in absolute terms even exceeds the value of purely agricultural variables. This matches the consensus and confirms Howkins' assertion that in the nineteenth century, farm service was strongly associated 'not with a particular farming system but with a particular settlement pattern'¹⁷⁵. This contrasts sharply with the last factor to be discussed, agricultural focus. Neither this factor nor its opposite, the level of industrialization, have ever been connected to farm service. Nonetheless, agricultural focus proves to be as important as population density.

Regarding the effect on farm service the pair of variables 'population density – agricultural focus' is similar to the pair of 'pasture share – horse density'. Just as the logic of agricultural production caused an inverse pairwise relationship discussed before, the logic of urbanization stipulated a negative correlation between population density and the percentage of workers employed in agriculture. The correlation, observed in 1881, is presented in Figure 2.18.A, where the values are grouped by county.

¹⁷⁵ Howkins, 'Farm labourer', p. 89.

Figure 2.18. Population density, agricultural focus, and exceptional parishes, 1881.



In this case, the coefficients for both variables are negative, leading us to expect a high share of farm servants in Quadrant 1 and a low share in Quadrant 3. However, as before, there were exceptions: some parishes in Quadrant 1 had an unexpectedly low share of servants, while others in Quadrant 3 had above-average servant shares (Figure 2.18.B). Compared to Figure 2.17.B, the pattern is more granular, with 512 exceptional places in this pair versus 1,091 in the previous pair of agricultural factors. This demonstrates a relatively higher impact of the factors forming the second pair. The number of parishes with an unexpectedly high share is particularly small, with only 66, almost all located in the North Midlands within the circled area. In contrast, the group of parishes with an unexpectedly low share is larger and includes parishes across much of southern England, except in the West.

A comparison of the coefficients for the two exceptional groups suggests that the observed effect can be attributed to the impact of the "agricultural" pair of variables. Parishes with a lower-than-expected share of servants had lower pasture shares (57.9 vs. 70.6) and lower horse density (4.1 vs. 4.3) compared to those with an unexpectedly high share. Additionally, many of the low-service areas were coastal, offering opportunities for irregular and seasonal work such as fishing, tourism, and possibly smuggling. This may have supported a pool of casual labourers who provided an alternative to farm servants.

2.4.3. Results of special models.

The purpose of the first special model is to explain the impact of agricultural focus. It has been demonstrated that this variable had a strong negative effect; however, it is not immediately clear why a lower percentage of people working in agriculture would increase the proportion of servants to labourers. To clarify this dependency, I reintroduce the variable 'workers per master' into the analysis. An increase in this ratio was expected to reduce the share of servants, but this variable was dropped due to its high correlation with agricultural focus (see Table 2.4).

The hypothesis consists of two parts. First, in a parish with a small number of agricultural workers—servants plus labourers—the share of servants could appear high simply because both the numerator and the denominator are low. For instance, in an industrial parish with only two farm workers, one servant and one labourer, the servant share would be 50%. In more agricultural areas, the total number of farm workers would be higher. However, greater agricultural focus would mean more workers per master, which would in turn reduce the share of servants.

To test this hypothesis I ran two auxiliary regressions. The approach was the same as in the main model, but in the first case, I excluded the parishes with less than 10 agricultural workers, and in the second, I also added workers per master and its interaction with the year. This allowed me to test both parts of my hypothesis.





The complete outputs for these and other special regressions are provided in Appendix 2.5. In general, multicollinearity makes the results less reliable, but rather than looking for new insights for the dependent variable we are only interested in the impact of additional parameters on the coefficient for workers per master. In Figure 2.19, the coefficients are plotted alongside those from the base model, which was presented earlier. Note that the base model uses a slightly reduced dataset due to the requirement to have at least one master in a parish to define workers per master. Nevertheless, the graph for the base model remains identical to the one presented earlier in Figure 2.16.

As before, the coefficient for agricultural focus starts in 1861 at -1 and rises to just below -0.8 in the period from 1891 to 1901. To what extent do the new variables reduce its effect? The exclusion of parishes with a small number of agricultural workers drives the absolute value of the coefficient for agricultural focus down to 0.8. While the first part of my hypothesis holds, it only provides a partial explanation. However, the dotted line representing the estimates for the second special model is significantly higher. In absolute terms, the coefficient for agricultural focus drops to 0.3, indicating that the addition of workers per master reduces the coefficient to one-third of its original value. In other words, this variable accounts for two-thirds of the effect. Even in this model, though, the coefficient for agricultural focus remains statistically significant, suggesting that another confounding factor may be at play and leaving room for further analysis.

At this stage, we are ready to revisit the main regressions to examine the topic of family hiring. All regressions in Table 2.5 demonstrate its importance as the single most important factor; at the same time, as noted above, its influence was limited geographically. Rather than discussing the contribution of family hiring at the national scale, I consider a question of how the districts where this form was dominant differed from the rest of the country. Given the share of servants, what factors of the local economy affected the likelihood that the system of hiring servants by family was adopted? To answer this question, I ran a regression, the output of which is presented graphically in Figure 2.20.A. I used the main dataset for 1861 to 1901 and the same variables as before, including the time interactions, but in this case, family hiring becomes a dependent variable, and the share of servants is considered a control variable. As the dependent variable is binary, I used the logistic regression method.

128





The variables presented in the chart had the highest impact. A few more were statistically significant, but the maximum Z-score of their coefficients from 1861 to 1901 was below 0.01, making them insignificant economically. Notable by their absence are the factors of agricultural production. This is somewhat counterintuitive, as agriculture was the main sector of the local economy. The explanation is that a specific form of farming developed in this area could not be measured in cows and horses. In 1851 James Caird described the north of Northumberland as 'excellent turnip land, held in large farms by intelligent cultivators'¹⁷⁶. Growing turnips was labour intensive; it required constant attention, but not physical strength, and could to a large extent be delegated to women, who cost less than men. The 'intelligent cultivators' implemented family farming as an efficient solution to their labour demand. Low population density required importing labour which was cheaper in bulk. High agricultural focus meant a high number of workers per farmer; a traditional system would require housing these people on a farm, which imposed a physical constraint on the number (and share) of servants. Family hiring removed this limitation, as servant families were placed in farm cottages, and on large farms, as many could be built as economically feasible.

¹⁷⁶ J. Caird, *English agriculture in 1850–51*, second ed. (1968), pp. 369-371.

Two other factors require a supply-side explanation. The servant families had other employment options, which were easier to reach in proximity of a major city and close to a rail line; the reversal of this argument is that the relative attractiveness of family hiring increased with city distance and rail distance.

Moving on to the temporal dimension, note a decline in the effect of all variables over time. The values of other coefficients remained low, whilst separate regressions for each year demonstrate a gradual decline of R² from 0.32 in 1861 to 0.23 in 1901. This suggests that in the mid-nineteenth century and probably earlier the rationale for family hiring was strong; the system continued into later years, but to an increasing extent this was due to established tradition rather than a calculated choice. Lastly, one additional factor should be mentioned. Family hiring was a dominant form of labour provision in lowland Scotland,¹⁷⁷ and it can be argued that the fact that it was observed in a neighbouring region provides evidence of a cross-border transfer of hiring practices. The difficulty in checking this proposition is that the parishes close to the border are also away from the major cities, and the variable *city distance* discussed above already includes this factor. Hence the impact of the Scottish precedent cannot be separated from other variables included in the regressions.

Finally, I would like to discuss the effect of farm size. The data on this variable is available for 1851, 1861, and 1881; at the same time, there are no Agricultural Returns for the first of these censuses. Hence my approach was to combine the data for 1861 and 1881 and run a pooled segmented regression. There are minor differences compared to the main model for 1861-1901, but the signs of the key variable are the same. The effect of farm size is visualized in Figure 2.20.B, which shows the fitted values and 95% confidence intervals for the logit-transformed share of farm servants. Predictions and standard errors were produced for a single synthetic case representing the mean values of the independent variables, repeated across the range of farm sizes. Also included is the corresponding curve for the original dependent variable, the share of farm servants, which follows a trajectory very similar to that of the logit-transformed share.

Farm size is broken into three segments. Initially, the share of farm servants increases; however, once farm size reaches the first breakpoint, estimated at 58 acres (see

¹⁷⁷ R. Anthony, *Herds and hinds. Farm labour in lowland Scotland, 1900–1939* (1997).

Appendix 2.5), the slope changes and becomes negative. The decline continues until the second breakpoint at 433 acres, after which the regression line becomes almost flat. The initial rise and subsequent decline are statistically significant, as confirmed by the segment-specific slope estimates and their confidence intervals. However, beyond 433 acres the relationship between farm size and the share of servants is not statistically significant, and the trend in this range remains uncertain.

The lack of statistical significance for large farms can be seen as evidence of the absence of a straightforward relationship between farm acreage and the share of servants reported by Howkins and Verdon (see Section 2.2). At the same time, the observed trends for smaller farms make practical sense and support the following interpretation. Very small farmers relied on family labour and did not employ servants. Larger farmers required hired labour and increasingly housed servants in their households. However, there was a limit to how many servants could be managed and accommodated within the main farm building, which appears to have been reached at around 58 acres. Beyond this point, while more labour was needed, farmers increased their use of day labourers at a higher rate than resident servants, causing the share of servants to decline. To house additional servants, some farmers have turned to alternative forms of service, highlighted by Howkins and Verdon.

These findings also provide new data on the connection between farm acreage and the workforce composition, debated by Robert Allen and Leigh Shaw Taylor. Allen suggested that family holdings of up to 50 to 60 acres could be farmed 'without much hired labour'¹⁷⁸. Shaw Taylor pointed out, that in the midlands even small farmers of 30 to 40 acres relied heavily on hired labour.¹⁷⁹ The new data are national in scope and allow a compromise. Even small farmers had servants; the share of servants in their hired labour force increased with farm size and the significance of the range suggested by Allen was that by that acreage farmers not only hired servants but reached the maximum usage rate.

¹⁷⁸ R. Allen, *Enclosure and the yeoman. The agricultural development of the South Midlands* 1450–1850 (1992), p. 57.

¹⁷⁹ L. Shaw-Taylor, 'The rise of agrarian capitalism and the decline of family farming in England', *EcHR* 65, 1 (2012), p. 42.

2.5. Conclusion.

Over the last forty years, researchers have accumulated a broad range of ideas that could explain the longevity of farm service in England in the nineteenth century. Some suggestions were little more than occasional comments, others were based on substantial research into the history of a parish or a larger geographic unit. However, no attempt has been yet made to quantify the effect of this set of diverse factors and assess their relative importance at a national scale and over a lengthy period. The main problem was the lack of data on farm servants, which were only published in 1851 to 1871 at a county level, and not included in the reports on later censuses.

To solve this problem, I used my model for farm servants, which identifies farm servants and agricultural labourers in census records. The majority of servants continued to be hired on a traditional living-in basis, hence the explanation for the resilience of service cannot focus on the new forms of service but should address a more general issue of the survival of institution in all forms. Chapter 1 presented the national-level estimates; here I shifted the focus to the local level and produced the share of servants in the agricultural labour force by a continuous parish, the smallest geographic unit, which had fixed borders for the entire period from 1851 to 1911.

The factors influencing the incidence of farm service were converted into variables, and estimated using diverse sources, including the I-CEM database, GIS sources, and contemporary Agricultural Returns. Statistical analysis emphasizes the significance of nuance and regional diversity. The results confirm the importance of settlement dispersion and the presence of farm animals. The new finding is that the incidence of service was significantly higher in parishes with a lower share of the population employed in agriculture. It was also found that the effect of being close to a major city increased over time, whilst the relationship between farm size and service was non-linear and demonstrated a stronger, and positive, correlation for small acreages. An alternative form of service, family hiring, had a major impact on the incidence of service in the north of Northumberland. It was a rational solution developed to meet the requirements of labour-intensive agriculture in a remote area with a dispersed population.

132

The limiting factor in this analysis was that some factors were evaluated using variables that were less-than-perfect proxies. Hence, the opportunities for further research are closely related to the availability of better data. As digitization of archive collections is ongoing, the Agricultural Returns may eventually become accessible at a parish level. Another area is the impact of settlement patterns, which in this study was represented by population density. This simplification may be overcome when digital maps of settlement patterns or farming regions become available.
Appendix 2.1. Matching continuous parishes in 1851-1891 with those of 1901-1911.

Matching was a two-stage process and involved GIS processing of feature layers and R coding.

GIG processing workflow.

- Input feature layers: ConPar for 1851-1891 and ConPar for 1901-1911.
- Run the 'Intersect" tool to produce a layer with the intersected features.
- Calculate the areas of intersected polygons using the 'Calculate Geometry' tool.

Coding.

- For each intersection, compare the area S_{int} with the areas of two intersecting ConPar polygons S₁ and S₂.
- Select good matches by the criteria S_{int} / S_1 > 0.95 and S_{int} / S_2 > 0.95.

Output.

There were 11,636 ConPars in 1891, 10,457 ConPars in 1901, and 9,866 ConPars in 1911. The algorithm above generated 10,236 matches for 1901, corresponding to 88% of the ConPars in 1851-1891, and 9,542 matches for 1911, corresponding to 82%. The number of matches depends on the required ratio of the common area to the total area of each parish; however, the relationship is weak as dropping the ratio to 0.90 only increases the number of matches for 1901 to 10,249 i.e. by 0.1%.

The map of mismatched parishes is presented in Figure 2.A.1 and shows that most mismatches occurred in urban areas. In 1901 the combined area of the mismatched parishes amounted to about 13% of the country's total.





Appendix 2.2. Finding people working with animals in censuses.

Until the census of 1901, the Census Office did not attempt to identify people working with distinct types of farm animals. Their approach changed in 1911, when people, working with horses were given a unique occupational code. The increased attention led to a significant rise in the number of individuals in this category. This sets the census of 1911 apart and makes it impossible to compare the results with earlier censuses. However, the details of occupations are preserved in their verbal descriptions, and those working with animals can be identified using the string search method.

At the first stage of analysis of each of the censuses from 1851 to 1891, all farm workers were identified using a combination of search by occupational code and string search by occupation description. At the second stage, the descriptions of their occupations were processed separately, by the type of farm animal.

To find people working with horses, I used the character strings HORSE, TEAM, COLT, and DRAY. The results for 1851 are presented in Table 2.A.1.

Keyword	Number of people
Working with horses	
HORSE	498
TEAM	306
COLT	15
DRAY	6
Total 'horse hands'	825
Working with cows	
DAIRY MAID	4,173
DAIRY GIRL	30
Total 'cow hands'	4,203

Table 2.A.1. Number of farm workers by keyword, 1851.

The search by HORSE produced almost 500 individuals, most of them returned as horsemen and horse keepers. Looking for TEAM, I found just over 300 team men, team boys, team labourers, and team servants. The other searches were less productive but returned some colt breakers and draymen. The best way to find people working with cows was to look for dairymaids. In addition, some younger individuals were identified as dairy girls. Appendix 2.3. GIS workflows.

Terrain Ruggedness Index (TRI).

- 1. Input feature layers: ConPar, World Elevation GMTED.
- 2. Convert ConPar polygons into raster format using the 'Polygon to Raster' tool.
- 3. Use the 'Extract by Mask' tool to clip the DEM raster to the extent of the ConPar raster.
- 4. Calculate the TRI for each polygon using the 'Ruggedness Index (TRI)' tool in ArcGIS Spatial Analyst extension.
- 5. Run the 'Zonal Statistics as Table' tool to extract TRI by ConParID.

Weighted jobs.

- 1. Input feature layer: ConPar.
- 2. Convert ConPar polygons to centroid points, using the 'Feature to Point' tool.
- 3. Run the 'Generate Near Table' tool to measure distances between centroid points within 50 km.
- 4. Join the table of distances and the attribute table of the layer of ConPar centroids by IN_FID (table) and OBJECTID (centroids).
- Obtain a table, which shows distances from each ConPar to all other ConPars within a 50 km radius.
- 6. Convert to Excel using the 'Table to Excel' tool and process in R, attaching to each ConPar the number of individuals in non-agricultural occupations.

City distance.

- 1. Input feature layer: ConPar.
- Create a layer of major cities: London, Liverpool, Manchester, Birmingham, Leeds, Bristol, Sheffield, Bradford, Newcastle, Kingston-Upon-Hull, Nottingham and Plymouth.
- 3. Convert ConPar polygons to centroid points, using the 'Feature to Point' tool.

- 4. Run the 'Generate Near Table' to measure distances from the centre of each ConPar to the nearest city.
- 5. Join a table of distances and the attribute table of the layer of ConPar centroids tables by OBJECTID.

Turnpike density.

- 1. Input feature layers: ConPar, Turnpike roads in 1851.
- 2. Run the 'Summarise Within' tool, and select Shape Length as Field and Sum as Statistics.
- 3. Save output in a gdb folder, do not specify the extension.

Rail distance.

- Input feature layers: ConPar, EngWalesScotRail_stations (3 layers, for 1851, 1861 and 1881).
- 2. Convert ConPar polygons to centroid points, using the 'Feature to Point' tool.
- 3. Select the rail stations layer for 1851.
- 4. Run the 'Generate Near Table' tool to measure distances to the nearest station for each ConPar centroid.
- 5. Obtain a table of distances for 1851.
- 6. Repeat for 1861 and 1881.
- Join each table to the attribute table of the layer of ConPar centroids by OBJECTID (centroids) and IN_FID (distance tables).

Enclosure.

- Preliminary stage in R: Convert the year of the enclosure into a dummy for a decade, e.g. b1841 = 1 if enclosed from 1830 to 1840, and save as CSV file.
- 2. Input feature layers: ConPar, EnglanParliamentaryEnclosure1606_1902.
- 3. Join the CSV file with dummy variables for the enclosure decade to the attribute table of the enclosure layer.
- 4. In the joined file, select the dummy for 1841, b1841 = 1.

- Run the 'Select Layer by Location' tool. In the Input Features parameter, choose the layer of Conpar polygons. In the Selecting Features parameter, choose the enclosure layer. In the Relationship parameter, choose Contains.
- 6. Run the 'Export Features' tool to save the Conpars which contained the areas enclosed in ten years before 1841.
- 7. Repeat for other years up to 1911.

Appendix 2.4. General regressions for shares of servants, complete output.

	 Model 1,	Model 2	Model 3 -
	1851-1891	1851-1911	1851-1891
(Intercept)	-1.30 ***	-1.30 ***	-1.31 ***
	(0.02)	(0.02)	(0.01)
Pasture share	0.45 ***	0.48 ***	0.12 ***
	(0.04)	(0.04)	(0.02)
Horse density	0.47 ***	0.46 ***	0.06 *
	(0.03)	(0.04)	(0.02)
Log(Population_density)	-1.17 ***	-1.25 ***	-1.30 ***
	(0.03)	(0.04)	(0.03)
Log(Pauperism)	-0.03	-0.05	0.82 ***
	(0.03)	(0.03)	(0.05)
Factor(Enclosure)	-0.17	-0.13	-0.22
	(0.12)	(0.12)	(0.13)
Factor(Family hiring)	11.40 ***	9.92 ***	11.26 ***
	(0.11)	(0.12)	(0.10)
Agricultural focus	-1.00 ***	-0.89 ***	-0.95 ***
	(0.03)	(0.03)	(0.03)
City distance	-0.16 ***	-0.12 ***	-0.27 ***
	(0.03)	(0.03)	(0.02)
Weighted jobs	0.06	0.09 *	0.07 **
	(0.04)	(0.05)	(0.03)
TRI	-0.11 ***	-0.10 ***	-0.06 *
	(0.03)	(0.03)	(0.02)
Rail distance	-0.01	-0.01	-0.02
	(0.02)	(0.02)	(0.02)
Turnpike density	0.01	0.03	-0.11 ***
	(0.03)	(0.03)	(0.03)
Wheat price	0.69 ***	0.66 ***	0.13 ***
	(0.02)	(0.02)	(0.01)
Pasture share:factor(year)1861			0.01
	0.01	0.02	(0.03)
Pasture share:factor(year)1881	-0.01	-0.03	0.22 ***
Dacture charastactor/Vear)1801	(0.05)	(0.05)	(0.05)
Pasture share: lactor (Year) 1891	0.29 · · ·	(0.06)	-0.01
Dacture charastactor/Vear)1001	(0.05)	(0.00)	(0.07)
Pasture share: lactor(rear)1901	0.13 ·	0.20	
Desture charater/Veer)1011	(0.05)	(0.05)	
		0.07 (0.05)	
Horse density:factor(Vear)1961		(0.03)	0.05
Horse density.lactor(real)1801			-0.05
Horse density:factor(Vear)1991	0.09	O 14 **	(0.05)
HOISE GENSILY. Ideloi (Tedi) 1001	-0.00		-0.10
Horse density:factor/Vear)1801	(0.03) _0 02	(0.05) _0 04	-0.03
Horse density.lactor(real/1051	(0.02	-0.04 (0.05)	-0.0 4 (0 03)
Horse density factor(Year)1901	0.09 *	0.09 *	(0.00)
	0.00	5.05	

Table 2.A.2. Complete output of three general models.

Horse density:factor(Year)1911	(0.04)	(0.05) -0.11 * (0.05)	
Log(Pop density):factor(Year)1861		(0.05)	-0.13 **
Log(Pop density):factor(Year)1881	0.11 *	0.16 **	0.04
Log(Pop density):factor(Year)1891	(0.05) 0.07 (0.05)	(0.06) 0.07 (0.06)	(0.04) -0.05 (0.05)
Log(Pop density):factor(Year)1901	0.20 *** (0.04)	0.22 *** (0.05)	(0.00)
Log(Pop density):factor(Year)1911		0.60 *** (0.05)	
Log(pauperism):factor(Year)1861		, , ,	-0.85 *** (0 05)
Log(pauperism):factor(Year)1881	-0.01 (0.04)	-0.01 (0.04)	-0.89 ***
Log(Pauperism):factor(Year)1891	0.00	0.04	-0.87 ***
Log(Pauperism):factor(Year)1901	-0.06	-0.11 *	(0.03)
Log(pauperism):factor(Year)1911	(0.0+)	0.38 ***	
Factor(enclosure):factor(Year)1861		(0.05)	0.04
Factor(enclosure):factor(Year)1881	0.16	0.14	(0.10)
Factor(enclosure):factor(Year)1891	-0.52	-0.63	
Factor(enclosure):factor(Year)1901	0.14	0.05	
Factor(enclosure):factor(Year)1911	(0.82)	-0.00	
Agricultural focus:factor(Year)1861		(1.10)	-0.20 ***
Agricultural focus:factor(Year)1881	-0.01	-0.04	-0.22 ***
Agricultural focus:factor(Year)1891	(0.04)	0.08	-0.15 ***
Agricultural focus:factor(Year)1901	(0.04) 0.15 *** (0.05)	0.09	(0.04)
Agricultural focus:factor(Year)1911	(0.05)	(0.05) 0.54 *** (0.05)	
City distance:factor(Year)1861		(0.05)	-0.09 **
City distance:factor(Year)1881	-0.12 **	-0.09 *	-0.06 *
City distance:factor(Year)1891	(0.04) -0.20 *** (0.04)	-0.14 ** (0.04)	-0.25 ***
City distance:factor(Year)1901	(0.04) -0.40 *** (0.04)	(0.04) -0.29 *** (0.04)	(0.03)
City distance:factor(Year)1911	(0.0.)	-0.24 *** (0.04)	
Weighted jobs:factor(Year)1861			0.02

Weighted jobs:factor(Year)1901 Weighted jobs:factor(Year)1911	-0.04 (0.04)	-0.08 (0.05) -0.10 (0.05)	
TRI:factor(Year)1861	-		0.00 (0.03)
TRI:factor(Year)1881	-0.01 (0.04)	-0.02 (0.04)	0.01 (0.03)
TRI:factor(Year)1891	0.04 (0.04)	0.04 (0.04)	0.13 *** (0.03)
TRI:factor(Year)1901	0.14 *** (0.04)	0.12 ** (0.04)	
TRI:factor(Year)1911		0.04 (0.04)	
Rail istance:factor(Year)1861			-0.01 (0.03)
Rail distance:factor(Year)1881	0.03 (0.04)	0.08 * (0.04)	0.09 * (0.04)
Rail distance:factor(Year)1891	-0.09 * (0.04)	-0.07 (0.04)	-0.08 (0.04)
Rail distance:factor(Year)1901	-0.11 ** (0.04)	-0.08 * (0.04)	
Rail distance:factor(Year)1911		-0.06 (0.04)	
Turnpike density:factor(Year)1861			0.08 (0.05)
Turnpike density:factor(Year)1881	-0.07 (0.04)	-0.06 (0.04)	0.08 * (0.04)
Turnpike density:factor(Year)1891	-0.09 * (0.04)	-0.10 ** (0.04)	-0.00 (0.04)
Turnpike density:factor(Year)1901	-0.14 *** (0.04)	-0.16 *** (0.04)	
Turnpike density:factor(Year)1911		-0.22 *** (0.04)	
R ² Adi P ²	0.39	0.33	0.39
Num. obs.	39324	38155	43524

*** p < 0.001; ** p < 0.01; * p < 0.05

Appendix 2.5. Special regressions, complete output.

Table 2.A.3. Complete output of four special models.

	Model S1, Over 10 workers	Model S2, Workers/master	Model S3, Family hiring	Model S4 <i>,</i> Farm size
(Intercept)	-1.31 ***	-1.28 ***	-0.06 ***	-4.69 ***
	(0.01)	(0.01)	(0.00)	(0.19)
Pasture share	0.49 ***	0.32 ***	-0.01 ***	0.02 ***
	(0.03)	(0.03)	(0.00)	(0.00)
Horse density	0.50 ***	0.36 ***	-0.04 ***	0.31 ***
	(0.03)	(0.03)	(0.00)	(0.02)
Log (population density)	-0.99 ***	-0.83 ***	0.04 ***	-1.06 ***
	(0.03)	(0.03)	(0.00)	(0.02)
Log (pauperism)	-0.03	-0.04	-0.00	-0.00 *
	(0.03)	(0.02)	(0.00)	(0.00)
Factor(enclosure)	-0.17	-0.17 *	-0.00	-0.05
	(0.09)	(0.09)	(0.00)	(0.08)
Factor(family hiring)	11.29 ***	11.30 ***		11.21 ***
	(0.09)	(0.09)		(0.13)
Agricultural focus	-0.79 ***	-0.52 ***	0.04 ***	-0.06 ***
	(0.02)	(0.03)	(0.00)	(0.00)
City distance	-0.18 ***	-0.18 ***	0.02 ***	-0.01 ***
	(0.02)	(0.02)	(0.00)	(0.00)
Weighted jobs	0.05	0.03	-0.00	0.04 ***
	(0.03)	(0.03)	(0.00)	(0.00)
TRI	-0.08 ***	-0.09 ***	0.00 **	-0.01 ***
	(0.02)	(0.02)	(0.00)	(0.00)
Rail distance	-0.02	-0.03	-0.00	0.01 ***
	(0.02)	(0.01)	(0.00)	(0.00)
Turnpike density	-0.02	-0.01	-0.00 **	0.02 ***
	(0.02)	(0.02)	(0.00)	(0.00)

Wheat price	0.65 ***	0.60 ***	-0.02 ***	
	(0.02)	(0.01)	(0.00)	
Workers per master		-0.47 ***		
		(0.03)		
Servant share			0.24 ***	
			(0.00)	
Size				0.01 **
				(0.00)
Increment 1				-0.01 ***
				(0.00)
Increment 2				0.00 ***
				(0.00)
Pasture share:Factor(Year)1881	-0.04	-0.07	-0.00	
	(0.04)	(0.04)	(0.00)	
Pasture share:factor(Year)1891	0.19 ***	0.08 *	-0.00 *	
	(0.04)	(0.04)	(0.00)	
Pasture share:factor(Year)1901	0.06	-0.11 **	-0.00	
	(0.04)	(0.04)	(0.00)	
Horse density:factor(Year)1881	-0.14 ***	-0.16 ***	-0.00 *	
	(0.04)	(0.04)	(0.00)	
Horse density:factor(Year)1891	-0.03	-0.10 **	-0.00	
	(0.04)	(0.04)	(0.00)	
Horse density:factor(Year)1901	0.06	-0.06	-0.00	
	(0.03)	(0.03)	(0.00)	
Log(pop density):factor(Year)1881	0.08 *	0.14 ***	-0.00	
	(0.04)	(0.04)	(0.00)	
Log(pop density):factor(Year)1891	0.06	0.22 ***	-0.00	
	(0.04)	(0.04)	(0.00)	
Log(pop density):factor(Year)1901	0.12 **	0.38 ***	-0.01 ***	
	(0.04)	(0.04)	(0.00)	
Log(pauperism):factor(Year)1881	-0.03	-0.01	-0.01 **	
	(0.03)	(0.03)	(0.00)	
Log(pauperism):factor(Year)1891	-0.02	-0.00	0.00 **	

	(0.03)	(0.03)	(0.00)
Log(pauperism):factor(Year)1901	-0.03	0.03	0.00
	(0.03)	(0.03)	(0.00)
Factor(enclosure):Factor(Year)1881	0.18	0.15	
	(0.23)	(0.22)	
Factor(enclosure):factor(Year)1891	-0.53	-0.33	
	(0.45)	(0.43)	
Factor(enclosure):Factor(Year)1901	0.06	-0.18	
	(0.63)	(0.60)	
Agricultural focus:Factor(Year)1881	-0.05	0.11 **	-0.00
	(0.04)	(0.04)	(0.00)
Agricultural focus:Factor(Year)1891	0.07	0.32 ***	-0.01 **
	(0.04)	(0.04)	(0.00)
Agricultural focus:Factor(Year) 1901	-0.04	0.40 ***	-0.02 ***
	(0.04)	(0.04)	(0.00)
City distance:Factor(Year)1881	-0.09 **	-0.09 **	0.00 *
	(0.03)	(0.03)	(0.00)
City distance:Factor(Year)1891	-0.14 ***	-0.13 ***	0.00
	(0.03)	(0.03)	(0.00)
City distance:Factor(Year)1901	-0.29 ***	-0.24 ***	0.00 **
	(0.03)	(0.03)	(0.00)
Weighted jobs:Factor(Year)1881	0.07	0.07	-0.00
	(0.04)	(0.04)	(0.00)
Weighted jobs:Factor(Year)1891	0.06	0.05	-0.00
	(0.04)	(0.04)	(0.00)
Weighted jobs:Factor(Year)1901	-0.04	-0.02	0.00
	(0.03)	(0.03)	(0.00)
TRI:Factor(Year)1881	-0.02	-0.01	-0.00 *
	(0.03)	(0.03)	(0.00)
TRI:Factor(Year)1891	0.03	0.03	-0.01 ***
	(0.03)	(0.03)	(0.00)
TRI:Factor(Year)1901	0.08 **	0.05	-0.01 ***
	(0.03)	(0.03)	(0.00)

Rail distance:factor(Year)1881	0.01	-0.01	0.01 ***	
	(0.03)	(0.03)	(0.00)	
Rail distance:factor(Year)1891	-0.07 *	-0.11 ***	0.01 ***	
	(0.03)	(0.03)	(0.00)	
Rail distance:factor(Year)1901	-0.07 *	-0.13 ***	0.01 ***	
	(0.03)	(0.03)	(0.00)	
Turnpike density:factor(Year)1881	-0.04	-0.03	0.00	
	(0.03)	(0.03)	(0.00)	
Turnpike density:factor(Year)1891	-0.07 *	-0.06 *	0.00 *	
	(0.03)	(0.03)	(0.00)	
Turnpike density:factor(Year)1901	-0.07 *	-0.06 *	0.00 *	
	(0.03)	(0.03)	(0.00)	
Workers per master:Factor(Year)1881	L	-0.20 ***		
		(0.04)		
Workers per master:Factor(Year)1891	L	-0.34 ***		
		(0.04)		
Workers per master:Factor(Year)1901	L	-0.64 ***		
Workers per master:Factor(Year)1901	L	-0.64 *** (0.04)		
Workers per master:Factor(Year)1901R ²	0.46	-0.64 *** (0.04) 0.51	0.26	0.46
Workers per master:Factor(Year)1901 R ² Adj. R ²	0.46 0.46	-0.64 *** (0.04) 0.51 0.51	0.26 0.26	0.46 0.46
Workers per master:Factor(Year)1901 R ² Adj. R ² Num. obs.	0.46 0.46 36292	-0.64 *** (0.04) 0.51 0.51 36292	0.26 0.26 39324	0.46 0.46 20612
Workers per master:Factor(Year)1901 R ² Adj. R ² Num. obs. Sigma	0.46 0.46 36292	-0.64 *** (0.04) 0.51 0.51 36292	0.26 0.26 39324	0.46 0.46 20612 1.75
Workers per master:Factor(Year)1901 	0.46 0.46 36292	-0.64 *** (0.04) 0.51 0.51 36292	0.26 0.26 39324	0.46 0.46 20612 1.75 1045.16
Workers per master:Factor(Year)1901 	0.46 0.46 36292	-0.64 *** (0.04) 0.51 0.51 36292	0.26 0.26 39324	0.46 0.46 20612 1.75 1045.16 0.00
Workers per master:Factor(Year)1901 R ² Adj. R ² Num. obs. Sigma Statistic P Value DF	0.46 0.46 36292	-0.64 *** (0.04) 0.51 0.51 36292	0.26 0.26 39324	0.46 0.46 20612 1.75 1045.16 0.00 17.00
Workers per master:Factor(Year)1901 R ² Adj. R ² Num. obs. Sigma Statistic P Value DF Log Likelihood	0.46 0.46 36292	-0.64 *** (0.04) 0.51 0.51 36292	0.26 0.26 39324	0.46 0.46 20612 1.75 1045.16 0.00 17.00 -40747.59
Workers per master:Factor(Year)1901 R ² Adj. R ² Num. obs. Sigma Statistic P Value DF Log Likelihood AIC	0.46 0.46 36292	-0.64 *** (0.04) 0.51 0.51 36292	0.26 0.26 39324	0.46 0.46 20612 1.75 1045.16 0.00 17.00 -40747.59 81533.18
Workers per master:Factor(Year)1901	0.46 0.46 36292	-0.64 *** (0.04) 0.51 0.51 36292	0.26 0.26 39324	0.46 0.46 20612 1.75 1045.16 0.00 17.00 -40747.59 81533.18 81683.92
Workers per master:Factor(Year)1901 R ² Adj. R ² Num. obs. Sigma Statistic P Value DF Log Likelihood AIC BIC Deviance	0.46 0.46 36292	-0.64 *** (0.04) 0.51 0.51 36292	0.26 0.26 39324	0.46 0.46 20612 1.75 1045.16 0.00 17.00 -40747.59 81533.18 81683.92 62914.08
Workers per master:Factor(Year)1901 R ² Adj. R ² Num. obs. Sigma Statistic P Value DF Log Likelihood AIC BIC Deviance DF Resid.	0.46 0.46 36292	-0.64 *** (0.04) 0.51 0.51 36292	0.26 0.26 39324	0.46 0.46 20612 1.75 1045.16 0.00 17.00 -40747.59 81533.18 81683.92 62914.08 20594

*** p < 0.001; ** p < 0.01; * p < 0.05

Chapter 3. Farm Servants in North Wiltshire: the Evidence of Hiring Fairs, 1837–1860.

3.1. Introduction.

For hundreds of years, farm servants were a major part of the agricultural labour force of England. However, the contribution of this occupational group to agricultural production and their role in shaping the unique Western European demographic regime of late marriage was only recognized about 50 years ago, following the seminal works of Peter Laslett and Ann Kussmaul. The reason for this omission was that farm servants belonged to the lower orders of society, most were young and illiterate, and their work left a sparse documentary trail. These studies have been succeeded by a wide range of research. To a large extent, this knowledge has accumulated thanks to the scholars' ability to read 'against the grain' and elicit information on farm servants from the documents, created for other purposes. For example, in the most extensive study focused on the Midlands and southern England in the latter half of the nineteenth century, Alun Howkins and Nicola Verdon used census enumerators' books and a range of governmental reports.¹⁸⁰

The aim of this paper is two-fold: to introduce a neglected source on service in Wiltshire, dedicated solely to servants and their hirers, and to use this evidence to analyse selected aspects of farm service. The source is the registers of servants hired at hiring fairs. The registers were maintained to complement verbal contracts and contain details that are highly valuable for an occupational study, such as servants' positions, ages, and wages. They provide information on demographic groups often excluded from traditional sources, most importantly, female servants. The hiring fairs served the labour market of the 'Cheese Country' of Wiltshire, and the creation of registers was connected to the changing state of the local agricultural economy. The registers present a substantial sample of almost eleven thousand records, which I use to study selected aspects of farm service. These are the

¹⁸⁰ A. Howkins and N. Verdon, 'Adaptable and sustainable? Male farm service and the agricultural labour force in midland and southern England, c. 1850–1925', *EcHR* 61, 2 (2008), pp. 467–495.

demographic and occupational characteristics of servants, the gender gap in earnings, servants' and masters' usage of a fair, and servants' contract performance.

Registers of this kind are very rare. There were hundreds of hiring fairs, as most market towns and even some villages held at least one hiring event every year. Despite this abundance and having searched the records of three hundred hiring events, Kussmaul found only one area, the Holland part of Lincolnshire, where lists of servants were kept.¹⁸¹ Following this line of inquiry, I was fortunate enough to find another region, North Wiltshire, where the organizers of hirings committed to scrupulous record-keeping. Record-keeping, in turn, must be related to the uniqueness of these fairs as 'new' events that were introduced as late as 1836. This way, their history contrasts sharply with virtually all other hiring events of the period that had uncertain and probably medieval origins. After 1860 the Wiltshire fairs declined, and their rise and fall are closely related to the dynamic of the major agricultural commodity in the area – farm cheese. The fairs were introduced by the local farmers when they needed dairymaids to produce cheese and declined when the cheese boom was over.

Following a review of the history of the fairs presented in Section 3.2 this paper analyses several under-researched aspects of farm service, where the new information provided by the registers is particularly valuable. Section 3.3 reviews the characteristics of servants, introducing this segment of the labour market and demonstrating the comprehensiveness of the coverage, provided by the registers. Initially most servants were young females, engaged as living-in dairymaids. As cheese-making declined, the proportion of both females and dairy workers decreased. In Section 3.4 the data on wages is used in a statistical analysis, focused on the gender gap in remuneration. The female-male ratio was 0.82 for cash wages but 0.73 when corrected for the payments in kind. Finally, Section 3.5 introduces two key ratios to quantify the operation of a hiring fair as a labour exchange. The frequency rate demonstrates how often the parties used the local fair in their search of places (for servants) and servants (for masters). In Wootton Bassett, farmers sourced most of their labour at the fair held in their town, while servants used it for less than a third of their moves. The second ratio is the contract performance rate, which is an important area

¹⁸¹ A. Kussmaul, *Servants in husbandry* (1983), pp. 150–165. She limited her analysis to tracing the job moves of selected servants. *Ibid.*, pp. 64–65.

of study of labour in the Industrial Revolution but has never been assessed in agriculture. In early years 75% of servants fulfilled their obligations, but by 1860 their share dropped to just over half. To capitalize on a rarely available opportunity to study female labour, in each area, I focus on female servants and, where the data for males permits, compare the results by gender.

3.2. Hiring fairs in the 'Cheese Country'.

Throughout its history, farm service was directly connected to and supported by a related institution of hiring fairs, labour exchanges in which farmers and servants were matched. A study of hiring fairs provides valuable insights into farm service, but the limiting factor is that these events left sparce documentary trail. At a national scale, our understanding remains patchy. The best-researched area is the North of England, where farm service and hiring fairs flourished until after the First World War.¹⁸² In a seminal article, Stephen Caunce called hiring fairs 'a surprisingly sophisticated management tool for getting the most out of the available farm labour'.¹⁸³ Fairs required no specialized infrastructure and allowed farmers and servants to enter into new contracts free of unnecessary bureaucracy and expense. Analysis of fairs' location from 1880 to 1830 demonstrated that hiring centres formed a self-organized network in which no settlement was more than 15 miles from a hiring centre.¹⁸⁴ The spatial distribution was driven by the logic of network coverage rather than the size of a town or its importance as a conventional market centre. Responding to economic change some places acquired new fairs and others lost their hirings. The majority of fairs occurred in Martinmas week, and a total of three fairs per venue was most common. Critics emphasized the boisterous character of the fairs, yet this aspect reflected their role as the only real safety valve for servants who spent most of the year bound to farmsteads.

¹⁸² S. Caunce, 'Farm servants and the development of capitalism in English agriculture', *AgHR* 45, 1 (1997), p.
59.

 ¹⁸³ S. Caunce, 'The hiring fairs of northern England, 1890–1930: a regional analysis of commercial and social networking in agriculture', *Past & Present* 217, 1 (2012), pp. 213–246.
 ¹⁸⁴ Hereafter distances are as the crow flies.

The moralists' failed attempt to suppress hiring fairs in the East Riding of Yorkshire was the subject of Gary Moses's analysis, covering the period from 1850 to 1880.¹⁸⁵ In addition to servants' misbehaviour, critics highlighted that hirings occurred in open spaces where masters scrutinized the servants' physical attributes, drawing comparisons to slave markets. Their criticism was misguided as servants were assertive and influential participants, who enjoyed some parity and power in their negotiations with employers. The attack was led by the clergy and had an ideological dimension that stemmed from a renewed sense of moral activism within the Church of England. From the 1850s the emphasis was on supplanting verbal agreements with written 'characters' administered through registration societies. Later, the moralists introduced hiring rooms and tried to promote separate hirings for men and women. However, their only success was the establishment of indoor hiring for female servants at some fairs. Moses concluded that the campaign failed because of fairs' continued functionality for both masters and servants.

However, the North of England was not a homogeneous region, and in the West Riding of Yorkshire, the reaction of the local farming community differed. In her study of the Doncaster region, Sarah Holland argued that the servants' high wage demands motivated farmers to support the abolitionists. To reduce the servants' bargaining position, some masters switched to hiring labour outside the public arena. The popularity of the main hiring fair, the Doncaster Statutes, peaked in the 1850s and 1860s, when it served as both a place of business and leisure. The fair made a significant contribution to Doncaster's economy and continued into the twentieth century.¹⁸⁶

¹⁸⁵ G. Moses, Rural moral reform in nineteenth-century England. The crusade against adolescent farm servants and hiring fairs (2007).

¹⁸⁶ S. Holland, 'Farm service and hiring practices in mid-nineteenth-century England: the Doncaster region in the West Riding of Yorkshire', in J. Whittle (ed.), *Servants in rural Europe* (2017), pp. 183–202.

3.2.1. Geography of fairs in North Wiltshire.

The North of England was the area of capitalist arable agriculture; in North Wiltshire, the focus was on dairying and cheese-making was a traditional way of converting highly perishable milk into a product that could be more readily transported and stored.¹⁸⁷ Cheese-making was labour-intensive and stayed exclusively in female hands. It was a highly skilled and physically intensive job that carried responsibility for the final product of a farm. In the first half of the nineteenth century, improved transportation opened new markets and production volume doubled.¹⁸⁸ Demand for dairymaids went up; at the same time, another effect of improved transportation was to open up alternative opportunities for young female workers, who could now find a job in domestic service or a factory. The competition for labour intensified and as dairymaids were employed as living-in farm servants, traditionally hired at fairs, the capacity of the existing network of fairs was stretched.

A map of hiring fairs in the first half of the nineteenth century based on contemporary press reports is presented in Figure 3.1. The catchment area around Chippenham and Wootton Bassett shows the hiring markets accessible to local farmers before the 'new' fairs were introduced, and the 15-mile radius corresponds to the maximum distance from a hiring centre to a settlement observed by Caunce.¹⁸⁹ Like in the North, the distribution of fairs did not match that of commodity markets, and no hirings were held in important market towns of Trowbridge and Devizes. The size of the catchment area was 1,100 sq. miles, and as there were 8 fairs, the network density was about 0.7 fairs per 100 sq. miles. The well-developed network of fairs in the North had 0.6 fairs per 100 sq. miles, and by this criterion alone, no further additions could be justified.¹⁹⁰ However, network coverage was far from uniform. Critically, the only hiring centre in a large tract of the 'Cheese Country' south of the Malmesbury–Swindon line was the village of Kington St Michael.

¹⁸⁷ Caunce, 'Farm servants', p. 59.

¹⁸⁸ A. R. Wilson, *Forgotten harvest. The story of cheesemaking in Wiltshire* (1995), p. 138.

¹⁸⁹ Caunce, 'Hiring fairs', p. 229.

¹⁹⁰ Produced by the author based on a map in Caunce, 'Hiring fairs', p. 231 as 68 fairs / 11000 sq. miles ~ 0.6 fairs per 100 sq. miles.





3.2.2. The Chippenham hiring fair.

The decision of the Chippenham farmers to introduce a new hiring fair can be rationalized as a move to improve their access to labour market. In addition, there was a political dimension to this initiative, which can be traced back to February 1827 when Joseph Neeld, lawyer of the Inner Temple, inherited a massive fortune of over one million pounds from his great-uncle Phillip Rundell of Rundell, Bridge & Co., the crown's jewellers and goldsmiths.¹⁹¹ Neeld moved to Wiltshire and by May 1830 'had now taken root in the county

¹⁹¹ The Annual biography and obituary for the year 1828, XII (1828), p. 330; National Art Library, GC/CRY crypt store 9.0.28; [An account of] the firm of Rundell, Bridge & Co., the Crown jewellers and goldsmiths on Ludgate Hill by George Fox, pp. 73–6. The author is grateful to Dr Tony Pratt for the essential information on the Neeld family.

and hoped to flourish there'.¹⁹² In July of that year, he was returned as an MP for Chippenham; shortly after, Neeld reinforced his standing in a newly adopted local community by providing £12,000 to build a new market hall, which opened in May 1834. Two public meetings were held to determine the best use of the building. Active citizens formed a Market Committee, which elected Neeld its President. The committee decided to establish, in addition to the old weekly market, a 'Great Monthly Market'.¹⁹³ The local cheese was one of the major commodities, and Neeld was particularly 'desirous that the small dairy farmer should find a mart for the ready disposal of his cheese'.¹⁹⁴ In October of the same year the committee launched the hiring fair.¹⁹⁵ Initially, the fair took place on two consecutive Fridays in late September and early October and one Friday in late March; later, one of the days in the autumn was dropped. Neeld regularly visited the fair and addressed the servants to remind them of 'the necessity of learning the art of cheese-making, to entitle them to higher wages, and to enable their employers to afford them'.¹⁹⁶

3.2.3. The Wotton Bassett hiring fair.

The success of Chippenham encouraged the farmers in the nearby town of Wootton Bassett to adopt a similar approach. In this instance, local politics also played a role. A few years earlier, William Cobbett described the town as a 'mean, vile place'.¹⁹⁷ The Municipal Corporations report gave Wootton Bassett 'a pre-eminence among the worst of rotten boroughs'.¹⁹⁸ In 1832 the corporation lost its parliamentary seats and in 1835 it narrowly escaped dissolution. The community must have been desperate to demonstrate its worth and was aware that holding and supervising a major fair as a proven way to do this.¹⁹⁹ The local farmers formed a Market Committee, which initiated a monthly market and a hiring fair. Subscriptions were raised, and all local landowners and farmers made their

¹⁹² Salisbury and Winchester J., 24 May 1830.

¹⁹³ Devizes and Wilts. Gazette, 26 June 1836.

¹⁹⁴ Ibid., 8 May 1834.

¹⁹⁵ Dors. County Chronicle, 2 Oct. 1834.

¹⁹⁶ Devizes and Wilts. Gazette, 30 Sep. 1852.

¹⁹⁷ W. Cobbett, *Rural rides* (reprint 1985), p. 353.

¹⁹⁸ B.P.P., 1835, 116, XXIII.1, 133, XXIV.1, XXV.1, XXVI.1, Royal Com. of Inquiry into Municipal Corporations of England and Wales. First Report, pp. 147-148.

¹⁹⁹ Moses, *Reform*, p. 217.

contributions. To celebrate the first event, newly hired servants were supplied 'each with a blue favour which they displayed, the women in their bosoms and the men in their hats, and a band of music paraded the streets during the day'.²⁰⁰ A 'favour' was merely a symbol identifying a newly-hired person and held little material value. In contrast, two other awards were more substantial but were restricted to servants employed by subscribers. This put employees of masters from distant parishes, not all of whom were subscribers, at a disadvantage. The first award, a gown for a female and a hat for a male, was given to those who completed their year-long contract to the satisfaction of their employer. To receive it a servant had to present a written certificate signed by their employer at a fair held one year after they were hired. Later a piece of garment was replaced by 5 shillings in cash. This award was akin to a present-day annual bonus; in contrast, the second award was a one-time payment of £1 10*s*. given to servants for long service at the same farm. Candidates were recommended by their masters, with many having a work tenure exceeding 25 years.

Despite considerable effort, the Great Market in Wotton Bassett was less successful than its Chippenham prototype. Importantly, competition in the market for labour resources developed differently, and from the 1840s the Wootton Bassett hiring fair eclipsed Chippenham. Valuable details of its history can be found in the extant minutes of the Market Committee.²⁰¹ The original Committee was elected on 22 March 1836 and included ten members. Five members were farmers, and their farms, all above 100 acres, were quite substantial in an area of predominantly small holdings. Farmers controlled the key positions of chairman and treasurer. Under the leadership of Captain Bartholomew Horsell, a veteran of the Peninsula Campaign, the Committee determined which commodities were to be traded and which shows of stock were to be organized. It kept track of sales volumes and prices and paid attention to mundane details, such as maintenance of the market house and collection of subscriptions. The importance of marketing was recognized, and sandwich men were employed to parade placard boards at fairs in nearby Chippenham, Swindon, Malmsbury, and Marlborough. As in Chippenham, there was a President, Horatio Nelson Goddard, a substantial landlord and magistrate. However, Goddard only kept this position for less than two years and left in December 1837; in this period, the committee met at least

²⁰⁰ Salisbury and Winchester J., 17 Oct. 1836.

²⁰¹ Wilts. and Swindon RO [hereafter WSRO], G26/132/7 and G26/132/8, Great monthly market committee minute book.

fortnightly, but the presence of the President was never mentioned. The impression that he was essentially a figurehead is reinforced by the fact that following the departure of Goddard, the committee approached Lond Clarendon, but this did not work out, and the subject of presidentship was dropped.

On 5 April 1837, the Committee declared that 'taking a retrospective view of the year [our] most sanguine expectations ... have been realized by its distinguished success.' Success can be illustrated by the number of servants hired at the fair, presented in Figure 3.2. The fair grew quickly and by 1840 there were 200 hirings per fair. The upward trend continued, and from 1847 to 1859, the fair achieved its peak in popularity, as from 250 to 350 servants were hired at every session. In the following year, the number of hiring contracts dropped to barely above 100.





Note that in the early period, the spring and autumn fairs were equally important. Later on, stronger seasonality developed; on average, 23% more servants were hired in spring (Lady Day) than in autumn (Michaelmas). This must be connected to the fact that in spring the demand for labour in cheese-making was highest as the activity resumed after the winter break. On the other hand, some farmers preferred to take new dairymaids in the autumn so

that they become 'familiar with the working premises and the nature of the district before cheese-making begins'.²⁰²

The scale of the Wootton Bassett fair can be illustrated by comparing it to other hiring events. Chippenham provides a natural local benchmark. It may have been larger in the beginning, but from 1855 to 1859, which is the only period covered by extant records, only 20 to 30 servants were hired per session. At a national level, the contemporary East Riding of Yorkshire was an area of active hiring fairs. The data on the number of hirings, concluded there is not available. Still, the total number of attending servants was reported by the Chief Constable as about 400–600 per event on average.²⁰³ As many individuals visited several fairs before getting engaged, and some went to a fair for reasons other than looking for a place, the number of hired servants was only a fraction of that figure. Judged by the volume of hiring transactions the Wootton Bassett fair was at least as big as the average Yorkshire event.²⁰⁴

In the 1850s Wiltshire cheese-making began to decline. The trend can be illustrated by changes in the number of cheese factors operating in the county. There were 18 factors in 1855, and their number increased to 20 in 1859. By 1880, only 10 remained, and 5 more were lost over the next five years.²⁰⁵ The main problem was variable quality, as each cheese maker followed their own recipe and proprietary manufacturing system. This could be tolerated as long as the competing products were not better, but in the second part of the century competition developed across the full range of products. In the high-quality niche, Joseph Harding from neighbouring Somerset introduced modern cheese-making techniques and started to produce cheddars. His influence quickly spread to other counties. In parallel, the arrival of factory-produced cheese from the US affected the price-sensitive mass market. The American system of production guaranteed reliable quality at an affordable price. A contemporary overseas visitor was surprised to see 'the people of this district ... so bound up

²⁰² Devizes and Wilts. Gazette, 30 Sep. 1852.

²⁰³ Produced by the author from the data for 1864–1870 in Moses, *Reform*, p. 80. The maximum attendance of 19,280 was in 1864; there were 32 fairs hence average attendance was 19,280 / 32 = 605.

²⁰⁴ Wilts. Independent, 11 Apr. 1844.

²⁰⁵ D. Taylor, 'Growth and structural change in the English dairy industry, c.1860–1930', **AgHR** 35, I (1987), pp. 50–51.

in the old practices as to waste their time and substance in manufacturing cheese of this character.'²⁰⁶ The system was tried in Wiltshire but failed to take root.²⁰⁷

At the same time, these years were equally difficult for farmers of Hampshire and Gloucestershire, who nonetheless persisted in farmhouse cheese-making. In contrast, the Wiltshire farmers found a more profitable opportunity in supplying liquid milk to London thanks to new access, provided by the Great Western Railway (GWR). The GWR was completed in 1838, however, the growth of the milk trade was slow due to technical reasons, ultimately linked to the highly perishable nature of the product and lack of support from railway companies. By 1860, these issues were resolved, and the GWR took its first regular consignment of milk.²⁰⁸ The farmers of North Wiltshire were the first to move, and in 1870, 80% of the 570,000 gallons of milk that left the county went from Swindon.²⁰⁹ By 1885, the volume more than tripled. However, the transition from cheese-making to the milk trade must have been much more painful than this narrative suggests. For approximately 20 to 30 years, farmers have struggled to make money in their traditional business and switched to greater use of family labour. A local historian, Avice Wilson, commented that at that time the work of the dairy was 'done only by the farm wives or their daughters because of the lack of dairymaids'.²¹⁰ This statement is confirmed by the testimony of farmer J. Arkell who in 1867 remarked that 'for one agricultural servant in a house now, there used to be twenty'.²¹¹ And yet it is an exaggeration; the census enumerators' books for 1851 list 219 dairymaids in parishes within 15-mile radius of Wootton Bassett.²¹² In 1881 their number went down, but 149 dairymaids remained.

The immediate reason for the sharp drop in hirings noted earlier was the nation-wide campaign for abolition of hiring fairs, which reached Wiltshire in the late 1850s. Echoing the arguments, employed by the Church of England in Yorkshire, the local clergymen equated the fairs to a slave market and insisted that after the hirings 'evening closes upon a scene

²⁰⁶ North Wilts. Herald, 14 Mar. 1868.

²⁰⁷ Taylor, 'Growth', p. 52.

²⁰⁸ P. J. Atkins, 'The growth of London's railway milk trade, c. 1845–1914', J. Transport Hist. 4 (1978), p. 210.

²⁰⁹ Taylor, 'Growth', p. 57.

²¹⁰ Wilson, *Forgotten harvest*, p. 160.

²¹¹ North Wilts. Herald, 30 Mar. 1867.

²¹² K. Schurer and E. Higgs, 'Integrated census microdata (I-CEM), 1851–1911' (data collection). UK Data Service, 2023 [accessed 20 May 2024]. Available from: http://doi.org/10.5255/UKDA-SN-7481-2.

which the author of all evil must exult with joy'.²¹³ Later Captain Horsell recalled that public opinion had 'began to speak out against the system adopted [earlier]' forcing the subscribers to withdraw their support.²¹⁴ This highlights a major difference with a similar campaign in the East Riding, where the farmers defended hiring fairs as an essential component of the expanding agricultural production system. In Wiltshire, the farmers' demand for hired labour was falling, and their attitude was similar to that observed in the West Riding, where farmers were concerned about rising labour costs.²¹⁵ There was little resistance to the abolitionists; the Market Committee used its remaining funds to introduce registration offices, which failed just as they did in Yorkshire. The fair continued on its own; the initial momentum was strong enough to keep the hirings going, but eventually, the event became a small amusement fair that only survived for a few years into the twentieth century.²¹⁶

3.2.4. Registers of hired servants.

For the hiring fairs of North Wiltshire, we have rarely available statistics, including the number of hirings. This information comes from a unique source, registers of hired servants.²¹⁷ The town clerks recorded all hiring transactions; the format varied by year, and in the simplest form, only the names and parishes of the parties were documented. For other years, additional details such as the servant's occupation and wage were also included. As noted above, the Chippenham fair was relatively small, but on the other hand, its register is most detailed and also shows the servant's age, and the name and location of their previous master.

Regrettably, the extant set of documents from Chippenham is limited to a single ledger, Register No. 5, which was preserved by the local fishmonger and history enthusiast Joe Buckle.²¹⁸ This manuscript, which is now in the county archive, has been transcribed and digitized by the author.²¹⁹ The register covers the years from 1855 to 1859; over this period,

²¹³ Moses, *Reform*, pp. 133–209; Rev. R. V. Law, rector of Christian Malford, quoted *in Devizes and Wilts. Gazette*, 6 Dec. 1859.

²¹⁴ North Wilts. Herald, 30 March 1867.

²¹⁵ Holland, 'Farm service', p. 199.

²¹⁶ VCH Wilts. IX, pp. 186–205.

²¹⁷ WSRO, G26/132/7 and G26/132/8, Great monthly market committee minute book.

²¹⁸ *Daily News* (London), 2 Apr. 1949.

²¹⁹ WSRO, G19/998/1, Chippenham hiring fair.

200 servants were hired. The diminishing number of hirings indicates that this must have been the final register; four more registers must have been filled, but none survived. The set of documents from Wootton Bassett was deposited in the town archive and transcribed by the Wiltshire Family History Society in the 1990s.²²⁰ A comparative analysis with the original confirmed the high quality of their work, and this paper is based on the transcribed document.²²¹ This set of records starts at the third fair held in September of 1837 and covers 10,488 hiring transactions at all events up to 1860 except the Michaelmas fair of 1858 which was not documented due to a conflict over record-keeping. Also available from the same source are the Market Committee minutes for the years from 1836, when the committee was first elected, to 1849.

This article relies mainly on the more extensive set of documents from Wooton Bassett. Because two fairs served the same regional labour market, this provides an opportunity to combine the two datasets to study the features of servants where the Chippenham register can make a material contribution. These are the servants' ages, which were not documented in Wootton Bassett, and wages, which were only recorded in one year.

3.3. Servant characteristics.

This section presents the main characteristics of farm servants, apparent from the Registers. No study has specifically targeted farm servants in Wiltshire, but the studies of servants in England in general highlighted the importance of young age as the distinct demographic parameter that set this group apart from other workers. Some children entered service as early as eight years old, but, as Jane Whittle has noted, most of these were the very poor, for whom service was an alternative to poor relief.²²² More commonly, people joined the ranks of servants at 13 to 14. In contrast to the day labourers, servants

²²⁰ WSRO, G26/132/7, G26/132/8, and G26/132/9, Accounts of sales of livestock, corn and dairy produce and entrants to the annual cattle show to 1838; list of servants hired and masters, type of servant, address and prizes for 12 months service stated.

 ²²¹ R. Church (ed), *Wootton Bassett Wiltshire hiring fair records*, Wilts. Family Hist. Soc. (3 vols, 1998).
 ²²² J. Whittle, 'Introduction: servants in the economy and society of rural Europe', in J. Whittle (ed.), *Servants in rural Europe* (2017), p. 6.

were engaged on a long-term basis, which made them best suited to year-round tasks, such as taking care of animals. In earlier periods, farm service was a common stage of life for both genders, but by the time of this study, female participation had gone down. In this respect, as the farmers' preoccupation with dairymaids has demonstrated, the 'Cheese Country' was highly unusual, and provides a rare opportunity to study the labour contribution of young females.

3.3.1. Demographics of servants.

The list of hired servants is a non-random sample from this population of young and predominantly female individuals. The reason for non-randomness is that some demographic groups participated in hiring fairs less actively than others. Having exposed the fallacy of slave-market metaphor Moses acknowledged that there was a place for close examination of servants' physique, drunkenness, and work-related violence.²²³ Despite this, in Yorkshire, female servants preferred to get engaged at a fair. In contrast, Richard Anthony found that in lowland Scotland women went to fairs less often than men.²²⁴ Very young males are another group, who probably disliked the idea of entering the specific atmosphere of a fair and getting hired by a stranger. Autobiographies suggest a gap of several years between entering service and going to a fair; Fred Kitchen was 13 when he started working as a farm servant but almost 15 when he first went to the Doncaster fair to find a job.²²⁵ Unfortunately, there are not enough autobiographies available to reach a definite conclusion.

The analysis of ages is the area where the relatively brief Chippenham register proves its worth. In addition, it contains information on previous employment, which allows us to assess the work experience of young servants. The age profiles by gender are presented in Figure 3.3.

²²³ Moses, *Reform*, pp. 83, 121, and 220.

²²⁴ R. Anthony, *Herds and hinds. Farm labour in lowland Scotland, 1900–1939* (1997), p. 90.

²²⁵ F. Kitchen, *Brother to the ox: The autobiography of a farm labourer* (1983), pp. 90–108.

Figure 3.3. Servant age density, Chippenham.



No servant was younger than 14. Furthermore, out of the nine individuals aged 14, only one, William Whittle, had earlier served the entire year, whilst others reported a work experience of several months or provided no information. This suggests that although many individuals must have started working at an early age, their first employment was casual and probably involved helping their parents or working part-time for a neighbour. Fourteen must have been the age when female and male servants were mature enough to come to a fair and get hired by a stranger. However, only a minority were hired that young, and at older ages, female and male profiles diverge. Hirings of males peaked at 16 whereas for females the maximum frequency of employment occurred at 19. No female servants were older than 28, corresponding to the approximate age of the first marriage. In contrast, a significant minority of males stayed in service much longer. Kussmaul observed that a longer career required occupational change, e.g. those too old and stiff to be ploughmen became cattlemen.²²⁶ We are not aware of the previous positions of the older individuals, John Checker, 47, a carter, Richard Young, 43, cowman, and William Cozerns, 31, shepherd.

²²⁶ Kussmaul, *Servants*, p. 79.

Nonetheless, it is significant that their current roles demanded skills rather than physical strength, which fits her interpretation.

Moving beyond servants' ages, we can use the much larger sample from Wootton Bassett. There the register format included occupation from 1853 to 1860 when 3,860 servants were hired. The original list contains 29 work titles, some common and the others quite rare.²²⁷ To reduce the number of categories, I grouped positions into four classes: dairy workers, general servants, domestic servants, and animal attendants. The last group included the servants who worked with horses (ostlers, carters), cows (cowmen, cowboys), and shepherds. After sorting servants by occupational group, I used their forenames to identify their gender (Table 3.1).²²⁸ Dairy workers were the major group and along with domestic servants, they were predominantly female. In contrast, the animal attendants were exclusively male. General service was the only category in which gender representation was balanced.

Position / Gender	Female	Male	Unknown	Female %
Dairy workers	2,025	86	62	96
General servants	509	705	11	42
Domestic servants	288	6	11	98
Animal attendants	0	156	1	0
Total	2,822	953	85	75

Table 3.1. Gender balance by occupation, Wootton Bassett.

Most masters were farmers and the shifts in occupations that appear reflect the changes that imported cheese wrought in this market. In the early years, the prosperity of cheese-making fuelled the demand for dairymaids. Figure 3.4 shows, that in 1853, and probably before, dairy workers accounted for over 80% of the total. In that year, 20% of dairy workers were male; however, male participation in dairying ceased the next year. By

²²⁷ Milker – 1 person, yardsmen – 3, ostler – 3.

²²⁸ In a minority of records, the forename was not stated, hence the gender is unknown.

the end of the period, when cheese-making went into a decline, dairy workers accounted for barely over 20% of servants.



Figure 3.4. Occupations of servants by year, Wootton Bassett.

Gender segregation of labour and falling demand for dairy maids explain the trends in the gender balance of hired servants (Figure 3.5).²²⁹ In the early years, the prosperity of cheese-making shifted the gender balance in favour of females, who represented over 90% of servants, which exceeded the proportion of female servants in Wiltshire as a county. Over time the female share declined and by 1860 went down to 65%, approximating the county average.

²²⁹ Servant's names showing gender were recorded throughout the entire period.

Figure 3.5. Gender of hired servants, Chippenham and Wootton-Bassett.



3.3.2. Subsequent roles of dairy workers.

One potential trap in occupational analysis is that the meaning of occupational titles evolved over time; K. D. M. Snell noted, and Edward Higgs seconded that contemporaries often used the terms 'general servant', 'housemaid', and 'domestic servant' interchangeably.²³⁰ His line of reasoning could be extended, and terms such as 'dairymaid' and 'dairyman' added to the list of interchangeable work titles. The reduction in the number of individuals in this occupational group could then be explained by the decline in popularity of these specific terms rather than a decline in the number of people working in the dairy industry. To investigate this possibility, I traced further careers of dairy workers and identified their occupations. Did many of them later become recorded as general servants?

²³⁰ K. D. M. Snell, *Annals of the labouring poor. Social change and agrarian England 1660–1900* (1985), pp. 23 and 283; E. Higgs, 'Occupational censuses and the agricultural workforce in Victorian England and Wales', *EcHR* 48, 4 (1995), p. 708.





The sample included all servants hired to work in a dairy in 1853 and consisted of 363 people. Their names were matched with those of the individuals hired in further years starting from 1854.²³¹ The distribution of occupations is presented in Figure 3.6. The general decline in the sample size is not unexpected, as over time, some people must have left service, moved to live elsewhere, or simply been hired outside the fair. However, only several of these individuals were later recorded as general or other servants. The decline in the number of dairy workers was a real trend and not a change of definitions.

²³¹ Forenames were standardized and only exact matches were accepted. Surnames were matched using the Soundex phonetic algorithm with a string distance of one, and all matches were checked for plausibility.

3.4. Wages and residence.

The early observations suggested that women earned between one- and two-thirds of what the men did throughout the economy.²³² Nicola Verdon's analysis of the wages of agricultural day labourers in the nineteenth century confirmed this finding.²³³ Snell collected data for farm servants and highlighted the contrast between arable and pastoral counties, which developed in the later part of the eighteenth century. By the period covered in this article, the female-to-male wage ratio was approx. 0.66 in the former, compared to approx. 0.76 in the latter.²³⁴ At the same time, the case of servants is complicated by the fact that traditionally they lived-in and in addition to cash received benefits in kind. In a sample presented by Joyce Burnette the inclusion of the value of these benefits increased the wage ratio from one-third to over half.²³⁵ She used Arthur Young's estimate that women received two-thirds as much as men in in-kind payments and relied on evidence from Young and other contemporary sources on how much farmers spent on food.²³⁶ There is some uncertainty in this estimate, as the retail price of food items provided by the farmer to the servant was much higher than the farmer's cost to produce, and the informants rarely disclosed their approach.²³⁷ An alternative way of estimating the value of in-kind payments is to compare the cash wages of servants, engaged on different terms. Howkins observed that it was common for horsemen and cattlemen not to live in the households of their masters.²³⁸ In this case, a servant received a higher 'boarding' wage, which compensated for the benefits in kind they did not receive. However, no comparison of 'boarding' and 'nonboarding' wages of individuals, doing the same work, has yet been published.

²³⁷ Anthony, *Herds*, p. 86.

²³² Y. Merouani and F. Perrin, 'Gender and the long-run development process. A survey of the literature', *European Rev. Econ. Hist.* 26, 4 (2022), p. 621.

²³³ N. Verdon, *Rural women workers in nineteenth-century England* (2002), pp. 125–126.

²³⁴ Produced by the author based on Snell, *Annals* as mean values for arable and pastoral counties in 1801 to 1840.

²³⁵ J. Burnette, *Gender, work and wages in Industrial Revolution Britain* (2008), p. 97.

²³⁶ This is close to modern estimates of women's calorie requirements as about 73% of men's (Burnette, *Gender*, pp. 96–97).

²³⁸ A. Howkins, 'The English farm labourer in the nineteenth century: farm, family and community', in B. Short (ed.), *The English rural community. Image and analysis* (1992), p. 96.

The dataset for analysis of wages includes all 200 records from Chippenham and 377 transactions from Wootton Bassett and reveals two forms of payment. Virtually all female hirelings agreed to receive their wages at the end of the year; in contrast, 38% of males were paid every week (Table 3.2).

Payment frequency	Females	Males
End of year	436	86
Weekly	2	53
Total	438	139
Share of weekly, %	0.5	38.1

Table 3.2. Terms of payment, Chippenham and Wootton Bassett.

The records strongly indicate that individuals with weekly wages were engaged as nonresident servants. In addition to a high frequency of payments, they received much higher monetary wages. The average annualized amount, received by the weekly-paid group, was £15.40, or 2.7 times as much as £5.78 paid to the end-of-year group. Another observation is that four contracts of weekly paid servants included additional benefits: three individuals were to be provided with lodgings, and one was to receive board. No comments on extra benefits for those paid annually have been recorded, thus these four servants were exceptions, and the other weekly-paid individuals received no payments in kind.

At the same time, two female servants who were paid weekly represent a special case. Mary Reeves agreed to work for just six pence a week, while Hannah Woodship accepted a modest wage of one shilling and six pence. Clearly, these were not 'boarding wages', as such sums could not cover even a basic diet. Notably, both were employed as housemaids. Hannah was 15 years old, and although Mary's age was not recorded, a matching entry in the 1851 census indicates that she too was 15 at the time of hiring. Very young female servants appear to have been in a similar position to the farm boys discussed in Section 1.3, in that their work contributed too little to justify the cost of their upkeep. From this perspective, the role of housemaid may be viewed as an entry-level position in

service. Nevertheless, the data show that ten girls of the same age—and even seven aged 14—secured residential posts. This suggests that individual factors such as experience, personal qualities, and preferences played a critical role in shaping the employment outcomes.

What influenced servants' wages? I use regression to assess the impact of diverse factors. Besides residence, the list of factors includes gender, occupation, and age. Wage and age are numerical variables, and all others are categorical.²³⁹ The value of gender is indicated by 'female', which is zero for male servants, chosen as the base level, and one for females. Occupation can take four values, corresponding to occupational groups presented in Section 3.2. Dairy workers are the base category. In addition, the verbal description of occupation contained information on seniority. The clerks considered a 'proper' senior position as the base level, but any occupational group also included the individuals in subordinate roles, indicated by job titles of 'under dairymaid' or 'under carter', or diminutive terms of 'boy' and 'girl' as in 'boy of general worth' and 'dairy girl'. For these individuals, the variable 'junior' was set at one. To explore the impact of seniority by gender, the regression includes the interaction term female * junior. Unfortunately, ages were only recorded in Chippenham, hence the need to run two models, one for both fairs without age and the other for Chippenham which includes age and the interaction term age * female, which allows us to explore the gender-specificity of the effect of this variable. Finally, both regressions included controls for location, Wootton Bassett or Chippenham, and the year.

The results are presented in Table 3.3. The coefficients in the first model, 'Two fairs', show the difference in cash wage between the base level of a variable and the level, presented in the table. The coefficient for 'female' is small and not significant statistically; this shows that there was no direct gender discrimination, as servants of either gender, employed in the same occupations, and on the same basis were paid the same. The coefficient for 'non-resident' is statistically significant; note that as the two non-resident girls presented earlier did not receive a 'boarding wage' all non-residents in the model are male and £9.58 should be interpreted as the average amount paid in kind to a male servant. The

²³⁹ A categorical variable takes on one of a limited number of possible values.
gap between this figure and the contemporary estimate of £27 for Yorkshire, quoted by Burnette, provides backing for Caunce's assertion that the food enjoyed by East Riding horse lads was superior compared to that of their brethren in other regions.²⁴⁰ Animal attendants were the best- and the domestics the worst-paid group, whilst dairy workers and general servants occupied the intermediate position. The coefficient for 'junior' equals -£5.79 and reflects the value of seniority for male workers, which is very similar to the estimate for the West Riding of Yorkshire provided by Holland.²⁴¹ In addition, the coefficient for female * junior shows, that 'girls' were underpaid less than 'boys', as for females the effect of a junior position was limited to -£2.08. This must have reflected a relatively high productivity of 'girls' in dairying; in contrast, in the West Riding, the impact of seniority was gender-neutral, which suggests a different system of labour organization. The parameter R² shows the explanatory power of the model; it equals 0.522 which means that the factors above explain just over half of the observed variation in servant wages. The remaining variation should be attributed to the unobserved factors not included in the model. Clearly, servants also differed in skills, experience, and physical strength; beyond that, some were better sellers of their labour than others, whilst an element of luck, good or bad, was also involved. Note that the second model, 'Chippenham', which includes age has a higher R^2 of 0.694.

²⁴⁰ S. Caunce, Amongst farm horses. The horselads of East Yorkshire (2016), pp. 163-174.

²⁴¹ Produced by the author from the data for 1862 in Holland, 'Farm service', p. 194. Male wages: senior positions £15 to £20 (mean £17.50), juniors £11 to £13 (mean £12). The value of seniority is £17.50 – £ 12 = £5.50. Female wages: senior £11, junior £4, seniority is £11 - £4 = £7.

Dependent variable	Monetary wage				
	Two fairs	Chippenham			
	(1)	(2)			
female	-0.240	-1.370			
	(0.413)	(2.051)			
age		0.527***			
		(0.075)			
non-resident	9.582***	9.408***			
	(0.559)	(0.979)			
animal attendant	5.555***	2.132*			
	(0.829)	(1.133)			
domestic servant	-1.137**	-0.700			
	(0.481)	(1.078)			
general servant	-0.666	-0.654			
	(0.502)	(0.526)			
junior	-5.795***	-2.286*			
	(1.112)	(1.242)			
female * age		-0.018			
		(0.108)			
female * junior	3.712**	2.304			
	(1.809)	(1.831)			
Constant	6.028***	-2.211			
	(0.739)	(1.577)			
Controls	Controlled for location and ye	ear			
Observations	577	200			
R ²	0.521	0.694			
Adjusted R ²	0.511	0.672			
Residual Std. Error	3.110 (df = 564)	2.884 (df = 186)			
F Statistic	51.162 ^{***} (df = 12; 564)	32.428 ^{***} (df = 13; 186)			
Note:		*p<0.1; **p<0.05; ***p<0.01			

Table 3.3. Linear regressions for servants' wages.

3.4.2. Gender wage differential.

These results allow us to explore the sources of gender difference in pay between living-in servants. The average monetary wage of females was £5.57. In addition, they received payment in kind which, as explained above, was about 2/3 of the males' allowance. This gives the average total female wage of £11.96.²⁴² The gap between this figure and the average total male wage of £16.47 can be split into two components, presented in Figure 3.7.²⁴³ The first component is occupational segregation. Servants of either gender worked in dairying, general, and domestic service, but animal attendants were exclusively male. Nonetheless, the impact of occupational segregation was limited to £1.32, as less than a quarter of male servants worked with animals. The second component reflects the difference in the value of payments in kind. This amounted to one-third of the value of the male board, or £3.19.





 $^{^{242}}$ 5.57 + 2 / 3 * 9.58 = 11.96.

²⁴³ Includes £0.11 adjustment for gender-specific effects of year, location and seniority.

The ratio of female to male wages can be produced in two ways. The first approach, based on monetary wages, gives a ratio of 0.82. This ratio is close to Snell's data for pastoral regions and demonstrates the value of female servants in the labour market. As explained in Section VI, there was a shortage of dairymaids. In contrast, male labour was abundant, and Wiltshire wages were among the lowest in England.²⁴⁴ The correction for payments in kind drives the ratio to 0.73. As in the analysis by Burnette, correction moves the result closer to the ratio of payments in kind; the difference is that we start at a relatively high ratio, and the movement is downward rather than upward.²⁴⁵

At this point, I come back to Table 3.3 and consider the additional findings, provided by the second model. The main new variable is age, and thanks to this the model explains over two-thirds of the variation in monetary wage. In fact, the importance of age is such that the coefficients for other variables, except for residence, become smaller and less significant. To a large extent, age explains the variation in seniority and occupation, as animal attendants, the highest-paid group, were, on average, 2.8 years older than male servants in other roles. Each additional year of age brought in £0.53, which is consistent with Verdon's observation that older age meant more experience and, until the middle thirties, higher physical strength.²⁴⁶

The other new variable in this model is the interaction term female * age, and the negative coefficient suggests that the gender gap in pay increased with age. However, this finding is not statistically significant. A more detailed analysis shows that the observed lack of significance arises due to two factors. First, as Figure 3.8 makes clear, the decline of the ratio with age was slow.

 ²⁴⁴ Caird reported the lowest wages of 7s. per week in South Wilts., Glos., and Suff. At 7s. 6d. North Wilts. was in the second worst-paid group. James Caird, *English agriculture in 1850–51*, second ed. (1968), p. 512.
²⁴⁵ Burnette, *Gender*, p. 97.

²⁴⁶ N. Verdon, 'Skill, status and the agricultural workforce in Victorian England', *History* 104/363 (2020), pp. 840–44.





For monetary wage, the ratio moves from about 0.8 at 14 to about 0.5 at 27, whilst the decline in the ratio of total wages is even less pronounced. Second, the pattern deviates from the smooth trajectory, observed by Burnette for this age group, and includes two intervals of a relative increase in female wages, from 16 to 19, and from 24 to 26.²⁴⁷ The second interval only includes seven females and two males, and the upsurge of the ratio may well be little more than an accident, caused by a small number of observations. In contrast, there were 100 individuals in the first interval, suggesting that the increase is a real finding, reflecting the increasing productivity of female servants in this age group. Another notable fact is that whilst all servants in junior positions were 19 years old or younger, in this age group, only 6% of females held junior positions, versus 21% of males. Given the limited number of 'juniors', this has limited impact on the observed trend but illustrates the faster maturity of female workers.

²⁴⁷ Burnette, *Gender*, p. 80.

3.5. Usage and performance.

Most servants moved every year and hiring fairs were designated arenas where they found new jobs. At the same time, there were alternatives: servants could do door-to-door searches, use word-of-mouth recommendations, or find places with their kin.²⁴⁸ Furthermore, even if a servant preferred organized hirings, the frequency of their visits depended on the role of a particular fair in their job-hunting strategy. Building on the earlier work by J. P. D. Dunbabin, Caunce argued that servants could use a hiring fair to bargain collectively and form an alliance, akin to a temporary labour union.²⁴⁹ Another solution was to attend several events, and as nearby fairs were spread in time, use the early ones to test the market, and try to get hired at one of the later sessions.²⁵⁰ There is some contradiction between the two approaches: an effective alliance could only form around a core group, familiar with each other and their environment, but this was difficult to achieve at multiple fairs in different places. Moving to masters, the most informative account of the hiring process was left by the late sixteenth-century farmer Henry Best. He refers to the sessions (sittings) in his locality as 'our sittinges' and describes them in detail.²⁵¹ At the same time, Best knew where and when the other sittings took place, which suggests the attendance of multiple hirings.

3.5.1. Usage of the Wooton Bassett fair by servants.

The usage of a hiring fair can be assessed using the frequency ratio. In general, the frequency ratio is the proportion of overall service usage that is directed to a particular provider. In this case, the provider is a hiring fair, and for servants, the frequency ratio represents the share of job moves secured at this fair. For masters, the frequency ratio is the proportion of their demand for servants, satisfied at a fair.

²⁴⁸ Kussmaul, *Servants*, p. 59.

²⁴⁹ J. P. D. Dunbabin, 'The incidence and organization of agricultural trades unionism in the 1870's', *AgHR* 16, II (1968), pp. 120–22. Caunce, *Horselads*, p. 78.

²⁵⁰ Moses, *Reform*, pp. 89–101.

²⁵¹ H. Best, Rural economy in Yorkshire in 1641: Being the farming and account books of Henry Best, of Elmswell, in the East Riding of the county of York (1857), p. 135.

I will start with servants; for them the formula is:

Frequency Ratio = Number of hirings at fair / Number of moves,

where both parts of the ratio are measured over the same interval of time. The length of this interval should represent the period over which an individual used a hiring fair. Kussmaul noted that an average career in service lasted for six years; at the same time, in Section 3.2 we have seen that the first hirings were not made at a fair.²⁵² For these reasons, the interval was set to five years. Over this period, I counted the average number of repeated hirings by cohort, where a cohort is a group of servants hired at the same event. This required matching the names of servants, engaged at different fairs.²⁵³ The year 1855 is the end point of analysis because after that year the five-year window is cut short by the end of recording occurring in 1860.²⁵⁴

The results, presented in Figure 3.9, reveal a notable gender difference. For female servants, the frequency of repeated hirings is very similar for all cohorts and oscillates in a narrow range of around 1.2 hirings in five years, which is well above the mean frequency for males which stands at 0.8. The pattern differs from that reported for Scotland by Anthony, where females were hired at fairs less often than males.²⁵⁵ However, in contrast to Anthony's observation that relates to female servants in general, these estimates are limited to individuals who choose to come to the fair for their first engagement. Hence those females who never used it are not counted. From 1843 to 1845 the male line goes up and occasionally exceeds the female level. This must be related to the fact that these were the smallest male cohorts as only 15 to 20 individuals were hired per fair. Evidently, in this period only the most loyal 'users' of a fair came in.

²⁵² Kussmaul, Servants, pp. 79–80.

 ²⁵³ Some servants had repeated names, and their career moves could not be separated. To address this issue, the individuals with identical names hired at the same event were removed from the sample.
²⁵⁴ The number of hirings for the cohorts of 1854 and 1855 is slightly underestimated as the records for Michaelmas of 1858 are missing.

²⁵⁵ Anthony, *Herds*, p. 90.





The next step is to estimate the number of moves over the same period. The available data does not allow for producing the number by cohort, but the average value of this variable can be assessed as:

Number of moves = Rate of mobility * 5 years,

Where the rate of mobility represents the share of servants who moved to another place after their yearly contract was over. To estimate the value of this variable I focused on the Michaelmas cohort of 1849 and looked at the households of their masters in the census of 1851. By that time a year and a half had passed from the original hiring, hence the individuals who were still living in with their masters must have decided to renew their contracts for another year. The methodology of cross-linking the register and the census is a modification of the approach, developed by Chris Minns and Patrick Wallis in their analysis of apprentices, and is presented in Appendix 3.1.²⁵⁶ The limiting factor is that the continuation of service by non-resident servants cannot be assessed by where they were returned in the census. As noted in Section 3.4, in 1853 almost half of male servants were

²⁵⁶ C. Minns and P. Wallis, 'Rules and reality: Quantifying the practice of apprenticeship in early modern England', *ECHR* 65, 2 (2012), pp. 556–79.

engaged on a non-residential basis. Generally, it is not so difficult to include non-residence in the analysis. A much bigger problem is that this variable, which critically affects the outcome, must have changed over time but is only available for one year. In contrast, almost all females lived-in, hence this part of the study is limited to female servants.

The share of female servants who renewed their contracts for a second year was in the range from 0.14 to 0.20. The mean value of 17% is very close to the percentage of yearly hirings with the same employer lasting for two or more years, reported by Snell from his review of settlement examinations. His estimate of 15% relates to a neighbouring area, southeastern counties, in the 1830s.²⁵⁷ The method applied in this study slightly underestimates renewed engagements, as some of those who have decided to stay may have departed in the six months between the start of their renewed contracts and the census. However, these were repeated hirings of people who were, apparently, comfortable in their roles, and the number of early departures must have been low.

The rate of renewal of 0.17 corresponds to the rate of mobility of 0.83, which means that the average servant made 4.15 moves in five years. According to the formula above, this indicates a frequency rate of 0.29 for female servants.²⁵⁸ However, this estimate overstates the number of moves, and thus understates the frequency rate, because it assumes a fixed five-year interval for all servants, whereas some must have left service or moved elsewhere before the period ended. This effect, however, is counterbalanced by another factor working in the opposite direction. Analysis of the Michaelmas 1849 cohort shows that 15 out of 32 female servants who remained with their masters for another year still came to the following Michaelmas fair to confirm their commitment. Though they did not change jobs, they may have sought the formal security of a public transaction or wished to qualify for a reward tied to registration. Such recorded renewals of ongoing employment inflate the count of hirings and thereby exaggerate the frequency rate.

²⁵⁷ Snell, *Annals*, pp. 74–78.

 $^{^{258}}$ FR = 1.2 / 4.15 = 0.29.

At first glance, the frequency rate does not seem high. A servant, once hired in Wootton Bassett, could develop a local network of work-related contacts, and use it when looking for subsequent moves. Besides, within easy reach were nine other hiring fairs, see Figure 3.1. Some of these, such as Marlborough and Cirencester, were held after Wootton Bassett, and servants must have kept in mind the opportunity of finding work at one of these events. The other factors negatively affecting the frequency rate were exit from service, geographic mobility, and even death, although most servants were young, and the impact of the last factor must have been limited.

The careers of servants who were regularly hired in Wootton Bassett demonstrate that frequent usage could be achieved in two distinct ways. Some individuals were well-matched with their employers but still came to the fair and registered renewed contracts. From 1838 to 1848 Sarah Lanfear was hired at each Lady Day fair, and every time by the same farmer – J. Y. R. Sheldon of Woodshaw. She must have enjoyed the opportunity to celebrate yet another year of good work and collect an award. In the end, she acquired an impressive array of nine gowns. Other individuals moved often and used a fair to find a new place. One of these was Sarah Burchall, who from 1849 to 1860 was hired by 16 different masters.²⁵⁹ Her collection of awards was limited to one gown, received at Michaelmas of 1843 on a recommendation of Thomas Young from Bushton. Nonetheless, at the very same fair, she moved to work for another master.

²⁵⁹ Note two hirings in some years.

3.5.2. Usage of the Wootton Bassett fair by masters.

Moving on to masters, we can use census records to estimate their labour demand and compare it with the total number of servants they hired at the fairs. As before, this method applies only to females due to the non-residency of male servants. The analysis is also limited to farmers in the parish of Wootton Bassett. A comparison of the register with census returns shows that among masters there were innkeepers, surgeons, traders, and butchers. However, over 90% were farmers. A list of all local farmers who, in 1851, employed female living-in servants is presented in Table 3.4. The first two columns are from the 1851 census returns and show the farm acreage and the number of resident servants. Note that two farmers did not disclose the size of their holdings. The following three columns are based on the register and present the total number of servants hired by a farmer and the first and the last years when he or, in one case, she hired a servant. Generally, larger farmers hired more servants. An exception is Levi Humphries, who managed a modest landholding of 23 acres but hired 19 servants. However, whilst returned in the census as a farmer, Humphries was also a cattle dealer and probably employed his servants in that line of business.²⁶⁰

The next column shows the length of the period of activity, measured as the interval between the first and the last years of hiring. Assuming that the number of servants in 1851 represented the number needed to staff a farm in a typical year we can estimate the farmer's labour as a multiple of two variables: the farm's staff of servants and the length of the period.²⁶¹ The frequency ratio in the last column is produced by dividing the demand by the number of servants the farmer has hired at the fair.

²⁶⁰ Swindon Advertiser and North Wilts. Chronicle, 13 Oct. 1879.

²⁶¹ This is a necessary simplification.

Farmer	Acres	Servants	Hired	From	То	Period	Demand	Frequency
		in 1851	at fair					ratio
Archer, James	350	3	39	1838	1857	20	60	0.65
Archer, William	110	1	15	1846	1860	15	15	1.00
Farmer, John	117	1	34	1838	1859	22	22	1.55
Henly, John	220	2	21	1839	1860	22	44	0.48
Horsell, George	400	2	32	1837	1859	23	46	0.70
Humphries, Jacob		2	12	1852	1858	7	14	0.86
Humphries, Levi	23	1	15	1851	1860	10	10	1.50
Humphries,	135	2	12	1850	1859	10	20	0.60
Samuel	195	1	13	1837	1856	20	20	0.65
Ind, William	80	1	25	1837	1860	24	24	1.04
Knight, John	99	1	12	1839	1859	21	21	0.57
Mundee, Robert	400	2	19	1852	1860	9	18	1.06
Parsons, Edmund	200	1	43	1838	1858	21	21	2.05
Parsons, William	120	2	25	1846	1860	15	30	0.83
Priddy, Hannah	246	1	27	1838	1856	19	19	1.42
Sheldon, JYR		1	19	1843	1858	16	16	1.19
Smith, Robert	136	1	3	1852	1857	6	6	0.5
Theobalds, Peter								
Total		25	366			280	406	0.90

Table 3.4 The Wootton Bassett farmers w	vith resident servants in 1851.
---	---------------------------------

The frequency ratio ranges from 0.48 to 2.05. The last number does not look realistic, yet it should be noted that the highest ratios are for the farmers who only reported one resident servant in 1851. Either 1851 was a year when their farms were understaffed, or the

size of their landholding increased over time driving the demand for labour up. It is also possible that some servants were not returned in the census. The highest ratio was for William Parsons, who remained at Hunt Mill farm over the entire period and reported one living-in servant in 1851. He used the fair every year and usually hired two or three servants. For the entire sample, the average frequency ratio is 0.90. If the staffing requirements of William Parsons and two other farmers who consistently hired two servants a year are upgraded to two farm servants, the average frequency ratio is reduced to 0.79.

Hence, the masters' frequency ratio falls within the range of 0.79 to 0.90. It is worth noting that a farmer's period of recorded activity may have included years in which their demand for hired labour was lower, leading to an overstatement of labour demand for the period of activity and, consequently, an underestimation of the frequency ratio. However, given that the values of the latter are close to one, this underestimation is unlikely to be significant. A further, minor source of underestimation is that some servants remained with the same master for more than one year, and some repeated hirings may have gone unregistered. Nonetheless, relatively few servants stayed, while the system of rewards provided an incentive to register hirings.

These masters sourced almost all their labour at their local fair, whilst the servants used it for less than a third of their moves. This reveals a difference in the usage of hiring events which can be explained by how the cost-benefit balance worked for masters and servants. The main cost element for either party was their time, and the main benefit was higher (from the servants' point of view) or lower (for masters) wages. Servants' time was cheap, whilst even a small increment in wages was valuable. Thus, while they attended their local fair, they also took advantage of opportunities offered at other hiring events. In contrast, masters valued their time, whilst servants' wages were important but not a critical component of their costs. It was rational for them to use the most convenient fair, which they knew well and supported with their subscriptions.

3.5.3. Contract performance.

In the final part of my analysis, I examine servants' performance. This topic is related to work discipline, which is a key aspect of the Industrial Revolution and is usually discussed in a factory setting. Factory operatives were usually not termed servants, but their relationships with mill owners were subject to the same legal regime of the Elizabethan Law of Master and Servant.²⁶² In economic terms, leaving an employer before the end of a term of service was the worst offense a servant could commit, and could result in imprisonment. Suresh Naidu and Noam Yuchtman have shown that the relative movements of the cost of prosecution and product price could create conditions under which a worker would be motivated to break the contract while the master would refrain from legal action.²⁶³ It follows that the statistics on convictions are misleading, and the real performance of factory workers remains uncertain. The same uncertainly exists for farm servants; the effect of prices is unclear, but the reputational costs alone have prevented masters from abusing their legal rights.²⁶⁴ In East Riding of Yorkshire, most unhappy hirelings left shortly after they started, and farmers generally let them go.²⁶⁵ Instead of relying on legal records, I use an alternative approach to assessing performance, based on linking the registers of servants with census records.

To quantify servants' performance, I use the contract performance rate (CPR), which is calculated as the proportion of servants who have successfully fulfilled their contracts, to the total number of hired servants. CPR is closely related to the rate of mobility:

CPR = 1 – *Rate of Mobility*

Therefore, the method of analysis is the same as earlier but should be applied within a different time frame. Earlier we looked at a cohort after 1.5 years from initial hiring; here we are interested in those individuals, who were hired less than a year before the census. The census of 1841 was taken in June and can be used to assess the performance of two cohorts,

²⁶² D. Hay, 'England, 1562-1875: the law and its uses', in D. Hay and P. Craven (ed) *Masters, servants and magistrates in Britain and the Empire, 1562-1955* (2004), pp. 91–104.

²⁶³ S. Naidu and N. Yuchtman, 'How green was my valley? Coercive contract enforcement in 19th century industrial Britain', *Harvard University mimeo* (2009), pp. 7–15.

 ²⁶⁴ On the importance of reputations and the role of hiring fairs, see G. Moses, 'Passive and impoverished? A discussion of rural popular culture in the mid-Victorian years', *Rural Hist*. 22, 2 (2011), pp. 186–187.
²⁶⁵ Caunce, *Horselads*, p. 38.

Michaelmas of 1840 and Lady Day of 1841. After that, the census day was moved to spring, and the censuses of 1851 and 1861 can be referred to in the analysis of cohorts, hired at Michaelmas of the previous year.

Cohort	Days before Census	Number Hired	CPRmin	CPRmax	
Michaelmas 1840	243	181	0.75	0.77	
Lady Day 1841	68	136	0.87	0.87	
Michaelmas 1850	180	176	0.76	0.80	
Michaelmas 1860	187	76	0.52	0.56	

Table 3.5 Contract performance rate.

The performance of the four cohorts is shown in Table 3.5. As before, the analysis is limited to female servants. The cohort of Lady Day 1841 demonstrated the best performance of 0.87, closely followed by two other cohorts. The cohort of Michaelmas of 1860, which is the last group presented in the register of servants, is notably different from the rest. On one hand, it is much smaller; on the other, the performance is worse, as just over half of servants were observed fulfilling their contractual obligations. A comparison of CPRs is complicated by the fact that the interval of time between a hiring event and census was different by cohort. To demonstrate the impact of this parameter, in Figure 3.10 the mean CPR of each cohort is plotted against the number of days before census.

Figure 3.10. CPR vs. days to census.



The CPRs of all cohorts except the last can be placed on a single hyperbolic line, which starts at zero days and CPR equal to one. In the first two months, the line goes down sharply. This matches Caunce's observation that the dissatisfied servants left quickly to have enough time for alternative arrangements, quoted earlier.²⁶⁶ Later on, the curve flattens out, and this can be explained by the anticipated financial consequences of breaking a contract. A servant was paid at the end of the year, and early departure involved a serious risk of losing all the money they had earned. The amount at risk increased as time passed, and accordingly, the rate of departure slowed. Very few servants must have left after the eight months, represented by the furthest point to the right, and the ultimate CPR for the entire year should be close to 0.75. Note that balancing broken contracts included a range of unforeseen circumstances that could have developed during the year, such as the pregnancy of a servant, bankruptcy of a farmer, and even death of either party.

In 1860 the CPR fell and probably became unacceptably low. No published research could provide a benchmark for a direct comparison, but more broadly, farm servants were not the only group of young people placed under contractual obligations and failing to meet

²⁶⁶ *Ibid.*, p. 72.

them perfectly. Minns and Wallis found that contrary to the expectation that apprentices would join the households of their masters at the start of their seven-year term, in the late seventeenth century only about half (in Bristol) and two-thirds (in London) were present in their first year.²⁶⁷ The CPR of the last cohort indicates a similar level of performance. Nonetheless, the critical difference was that the departures of apprentices could be consensual and mutually beneficial. Masters hired out apprentices for wages; apprentices moved to gain new skills. In contrast, the departure of a farm servant was a major disruption of a farmer's business. In 1860 both the number of hired servants and their performance went down; at the same time, under the attack of reformers, farmers withdrew their patronage of the fair. Clearly, that year saw the end of the once-successful business model, which involved living-in dairymaids and a hiring fair.

3.6. Conclusion.

Facing a shortage of dairymaids during the cheese boom of the early nineteenth century, farmers in two market towns in North Wiltshire established new hiring fairs. The venture was a success and for a quarter of a century channelled a steady flow of up to 350 servants per event into agricultural production. In the early years, over 80% of hirelings were female, but towards the end of the period, both the share of females and the share of dairy workers declined. At that time the campaign for abolition of hiring fairs reached Wiltshire and farmers withdrew their patronage.

The unique feature of the new fairs was the maintenance of registers, in which all hiring transactions were recorded. The extant registers provide comprehensive coverage of the local labour market and include all demographic groups except very young servants under 14 years of age. Servants were employed on different terms, and approximately 38% of males did not live-in. The female-male wage ratio was relatively high, at 0.73 when corrected for payments in kind. Linking the registers with the census, I found a substantial difference in the usage of a hiring fair by servants and masters. The former used the fair for less than a third of their moves, whilst the latter preferred to hire most of their labour at a

²⁶⁷ Minns and Wallis, 'Apprenticeship', pp. 568–74.

fair. The analysis of contract performance revealed that, in the 1840s and 1850s, 75% of servants fulfilled their year-long contracts, but by 1860, the share dropped to just over half.

The new findings allow a new look at the interplay of tradition and adaptation in history of farm service, supported by quantitative evidence. Far from being an obstacle, tradition could facilitate progress, with the centuries-old institution of hiring fairs revived to meet the labour requirements of specialized capitalist agriculture. Flexibility in terms of employment was important and yet limited numerically and selective by gender. Most contracts were honoured, but a significant minority of servants departed early, despite the legal restrictions and potential penal sanctions. Appendix 3.1. Matching register of servants and census: process and formulas

The flow diagram for a cohort of servants hired at the same fair is presented in Figure 3.A.1.





Upon hiring a living-in servant should move to the farmer's household. After that, a servant could break their contract and leave, or remain employed. The employed servants should be returned in the census as members of the farmer's household.

Process.

Record linkage is a three-stage process. It starts with a list of masters, who hired servants on a chosen day. At stage one, the master's name and location are used to find this person in the census. At stage two, all servants living in this master's household are identified. At stage three, the register is referred to again to look for matches between the names of servants from the census and the list of individuals hired by this master. After this process is completed for all masters, the servants are combined into a cohort, and the total number of matched servants (referred to as *Matched*) is calculated.

Two methods of matching servants were used. Either method required a close matching of surnames, equivalent to Soundex string distance <= 1, but the approach to

forenames was different. The conservative method required an exact match of standardized forenames; the demands of the second method were more relaxed and only matching gender was necessary. The two values of *Matched* defined the lower and upper bounds of CPR and MR for each cohort.

Adjustment for errors.

To represent the real number of servants in continued employment (Employed) the observed *Matched* should be adjusted for two types of errors. First, some servants were omitted (Omitted) for various reasons, such as being temporarily absent, or returned under names that were misspelled beyond recognition. Second, some masters were not identified in the census (Missing Masters), mostly because their location was not recorded, and the surname was either too common to identify a person or misspelled so that no person was found.

The formula for Contract Performance Rate.

To estimate the contract performance rate (CPR) the total number of servants in continued employment should be divided by the total number of hired servants:

$$CPR = \frac{Employed + Employed by Missing}{Hired}$$
(1)

The number of servants, employed by identified masters, is:

$$Employed = Matched + Omitted = Matched * (1 + err)$$
(2)

Where *err* is the error rate, which is assessed using the records for the rewarded servants. These have served their contracts in full and had to be present in the masters' families on the census day; hence, the percentage of rewarded servants who could not be matched provides an indicator of the error rate.

Employed by Missing describes the behaviour of masters and servants who could not be identified. It is reasonable to assume that their performance was the same as that of those servants, who were identified, therefore:

$$Employed by Missing = Hired by Missing * CPR$$
(3)

Substitution of equations (2) and (3) into (1) gives

$$CPR = \frac{Matched * (1 + err)}{Hired - Hired by Missing}$$
(4)

The formula for Mobility Rate.

The mobility rate is defined as the ratio of the number of servants who have left to the total number of hired servants:

$$MR = \frac{Left}{Hired}$$
(5)

At the same time, the sum of *Left* with the number of well-performing servants equals the total inflow of hired servants (see Figure 1A):

$$Hired = Employed + Employed by Missing + Left$$
(6)

Substitution of (6) into (5) gives

$$MR = \frac{Hired - Employed - Employed by Missing}{Hired} = 1 - CPR \qquad (7)$$

Using the formula (4) for CPR we get

$$MR = \frac{Hired - Hired \ by \ Missing - Matched \ * (1 + err)}{Hired - Hired \ by \ Missing}$$
(8)

Conclusion.

The period covered by this study was marked by revolutions—political in continental Europe and industrial and agricultural in Britain. Contemporaries were captivated by the rapid pace of change, a fascination shared by early generations of historians. However, later research has often taken a more nuanced perspective, shifting to more measured analyses focused on quantifiable factors like output and productivity that often indicate less dramatic ruptures. Accordingly the 'revolutions' are now seen by many historians as more gradual, even evolutionary, developments. The transition from farm servants to agricultural labourers marked a key part of the Agricultural Revolution, changing the organisation of labour supply and the social relationships between capital and labour. This study contributes to the revisionist literature on the Agricultural Revolution by providing qualitative data on the evolution of farm service in the late nineteenth century and uncovering a gradual, rather than revolutionary, change.

Carrying out this work depends on identifying farm servants in the enormous body of census records. To achieve this, I constructed a model that identifies farm servants in the I-CEM database of census enumerators' books (CEBs), introduced in Chapter 1. For each decadal census, the model generates a detailed list of all individuals involved in agriculture, including farmers, farm bailiffs, farm servants, and day labourers. This allows us to examine their demographic characteristics and, in the de-anonymized version of I-CEM, access their names and exact addresses. A comparison of these results with the most comprehensive manual study of CEBs, published by Howkins and Verdon in 2008, demonstrated a strong match. Furthermore, a comparison with the official Census Reports not only produced similar results for male farm servants but also offered new insights into the tabulation conventions applied by the Census Office.

The model allows us to assess the key parameters of farm service and their change over time. With it, I presented the first national estimates for the number of farm servants in 1851 to 1911, showing the fall from 301,000 to 132,000 over these sixty years. The decline of the institution was prolonged and even in the twentieth century, despite the diminishing contribution of agriculture to the national economy and its mechanization, farm service remained vital to English farming.

In contrast to Census Reports, which underreported female employment, and earlier studies that focused solely on male servants, this study provides a gender-balanced representation of agricultural labour. It reveals that the proportion of females among farm servants remained stable throughout the entire period. More broadly, farmers maintained consistent hiring practices and the demographic characteristics of servants changed little. Nationally, the classic residential model of farm servants who lived in the households of their employers continued to be the foundation of farm service, with alternative forms playing a limited role. However, their regional importance evolved, and by 1911, alternative forms of service had become particularly significant on both sides of the Humber, in the East Riding of Yorkshire and Lincolnshire.

Why did farm service survive in many regions of England? Chapter 2 offered an explanation for the varying incidence of farm service as a form of agricultural employment, both across different geographical locations and over time. While earlier studies identified some key factors, they were limited to basic correlations of the share of farm servants with one or two explanatory variables. I assessed the relative importance and statistical significance of a wider set of variables, representing farm demand, local labour supply, competition for workers, and market integration. The explanatory variables were derived from diverse sources, such as contemporary Agricultural Returns, GIS databases, and the I-CEM and BBCE (British Business Census of Entrepreneurs) datasets. The persistence of service was linked to a pastoral focus in agriculture, the presence of farm horses, dispersed settlements, and, simultaneously, a lower proportion of the population employed in agriculture. Farm service remained an effective solution to labour supply challenges for farms in those regions where these characteristics were important.

While this national account is powerful, local variations existed that reflected specific circumstances. Moving to a more focused analysis, I assessed the factors influencing the use of farm service in specific regions. The distinctive system of family hiring in northern Northumberland was a response to the demands of labour-intensive farming in a strongly agricultural area of highly dispersed settlements that were far removed from major cities and poorly served by rail transport. In Lincolnshire, the higher-than-expected proportion of servants was probably related to a shortage of labour in areas of reclaimed marshland, while

a relatively low incidence of farm service in coastal areas could be explained by the availability of seasonal work, supporting a pool of casual labour.

The second part of the thesis explored the institutions that sustained farm service in this period. It maintained the focus on female labour participation but shifted to another source: registers of hired servants. Kussmaul was the first scholar to discover this type of evidence, but she only used the registers from the Holland part of Lincolnshire to trace the career moves of selected farm servants. The records used in this study were kept in two market towns in North Wiltshire, Chippenham and Wootton Bassett, where the cheese boom of the early nineteenth century prompted local farmers to introduce new hiring fairs. Most hired servants in these areas were dairymaids, employed as live-in workers. In contrast, almost 40% of male farm servants were hired on a non-residential basis. The data on servant wages was then used to assess and explain the gender gap in remuneration.

Earlier assessments of the scale of hiring fairs were limited to total attendance figures reported by local newspapers. This work presents detailed information on the number of servants hired at each bi-annual fair from 1837 to 1860, along with a breakdown of hirelings by occupation and gender. A comparison with other fairs, where the total attendance is known demonstrated that the Wootton Bassett fair was at least as big as the average event in the East Riding of Yorkshire, where the continued importance of hiring fairs is well-known. I assessed and compared the masters' and servants' patterns of using the fair, attributing the differences to the fact that the potential financial gains from attending multiple hirings were more substantial for servants, while masters placed a higher value on their time. By cross-referencing the registers of servants with census records, I was able to produce the first-ever estimates of how well female servants fulfilled their contracts.

The analysis presented in this thesis does not exhaust the research possibilities offered by either the new model for farm servants or the registers of servants. The scope of research can be expanded both geographically, by incorporating Wales, where farm service was significant but remains understudied, and temporally, when the 1921 census, which is now available in electronic form, is integrated into the I-CEM dataset. Additionally, new questions can be explored, such as the accessibility of the 'farming ladder' to servants, which could be investigated by linking individual records across successive censuses. Finally, the recently digitized Lincolnshire records, initially discovered by Kussmaul, provide an

exciting opportunity to study agricultural labour in one of the most dynamic parts of England from the late seventeenth to mid-nineteenth century.

Bibliography.

Manuscripts.

Ashcroft, L., (ed), Vital statistics. The Westmorland 'census' of 1787, Curwen Archive Trust (1992).

Church, R. (ed), Wootton Bassett Wiltshire hiring fair records, Wilts. Family Hist. Soc. (3 vols, 1998).

National Art Library, GC/CRY crypt store 9.0.28; [An account of] the firm of Rundell, Bridge & Co., the Crown jewellers and goldsmiths on Ludgate Hill by George Fox.

Wilts. and Swindon RO, G26/132/7 and G26/132/8, Great monthly market committee minute book.

Wilts. and Swindon RO, G26/132/7 and G26/132/8, Great monthly market committee minute book.

Wilts. and Swindon RO, G19/998/1, Chippenham hiring fair.

Wilts. and Swindon RO, G26/132/7, G26/132/8, and G26/132/9, Accounts of sales of livestock, corn and dairy produce and entrants to the annual cattle show to 1838; list of servants hired and masters, type of servant, address and prizes for 12 months service stated.

British Parliamentary Papers.

B.P.P., 1835, 116, XXIII.1, 133, XXIV.1, XXV.1, XXVI.1, Royal Com. of Inquiry into Municipal Corporations of England and Wales. First Report, Appendices: Part I. (Midlands, W. and S.W. Circuits); Part II. (S.E. and S. Circuits); Part III. (N. and N. Midlands Circuits); Part IV. (E. and N.W. Circuits); Part V. (Other Places).

B.P.P., 1851-1852, 1691-I, Census of Great Britain, 1851. Population tables. II. Ages, civil condition, occupations, and birth-place of the people: with the numbers and ages of the blind, the deaf-and-dumb, and the inmates of workhouses, prisons, lunatic asylums, and hospitals. Vol. I.

B.P.P., 1851-1852, 1691-II, Census of Great Britain, 1851. Population tables. II. Ages, civil condition, occupations, and birth-place of the people: with the numbers and ages of the blind, the deaf-and-dumb, and the inmates of workhouses, prisons, lunatic asylums, and hospitals. Vol. II.

B.P.P., 1863, 3221, Census of England and Wales 1861. General Report; Summary Tables, Abstracts of Ages, Occupations and Birthplaces of People, Division I. to Division III.

B.P.P., 1863, 3221, Census of England and Wales 1861: Population Tables Volume II. Abstracts of Ages, Occupations and Birthplaces of People, Division IV. to Division XI.; Isle of Man and Channel Islands; Indexes.

B.P.P., 1867, 3941, LXXI.781, Agricultural Returns for Great Britain, 1867.

B.P.P., 1867-1868, 4068 4068-I, XVII.1, 237, Commission on the employment of children, young persons, and women in agriculture (1867). First report of the commissioners, with appendix part I.

B.P.P., 1873, C.872, Census of England and Wales, 1871. Population abstracts. Ages, civil condition, occupations, and birth-places of the people. Vol. III.

B.P.P., 1881, C.3078, XCIII.589, Agricultural Returns for Great Britain, 1881.

B.P.P., 1890-1891, C.6524, XCI.1, Agricultural Returns for Great Britain, 1891.

B.P.P., 1893-1894, C.6894-I, XXXV.1, Royal Commission on Labour. The agricultural labourer. Vol I. England. Part I. Reports by Mr. William E. Bear, (assistant commissioner,) upon certain selected districts in the counties of Bedford, Hampshire, Huntingdon, Leicester, Nottingham, and Sussex. With summary report prefixed.

B.P.P., 1893-1894, C.6894-III, XXXV.317, Royal Commission on Labour. The agricultural labourer. Vol. I. England. Part III. Reports by Mr. Arthur Wilson Fox, (assistant commissioner,) upon certain selected districts in the counties of Cumberland, Lancashire, Norfolk, Northumberland, and Suffolk, with summary report prefixed.

B.P.P., 1893-1894, C.6894-XXV, Royal Commission on Labour. The agricultural labourer. Vol. V. Part I. General report by Mr. William C. Little (senior assistant agricultural commissioner).

B.P.P., 1900, Cd.346, LXXXII.557, Earnings of agricultural labourers. (Board of Trade, Labour Department.) Report by Mr. Wilson Fox on the wages and earnings of agricultural labourers in the United Kingdom, with statistical tables and charts.

B.P.P., 1903, Cd. 1616, LXXXII.1, Board of Agriculture. Agricultural statistics 1902. Report on the agricultural returns.

B.P.P., 1905, Cd. 2376, XCVII.335, Earnings of agricultural labourers. (Board of Trade, Labour Department.) Second report by Mr. Wilson Fox on the wages, earnings, and conditions of employment of agricultural labourers in the United Kingdom, with statistical tables and charts.

B.P.P., 1912-1913, Cd. 6021, 6056, 6272, 6385, 6588, CVI.1, Board of Agriculture and Fisheries. Agricultural statistics, 1911. Vol. XLVI. Part I. Acreage and live stock returns of Great Britain.

Periodicals.

The Annual biography and obituary for the year 1828, XII (1828). Daily News (London), 2 Apr. 1949. Devizes and Wilts. Gazette, 8 May 1834, 26 June 1836, 30 Sep. 1852, and 6 Dec. 1859. Dors. County Chronicle, 2 Oct. 1834. North Wilts. Herald, 30 Mar. 1867 and 14 Mar. 1868. Salisbury and Winchester J., 24 May 1830 and 17 Oct. 1836. Swindon Advertiser and North Wilts. Chronicle, 13 Oct. 1879. Wilts. Independent, 11 Apr. 1844.

Electronic sources and databases.

Bennett, R. J., 2012, Urban Population Database, 1801-1911, [data collection], Robson, B., University of Manchester, Department of Geography, accessed 14 Feb. 2024, SN: 7154, DOI: http://doi.org/10.5255/UKDA-SN-7154-1

Bennett, R., Smith, H., van Lieshout, C., Montebruno, P., and Newton, G. (2020). British Business Census of Entrepreneurs, 1851-1911. [data collection]. UK Data Service. SN: 8600, DOI: http://doi.org/10.5255/UKDA-SN-8600-2.

https://www.campop.geog.cam.ac.uk/research/projects/transport/data/enclosures.html [accessed 1 Sep. 2023].

https://bibleproject.com/guides/book-of-genesis/ [accessed 1 Oct. 2024].

Bogart, D., Rosevear, A., and Satchell, M., Turnpike roads of England and Wales 1667-1892, GIS shapefile,

www.campop.geog.cam.ac.uk%2Fresearch%2Foccupations%2Fdatasets%2Fcatalogues%2Fd ocumentation%2Fturnpikeroads16671892.pdf [accessed 20 April 2023].

https://search.findmypast.co.uk/search-world-records/1851-england-wales-and-scotland-census [accessed 1 July 2023].

https://www.findmypast.co.uk/1921-census {accessed 1 July 2024].

Higgs, E., Jones, C., Schürer, K., and Wilkinson, A., The integrated census microdata (I-CEM) collection: a user's guide.

Marti-Henneberg, J., Satchell, M., You, X., Shaw-Taylor, L., and Wrigley, E. (2018). 1851 England, Wales and Scotland Railway Stations. [data collection]. UK Data Service. SN: 852994, DOI: 10.5255/UKDA-SN-852994.

Satchell, M., Boothman, L., Bogart, D., and Shaw Taylor, L. Parliamentary enclosures, c.1700-1911, GIS shapefile,

https://www.campop.geog.cam.ac.uk/research/projects/transport/data/enclosures.html [accessed 1 September 2023].

Schurer, K., and Higgs, E., 'Integrated Census Microdata (I-CeM), 1851-1911' (data collection). UK Data Service, 2023 [Accessed 20 May 2024]. Available from: DOI: <u>http://doi.org/10.5255/UKDA-SN-7481-2</u>.

Schurer, K., and Higgs, E. (2024). Integrated Census Microdata (I-CeM) Names and Addresses, 1851-1911: Special Licence Access. [data collection]. 2nd Edition. UK Data Service. SN: 7856, DOI: <u>http://doi.org/10.5255/UKDA-SN-7856-2</u>

Secondary sources.

Allen, R., *Enclosure and the yeoman. The agricultural development of the South Midlands* 1450–1850 (1992).

Anderson, M., "Waiting upon chance": English hiring fairs and their meanings from the 14th to the 20th century', J. Hist. Sociology 1, 2 (1988), pp. 119-160.

Anderson, M., 'Mis-specification of servant occupations in the 1851 census: a problem revisited', *Local Pop. Studies* (1998), pp. 58-64.

Anthony, R., Herds and hinds. Farm labour in lowland Scotland, 1900–1939 (1997).

Armstrong, A., Farmworkers. A social and economic history (1988).

Atkins, P. J., 'The growth of London's railway milk trade, c. 1845–1914', *J. Transport Hist*. 4 (1978), pp. 208-226.

Best, H., Rural economy in Yorkshire in 1641: Being the farming and account books of Henry Best, of Elmswell, in the East Riding of the county of York (1857).

Bogart, D., The turnpike roads of England and Wales, *The Cambridge Group for the History* of *Population and Social Structure*,

https://www.campop.geog.cam.ac.uk/research/projects/transport/onlineatlas/britishturnpi ketrusts.pdf [accessed 20 April 2023].

Bogart, D., You, X., Alvarez-Palau, E., Satchell, M., and Shaw-Taylor, L., 'Railways, divergence, and structural change in 19th century England and Wales', *J. Urban Economics* 128 (2022), pp. 1-23.

Bouquet, M., Family, servants and visitors. The farm household in nineteenth and twentieth century Devon (1985).

Burnette, J., Gender, work and wages in Industrial Revolution Britain (2008).

Caird, J., English agriculture in 1850–51, second ed. (1968).

Castle, W., Ron Creasey: Last of the horselads (2012).

Caunce, S., 'Farm servants and the development of capitalism in English agriculture', *AgHR* 45, 1 (1997), pp. 49-60.

Caunce, S., 'The hiring fairs of northern England, 1890–1930: a regional analysis of commercial and social networking in agriculture', *Past & Present* 217, 1 (2012), pp. 213–246.

Caunce, S., Amongst farm horses. The horselads of East Yorkshire (2016).

Claridge, J., and Langdon, J., 'The composition of famuli labour on English demesnes, c. 1300', *AgHR* 63, 2 (2015), pp. 187-220.

Clark, G., 'The price history of English agriculture, 1209–1914', *Research in Econ. Hist*. 22 (2004), pp. 41-123.

Cobbett, W., Rural rides (reprint 1985).

Cohn, S., 'After the Black Death: labour legislation and attitudes towards labour in latemedieval western Europe', *EcHR* 60, 3 (2007), pp. 457-485.

Davidoff, L., Thicker than water: Siblings and their relations, 1780-1920 (2012).

Deane, P., and Cole, W. A., *British economic growth 1688-1959. Trends and structure* (1962).

Dunbabin, J. P. D., 'The incidence and organization of agricultural trades unionism in the 1870's', *AgHR* 16, 2 (1968), pp. 114-141.

Dunbabin, J. P. D., Rural discontent in nineteenth-century Britain (1974).

Dunning, R. W., Rogers, K. H., Spalding, P. A., Shrimpton, C., Stevenson, J., and Tomlinson, M., *A History of the County of Wiltshire: Volume 9*, ed. Elizabeth Crittall (London, 1970), *British History Online* https://www.british-history.ac.uk/vch/wilts/vol9 [accessed 20 April 2022].

Everitt, A., Landscape and community in England (1985).

Goose, N., 'Farm service in southern England in the mid-nineteenth century', *Local Pop. Studies 72* (2004), pp. 77-82.

Goose, N., 'Farm service, seasonal unemployment and casual labour in mid nineteenthcentury England', *AgHR* 54, 2 (2006), pp. 274-303.

Gregory, I., and Marti-Henneberg, J., 'The railways, urbanization, and local demography in England and Wales, 1825–1911', *Soc. Science Hist.*, 34, 2 (2010), pp. 199-228.

Grigg, D., 'Farm size in England and Wales, from early Victorian times to the present', *AgHR* 35, 2 (1987), pp. 179-189.

Gritt, A. J., 'The census and the servant: a reassessment of the decline and distribution of farm service in early nineteenth-century England', *EcHR* 53, 1 (2000), pp. 84-106.

Hardy, T., Far from the madding crowd (reprint 2015).

Hay, D., 'England, 1562-1875: the law and its uses', in D. Hay and P. Craven (ed) *Masters,* servants and magistrates in Britain and the Empire, 1562-1955 (2004), pp. 59-116.

Higgs, E., 'The tabulation of occupations in the nineteenth-century census, with special reference to domestic servants', *Local Pop. Studies* 28 (1982), pp. 58-66.

Higgs, E., 'Women, Occupations and work in the nineteenth-century censuses', *Hist. Workshop J.* 23, 1 (1987), pp. 59-80.

Higgs, E., 'Occupational censuses and the agricultural workforce in Victorian England and Wales', *EcHR* 48, 4 (1995), pp. 700-716.

Higgs, E., and Wilkinson, A., 'Women, occupations and work in the Victorian censuses revisited', *Hist. Workshop J.* 81, 1 (2016), pp. 17-38.

Holland, S., 'Farm service and hiring practices in mid-nineteenth-century England: the Doncaster Region in the West Riding of Yorkshire', in J. Whittle (ed), *Servants in rural Europe* (2017), pp. 183-202.

Howkins, A., 'The English farm labourer in the nineteenth century: farm, family and community', in B. Short (ed.), *The English rural community. Image and analysis* (1992), pp. 85-104.

Howkins, A., 'Peasants, servants and labourers: the marginal workforce in British agriculture, c 1870-1914', *AgHR* 42, 1 (1994), pp. 49-62.

Howkins, A., and N. Verdon, N., 'Adaptable and sustainable? Male farm service and the agricultural labour force in midland and southern England, c. 1850–1925', *EcHR* 61, 2 (2008), pp. 467–495.

King, G., Two tracts. Ed. by G. E. Barnett (Baltimore, 1936).

Kitchen, F., Brother to the ox: The autobiography of a farm labourer (1983).

Kussmaul, A., Servants in husbandry (1983).

Laslett, P., 'Characteristics of the Western family considered over time', *J. family history* 2, 2 (1977), pp. 89-115.

Laslett, P., 'The institution of service', Local Pop. Studies, 40 (1988), pp. 55-60.

Marx, K., Capital, vol. I (reprint 2019).

Merouani, Y., and Perrin, F., 'Gender and the long-run development process. A survey of the literature', *European Rev. Econ. Hist.* 26, 4 (2022), pp. 612-641.

Mills, D., Lord and peasant in nineteenth century Britain (1980).

Mills, D., 'Trouble with farms at the Census Office: an evaluation of farm statistics from the censuses of 1851-1881 in England and Wales', *AgHR* 47 (1999), pp. 58-77.

Minns, C., and Wallis, P., 'Rules and reality: Quantifying the practice of apprenticeship in early modern England', *EcHR* 65, 2 (2012), pp. 556–579.

Moses, G., 'Passive and impoverished? A discussion of rural popular culture in the mid-Victorian years', *Rural Hist*. 22, 2 (2011), pp. 183-206.

Moses, G., Rural moral reform in nineteenth-century England. The crusade against adolescent farm servants and hiring fairs (2007).

Naidu, S., and Yuchtman, N., 'How green was my valley? Coercive contract enforcement in 19th century industrial Britain', *Harvard University mimeo* (2009), pp. 1-65.

Overton, M., Agricultural revolution in England. The transformation of the agrarian economy 1500-1850 (1996).

Pratt, T., 'The cattle census of 1866', Rural Hist. Today, 45 (2023), pp. 4-5.

Riley, S., DeGloria, S., and Elliott, R., 'A terrain ruggedness index that quantifies topographic heterogeneity', *Int. J. of Sciences*, 5, 1-4 (1999), pp. 23-27.

Rosevear, A., Bogart, D., and Shaw-Taylor, L., 'Did turnpiking improve the quality of roads in England & Wales?-new evidence using Geographic Information System mapping and contemporary reports.' *University of Cambridge CAMPOP Working Paper Series*, 10 (2021), pp. 1-38.

Schürer, K., Garrett, E. M., Jaadla, H., and Reid, A., 'Household and family structure in England and Wales (1851–1911): Continuities and change', *Continuity and Change* 33, 3 (2018), pp. 365-411.

Schwartz, R. M., 'Rail transport, agrarian crisis, and the restructuring of agriculture: France and Great Britain confront globalization, 1860–1900', *Soc. Science Hist*. 34, 2 (2010), pp. 229-255.

Shaw-Taylor, L., 'Family farms and capitalist farms in mid-nineteenth-century England', *AgHR* 53, 2 (2005), pp. 158-191.

Shaw-Taylor, L., 'The rise of agrarian capitalism and the decline of family farming in England', *EcHR* 65, 1 (2012), pp. 26-60.

Sheppard, 'J. A., Agricultural workers in mid nineteenth-century Brighton', *AgHR* 54, 1 (2006), pp. 93-104.

Short, B., 'The decline of living-in servants in the transition to capitalist farming: a critique of the Sussex evidence', *Sussex Archaeological Collections 122* (1984), pp. 147-164.

Smith, A., An inquiry into the nature and causes of the wealth of nations (2 vols, 1796).

Smith, A. H., 'Labourers in late sixteenth-century England: a case study from north Norfolk [Part I]', *Continuity and change* 4, 1 (1989), pp. 11-52.

Snell, K. D. M., Annals of the labouring poor. Social change and agrarian England 1660–1900 (1985).

Taylor, D., 'Growth and structural change in the English dairy industry, c.1860–1930', *AgHR* 35, 1 (1987), pp. 47-64.

Verdon, N., Rural women workers in nineteenth-century England (2002).

Verdon, N., Working the land. A history of the farmworker in England from 1850 to the present day (2017).

Verdon, N., 'Skill, status and the agricultural workforce in Victorian England', History (2020).

Verney, C., and Few, J., 'Is blood thicker than water? Farm servants and the family in nineteenth-century north Devon', *Local Pop. Studies* 91 (2013), pp. 10-26.

Whittle, J., 'A critique of approaches to 'domestic work': Women, work and the preindustrial economy', *Past & Present* 243, 1 (2019), pp. 35-70.

Whittle, J., 'Introduction: servants in the economy and society of rural Europe', in J. Whittle (ed), *Servants in rural Europe* (2017), pp. 1-19.

Wilson, A. R., Forgotten harvest. The story of cheesemaking in Wiltshire (1995).

Wood, G. H., 'Arthur Wilson Fox, CB', J. Royal Statistical Society, 72, 1 (1909), pp. 64–66.

Woodward, D., 'Early modern servants in husbandry revisited', *AgHR* 48, 2 (2000), pp. 141-150.

Woollard, M., 'The 1901 census: an introduction', Local Pop. Studies (2001), pp. 26-43.