

The impact of commercialization in early fourteenth-century England: some evidence from the manors of Glastonbury Abbey*

by Ian Rush

Abstract

This article assesses the impact of grain commercialization on the diet and wages of stipendiary *famuli* on a number of manors held by the abbot of Glastonbury in southern and south-western England at the beginning of the fourteenth century. Using correlation and regression analyses, it shows that grain commercialization had a negative impact on workers' living standards. Specifically, high grain commercialization seems to have caused, or at least contributed to, the distribution of low-value, and thus low-quality, grains to stipendiary *famuli*. Such actions seem to have been an important aspect of an estate policy that emphasized the exploitation of the market and the labourer in search of profit.

The early fourteenth century has often been called a time of crisis. Although the medieval English economy was just beginning to realize its greatest potential, the period was one of intense population pressure, high inflation and environmental disasters.¹ Some historians have argued that the increasing population of the preceding centuries led to increased urbanization, and both in turn stimulated increased commercialization in the form of more trading institutions such as markets and fairs, occupational specialization, the production and use of more coinage and advanced agricultural techniques. These agricultural changes increased the availability of grain and livestock products for the market. Thus, the English economy was quite strong by the early fourteenth century, and seemingly able to support the substantially increased population. One exponent of the optimistic case, Graeme Snooks, has suggested that the increasingly commercial economy of England effected or at least facilitated a rise in real gross domestic product (GDP) during the twelfth and thirteenth centuries. To Snooks, this rise in GDP indicated a rise in the 'living standards of some, if not all, of the

* I am grateful to Mavis Mate, Bruce Campbell, Richard Britnell, Elizabeth Housworth, David Luebke, Lisa Wolverton and two anonymous reviewers for their comments and suggestions. Previous versions of this paper were read at the Thirty-fourth International Congress on Medieval Studies at Western Michigan University, Kalamazoo, Michigan (May 1999) and at the Late Medieval British and European History Seminar at the Institute of Historical Research, University of London (October 1999).

¹ This subject remains a controversial one. For a summary of the views on the causes of the early fourteenth-century 'crisis', see B. Harvey, 'Introduction', in B. M. S. Campbell (ed.), *Before the Black Death. Studies in the 'crisis' of the early fourteenth century* (1991), pp. 1–24.

population'.² Consequently, the economy was capable of recovering from exogenous forces such as the rains and floods that caused the Great Famine and subsequent animal epidemics (1315–22) and would also have recovered from the impact of wartime embargoes and taxation in the 1330s. It was only the Black Death (1348–50) and subsequent outbreaks of plague that brought a significant economic crisis to England during the fourteenth century.³

This overly optimistic view has recently been challenged by Richard Britnell, James Masschaele and Mark Bailey. Britnell and Masschaele have argued that although some groups may have benefited from increased commercialization, it was certainly not the case for every group in English society.⁴ Likewise, Bailey has argued that most English peasants were smallholders who were unable to supply themselves with sufficient amounts of food, and who only had access to local markets that were volatile and susceptible to disruption. Thus, these smallholders were often exposed to far greater risks than their social superiors who could rely on larger agricultural outputs and incomes.⁵ It was not only extraordinary events such as the Great Famine and the Hundred Years' War that brought devastating conditions for these peasants. Rather, numerous seemingly unimportant factors could bring about starvation for them and their families. A broken cart wheel could keep them from getting to market and buying grain. The supply of grain to the market might have been impeded by a lord's decision to ship grain to a different market. Thus, the English economy was strong enough to support lords and wealthy peasants who were fairly secure, but these people were in the minority. The economy was unable to sustain the burgeoning population of smallholders, and thus probably would not have recovered from the shocks of the Great Famine, wartime embargoes and heavy taxation.

How did the increasingly commercialized economy affect smallholding peasants? This question has yet to be answered with any certainty. Britnell, Masschaele and Bailey have suggested that most peasants did not benefit from commercialization. But is it possible that some peasants, especially smallholders, were directly disadvantaged by the booming economy? That is to say, was the new emphasis on profit-seeking that was a manifestation of commercialization detrimental to such peasants? Did lords, in their quest for large profits, seek to exploit not only the market, but also the peasant labourer? As I hope to show below, this certainly seems to have been the case on some of the manors held by the abbot of Glastonbury.

Instead of addressing commercialization and peasants in general, this paper will attempt to demonstrate that a negative relationship existed between grain commercialization and the wages

² G. D. Snooks, 'The dynamic role of the market in the Anglo-Norman economy and beyond, 1086–1300', in R. H. Britnell and B. M. S. Campbell (eds), *A commercializing economy: England 1086 to c. 1300* (1995), pp. 49–53. In addition, Richard Smith has shown that prosperous peasants seem to have benefited from the local market at Botesdale in Suffolk by using 'their profits to acquire more land as well as to exert a growing influence on local government within the manorial court'. See R. M. Smith, 'A periodic market and its impact on a manorial community: Botesdale, Suffolk, and the manor of Redgrave, 1280–1300', in Z. Razi and R. M. Smith (eds), *Medieval society and the manor court* (1996), p. 480.

³ See for example, R. S. Lopez, *The commercial revolution of the middle ages, 950–1350* (1976); K. G. Persson, *Pre-industrial economic growth. Social organization and technical progress in Europe* (1988).

⁴ R. H. Britnell, 'Commercialization and economic development in England, 1000–1300', in Britnell and Campbell (eds), *A commercializing economy*, pp. 21–2; idem, *The commercialisation of English society, 1000–1500* (1993), pp. 124–7; J. Masschaele, *Peasants, merchants and markets. Inland trade in medieval England, 1150–1350* (1997), p. 230.

⁵ M. Bailey, 'Peasant welfare in England, 1290–1348', *EcHR* 51 (1998), pp. 235–46.

of demesne labourers. Grain commercialization can be defined as the degree to which various types of grain were produced for sale.⁶ Medieval people did not usually produce grain strictly for sale or strictly for consumption. Often, grain was produced for consumption and its surplus was sold, but it might also be the case that sizeable surpluses were intentionally produced so that they might be sold. In either case, the selling of surpluses often produced a high degree of market exploitation and profit-seeking, that is, commercialization.

Much of the produce that was sold to medieval English town-dwellers originated either on seignorial demesne lands or on lands held by better-off peasants. On demesne lands, lords employed peasants known as *famuli* to undertake such tasks as crop production, stock raising and collection of various rents and dues. Although such labourers were essential to the medieval market economy, there has, since the publication of Sir Michael Postan's pamphlet in 1954, been a dearth of research on them.⁷ Aside from cursory mention in the occasional article, there had been no in-depth study of *famuli* between Postan's paper and Farmer's detailed analysis of 1996.⁸ Farmer did discuss the standards of living of *famuli*, but he did not consider the impact of commercialization. Thus, while this paper opens up new pathways of research concerning commercialization, it also seeks to rehabilitate a neglected social group by shedding some new light on aspects of the lives of demesne *famuli*.

This paper does not address the impact of commercialization on managerial *famuli*, such as reeves, beadles, haywards, woodwards and foresters. Such *famuli* possessed supervisory roles and thus received higher wages and more perquisites than their subordinates. Instead, this paper will focus on a certain type of non-managerial *famuli*. In most cases, between one-half and two-thirds of the non-managerial *famuli* employed on Glastonbury manors were remunerated for their work with a reduction of rent on lands they held. These 'service *famuli*', as David Farmer has called them, were often employed as plough-holders on Glastonbury manors, and occasionally employed as plough-drivers, shepherds, cowherds or swineherds.⁹ Stipendiary *famuli*, on the other hand, received a money wage and a grain livery for their work. Such labourers were usually village peasants who held very little land.¹⁰ Many Glastonbury manors employed several stipendiary *famuli*, but some employed only one or two, depending on the size of the manor. Each of the 23 manors utilized in this study employed either one, two or three plough-drivers and often at least one carter. Shepherds, cowherds, swineherds and dairy

⁶ This is very similar to Campbell's definition of agricultural commercialization. See B. M. S. Campbell, 'Measuring the commercialization of seigneurial agriculture, c. 1300', in Britnell and Campbell (eds), *A commercializing economy*, p. 185.

⁷ M. M. Postan, *The Famulus: The Estate Labourer in the twelfth and thirteenth centuries* (Economic History Review, supplement ser. 2, 1954).

⁸ D. Farmer, 'The *famuli* in the later middle ages', in R. H. Britnell and J. Hatcher (eds), *Progress and problems in medieval England. Essays in honour of Edward Miller* (1996), pp. 207–36.

⁹ Farmer, 'The *famuli*', p. 208. The use of a plough during this time period required the work of two people: one to hold and guide the plough and one to drive the

oxen or horses.

¹⁰ Although it cannot be known for certain how much land stipendiary *famuli* held, the Glastonbury account rolls do sometimes record the amount of land held by service *famuli*. In 1302–3 and 1310–11, non-managerial service *famuli* (ploughmen, carters, and shepherds) usually held between two and seven acres of land. It is not unreasonable to assume that stipendiary *famuli* held similar amounts of land. Because perhaps half of the English peasantry held more than 18 acres of land, it would seem that most *famuli* came from the poorest ranks of society. See H. Kitsikopoulos, 'Standards of living and capital formation in pre-plague England: a peasant budget model', *EcHR* 53 (2000), p. 254.

workers were also occasionally employed as stipendiary *famuli* on these manors. Because they were remunerated for their work with wages rather than reductions in rent, stipendiary *famuli* offer a unique opportunity to assess the impact of commercialization on workers' wages. For this reason, they will be the focus of this paper.¹¹

It is important, however, to distinguish the *famulus* from the other prominent type of rural labourer, the customary worker. *Famuli* were mainly responsible for the tasks denoted by the names of their positions. They ploughed the lord's lands, carted his goods and watched after his herds. Customary workers were occasionally responsible for a certain amount of ploughing, but this usually took place during an autumn boonwork. The main tasks undertaken by customary workers were reaping, stacking and carting the grain produced on the lord's lands.

In pre-plague England, demesne *famuli* received a variety of grains and legumes in their liveries, the most important of which were the three main bread grains: wheat, rye and barley. It must be noted, however, that there was tremendous regional variation throughout England regarding the types of crops that were produced, and thus the kinds and amounts of grain and legumes that might be given to *famuli*.¹² In order to avoid problems that might arise from comparing manors with disparate agricultural production schemes, this study will focus on the manors of one lord (the abbot of Glastonbury) that produced similar types of grains and legumes. All of the manors were located in the same general region of England: ten manors were located in the abbey's home county of Somerset, while nine were located in Wiltshire, two in Dorset, one in Devon and one in Berkshire (see map one). In addition, all the manors produced wheat, oats and barley and most produced either peas or beans.¹³ Thus, similar grains were available for distribution to stipendiary *famuli*. As one might guess, however, all *famuli* did not receive the same types of grain.

The major source for a study on grain commercialization and its impact on *famuli* are manorial account rolls. These documents are records of the administration of single manors. It was common during much of the thirteenth and fourteenth centuries for English lords to operate their manors through a local agent for their own profit rather than lease them out to others. The local agent (a reeve or a bailiff) would oversee all aspects of the operation of the manor. His report of the annual expenses, profits and animal and crop produce would be written on a roll of parchment by a hired clerk. For this study, the account rolls of 23 Glastonbury abbey manors for the years 1302-3 and 1311-12 have been analyzed.

I

In order to assess the relationship between grain commercialization and the wages of stipendiary *famuli*, the degree of grain commercialization achieved on each manor must first be measured.

¹¹ Specifically, the plough-driver will be the focus of the correlation analyses presented in section I below because he was the only *famulus* employed by each manor utilized in this study. The grain liveries of the group of stipendiary *famuli* as a whole will, however, be utilized in the subsequent regression analyses.

¹² J. GREGG, 'Plant resources', in G. Astill and A. Grant (eds), *The countryside of medieval England* (1988),

pp. 110-13. See also H. E. Hallam, *et al.*, 'Farming Techniques', in H. E. Hallam (ed.), *The Agrarian History of England and Wales*, II, 1042-1350 (1988), pp. 272-496.

¹³ For a list of the various grains and legumes produced on the Glastonbury manors, see Table 3 below. The notes to Table 3 include descriptions and explanations of the various forms and combinations of the major grains, i.e., wheat, oats, barley and rye.



MAP 1. Glastonbury Manors mentioned in this study

This map is largely based on those provided in I. J. E. Keil, 'The Estates of Glastonbury Abbey in the Later Middle Ages' (unpublished Ph.D. thesis, University of Bristol, 1964), pp. 35, 74.

Both Bruce Campbell and David Farmer have noted that one of the most important indicators of commercialization is the percentage of a product which is sold.¹⁴ Thus, this study will utilize the percentage of each type of grain sold as an indicator for the commercialization of each type of grain. Likewise, the percentage of all grain sold will be used as an indicator for aggregate grain commercialization on each manor. Because it was usually expected that a certain amount of each grain would be set aside for seed for the following year, all percentages of grain sold have been calculated net of seed. For ease of discussion, the term 'grain' will be used as a catch-all for the crops produced on the Glastonbury manors including both grains and legumes.

The percentages of grain sold on each manor utilized in this study for the years 1302-3 and 1311-12 are listed in Tables 1 and 2. The natural division between Somerset and non-Somerset manors that appears in Tables 1 and 2 is one that might be predicted. Lords usually expected

¹⁴ D. Farmer, 'Woodland and pasture sales on the Winchester manors in the thirteenth century: disposing of a surplus, or producing for the market?' in Britnell and Campbell (eds), *A commercializing economy*, pp. 102-4; Campbell, 'Measuring commercialization', p. 185.

TABLE 1. Comparison of grain commercialization and wages of stipendiary plough-drivers on certain Glastonbury abbey manors, 1302-3.

	Percentage of Grain Sold	Money Wage (s.)	Proxy grain livery value (s.)	Total Wage (s.)
<i>Somerset Manors</i>				
Batcombe	2.19	5.00	10.18	15.18
Ditcheat	12.91	4.33	11.17	15.50
Doulting	5.30	4.00	10.26	14.26
Hunstrete	—	—	—	—
Marksbury	—	—	—	—
Mells	7.53	5.00	10.26	15.26
Pilton	3.34	4.00	10.26	14.26
Walton	—	—	—	—
Westonzoyland	42.12	5.00	10.87	15.87
Wrington	11.04	4.50	9.24	13.74
<i>Somerset Average</i>	12.06	4.56	10.32	14.87
<i>Non-Somerset Manors</i>				
Ashbury	57.29	5.00	9.68	14.68
Badbury	59.38	5.00	9.23	14.23
Buckland Newton	49.79	4.00	9.79	13.79
Christian Malford	69.94	5.00	9.68	14.68
Damerham	64.69	4.00	9.08	13.08
Grittleton	66.37	5.00	10.23	15.23
Idmiston	25.46	4.25	9.72	13.97
Kington St Michael	65.31	5.00	9.85	14.85
Monkton Deverill	—	—	—	—
Nettleton	79.27	5.00	10.15	15.15
Sturminster Newton	39.23	4.00	9.72	13.72
Uplyme	78.42	3.83	9.78	13.70
Winterbourne Monkton	80.05	5.00	8.70	13.70
<i>Non-Somerset Average</i>	61.27	4.59	9.64	14.23

Source: *Glastonbury Abbey documents at Longleat: court and compotus rolls* (microfilm edition, Bath, 1982), 11246, 11271.

to receive either grain for their household or profits from the sale of grain from their various manors. Such expectations were usually dictated by the distance of a manor from the main household of the lord: it was often more cost efficient to sell grain on manors distant from the main household and consume grain produced on manors near the main household. Barbara Harvey has noted that this was precisely the case with the demesne lands of Westminster Abbey.

TABLE 2. Comparison of grain commercialization and wages of stipendiary plough-drivers on certain Glastonbury abbey manors, 1311-12.

	Percentage of grain sold	Money Wage (s.)	Proxy grain livery value (s.)	Total Wage (s.)
<i>Somerset Manors</i>				
Batcombe	0.00	5.00	14.33	19.33
Ditcheat	0.48	5.00	14.30	19.30
Doulting	3.09	4.00	15.97	19.97
Hunstrete	40.18	5.00	17.83	22.83
Marksbury	2.18	5.00	16.97	21.97
Mells	1.97	5.00	15.54	20.54
Pilton	0.00	4.00	14.29	18.29
Walton	3.76	3.50	14.13	17.63
Westonzoyland	12.35	5.00	16.60	21.60
Wrington	3.15	4.50	15.58	20.08
<i>Somerset Average</i>	6.72	4.60	15.55	20.15
<i>Non-Somerset Manors</i>				
Ashbury	54.83	5.00	14.52	19.52
Badbury	70.66	5.00	13.08	18.08
Buckland Newton	61.50	4.00	13.62	17.62
Christian Malford	72.45	5.00	14.50	19.50
Damerham	55.78	4.00	13.83	17.83
Grittleton	71.58	5.00	14.55	19.55
Idmiston	43.74	4.50	14.55	19.05
Kington St Michael	69.00	5.00	14.08	19.08
Monkton Deverill	35.96	5.00	14.55	19.55
Nettleton	75.14	5.00	14.55	19.55
Sturminster Newton	51.13	4.00	14.13	18.13
Uplyme	49.83	3.83	14.11	17.94
Winterbourne Monkton	76.71	5.00	13.32	18.32
<i>Non-Somerset Average</i>	60.64	4.60	14.11	18.75

Source: GAD, 9760, 11216.

The monks expected to receive supplies from their inlying manors and cash from their distant manors.¹⁵ Thus, outlying manors usually sold higher percentages of produce than inlying manors. As can be seen in Tables 1 and 2, this was consistently the case on the Glastonbury

¹⁵ B. Harvey, *Westminster Abbey and its estates in the Middle Ages* (1977), p. 141. See also, Campbell, 'Measuring commercialization', p. 187; E. Searle, *Lordship and Community: Battle Abbey and its banlieu, 1066-1538* (1971), pp. 251-2, 447.

manors. Somerset manors generally sold fairly low percentages of grain and non-Somerset manors generally sold fairly high percentages of grain. I will return to this point in section II below when I speculate about the causes of the relationship between grain commercialization and the wages of stipendiary *famuli*.

In order to compare like with like, I have assigned monetary values to the grain liversies given to plough-drivers and combined these amounts with their money wages to determine their total wages. Problems arise, however, when attempting to determine the value of a plough-driver's grain livery. The Glastonbury account rolls record only the amounts of grains given to the group of stipendiary *famuli* as a whole. They do not record the amounts of grains that were given to each *famulus*. A small number of account rolls for other estates do, however, record the amounts of grains given to each type of *famulus*, and they seem to indicate that all *famuli* received similar amounts of each type of grain.¹⁶ Furthermore, when employed on a particular manor, plough-drivers, carters and shepherds usually received the same or very nearly the same money wages. Thus, there is no reason to assume that they were not given the same or very nearly the same types of grain in their grain liversies. The only stipendiary *famulus* who consistently received a lower money wage than other *famuli* was the dairy worker. Thus, it is possible that this individual also received lower value grains in his or her grain livery.¹⁷ The effects of this possible action, however, were negligible. Only one dairy worker, often part-time, was employed on each manor utilized in this study and so their grain liversies were much smaller than those of other *famuli*. Thus, only a very small percentage of the total amount of grain allotted for *famuli* was given to dairy workers. For all of these reasons, the composition of the grain allotted to all *famuli* on a particular manor was quite possibly analogous to the composition of the grain livery of one plough-driver on that same manor. For example, because barley comprised 60 per cent of the grain allotted for distribution to *famuli* on the Glastonbury manor of Batcombe in 1302–3, it is likely that barley also comprised 60 per cent of the Batcombe plough-driver's grain livery.¹⁸ Such an assumption makes it possible to determine the value of a proxy grain livery for one plough-driver hired on each manor utilized in this study.

To determine the value of each type of grain given to stipendiary plough-drivers on the Glastonbury manors, I have used the weighted average prices of grain sold by all of the Glastonbury manors in 1302–3 and 1311–12 (See Table 3). Unfortunately, it was not possible to determine the actual market value of these grains because the types of grain given to *famuli* on a particular manor were frequently not sold on that same manor.¹⁹ Although it might be argued that average prices are a blunt instrument for assessing the value of grain given to plough-drivers on these manors, these averages do represent close approximates of the actual value of the grain. Manors often sold their grain at town markets a fair distance away from the manors themselves. Thus, because plough-drivers might not have access to these markets (because of time commitments

¹⁶ For example, the full-time stipendiary *famuli* (two ploughmen, one carter and one dairy worker) hired on Adam de Stratton's manor of Hallingbury (Essex) in 1280–1 all received equal percentages of wheat and rye in their grain liversies. PRO, SC 6/843/20.

¹⁷ The evidence cited in the previous footnote does not, however, support such a hypothesis.

¹⁸ See *Glastonbury Abbey documents at Longleat: court and compotus rolls* (microfilm edition, Bath, 1982, hereafter cited as *GAD*), 11246.

¹⁹ Grains given to *famuli* on the Glastonbury manors were not sold 50 per cent of the time (57 out of 113 instances).

TABLE 3. Weighted average prices of various grains sold by Glastonbury manors in 1302-3 and 1311-12.

	1302-3 Average Price (s.)	1311-12 Average Price (s.)
Grain:		
wheat	3.5	5.0
rye	3.0	5.2
<i>mixtil</i> ^a	3.0	4.2
barley	2.4	3.4
<i>currallus</i> ^b	2.3	3.2
<i>drowa</i> ^c	2.0	3.0
<i>chatcorn</i> ^d	—	3.3
<i>bere</i> or <i>beremancorn</i> ^e	2.0	2.7
<i>brotcorn</i> ^f	2.0	2.1
<i>roscorn</i> ^g	1.9	—
<i>tolcorn</i> ^h	1.8	3.3
dredge ⁱ	1.6	2.4
beans	1.8	3.1
peas	2.2	2.3
vetch	1.3	2.7
oats	1.6	2.2

Source: GAD, 9760, 11216, 11246, 11271.

^a *Mixtil* was a mixture of wheat and rye.

^b *Currallus* was inferior wheat. It probably consisted of one or more of the following: poor quality unthreshed wheat, poor quality threshed wheat or simply the chaff alone. In his thesis on the Glastonbury estates, Ian Keil noted that *currallus* 'seems to have been defective wheat and was separated at harvesting' (I. J. E. Keil, 'The estates of the abbey of Glastonbury in the later middle ages', unpublished Ph.D. thesis, University of Bristol, 1964, p. 236). This implies that *currallus* was poor quality unthreshed wheat. This was, however, not the case in other areas of England. Paul Harvey has noted that at Cuxham in Oxfordshire *currallus* did not consist of the chaff and 'seems to have been separated from what was classed as *frumentum* only after threshing and winnowing' (P. D. A. Harvey, *A Medieval Oxfordshire Village: Cuxham 1240-1400*, 1965, p. 47). Mark Page utilized Harvey's definition of *currallus* in his translation of the 1301-2 Winchester Pipe Roll (M. Page (ed.), *The Pipe Roll of the Bishopric of Winchester, 1301-2* (Hampshire Record Ser., 14, 1996, p. 371). Thus, it seems that at Cuxham and on the Winchester manors *currallus* was simply poor quality threshed wheat. There is, however, no evidence that this was the case on the Glastonbury manors.

^c *Drowa* was probably 'a green substandard wheat' (Keil, 'Estates of Glastonbury Abbey', p. 237).

^d *Chatcorn* might have been a wheaten grain (Keil, 'Estates of Glastonbury Abbey', p. 237). On some occasions, however, it seems to have been a mixture of rye and some other grain, possibly wheat. At other times it was a mixture of *currallus* and some other grain, possibly rye (GAD, 11216).

^e *Bere* or *beremancorn* was probably barley or a mixture of barley and wheat or some other grain. J. S. Drew noted that *bere* was winter-sown barley on the manor of Silkstead in Hampshire (J. S. Drew (ed.), *The manor of Silkstead near Winchester, Hants. An English translation of 66 compotus rolls, 1267-1399*, I, Winchester, 1947, p. 75). Mark Page indicated that on Winchester manors *bere* seems to have referred to both winter barley and the mixture of winter barley and wheat (Page (ed.), *Pipe Roll*, p. 370). On Glastonbury manors, *bere* occasionally seems to have been a mixture of barley and inferior wheat (see, for example, GAD 11272).

^f *Brotcorn* was 'probably damaged corn because of being laid low or tangled by weather'. It may have been wheat, but there is no concrete evidence of this (Keil, 'Estates of Glastonbury Abbey', p. 236-7).

Continued over

to their employers or lack of transportation), the prices attained by the manor's sales might be different (probably higher) than those which could be attained by a plough-driver selling his grain in the local village. Thus, it was not always the case that the unit price of a certain type of grain sold by a manor was equivalent to the value of that grain when it was given to *famuli*. In addition, there were no great disparities in the prices attained by the manors in each of the years being studied. Nearly all manors sold their grain for prices within one shilling of the prices attained by other manors. This might be expected because the Glastonbury manors were located in the same general region of England. The uniformity of prices in this region (southern and southwestern England) can be shown by a comparison of two Glastonbury manors. In 1302-3, both the manors of Wrington in north-east Somerset and Damerham in south Wiltshire sold their wheat for 3.33s. per quarter.²⁰ Although these manors were located about 50 miles apart, they received exactly the same prices for their wheat.

The most important reason for using weighted average prices, however, is that it allows us to see 'real' differences in the wages paid to stipendiary plough-drivers. For example, suppose there were two plough-drivers living in different counties who both received 4.33 quarters of barley per year as a grain livery. If barley sold for 3s. in one county and 4s. in the other county, the plough-drivers would receive grain valued at 13.0s. and 17.32s., respectively. Yet this wage disparity is not 'real' because the cost of living is much higher in the second county, as is evidenced by the higher barley price. That is to say, although the second plough-driver received a higher wage, his money would probably not buy as much as that of the plough-driver on the other manor. Thus, their real wages were very similar and this similarity is clearly shown if one average price is used to calculate both wages. For this reason, I would argue that weighted average prices are fairly indicative of the 'real' value of the grain given to plough-drivers on the Glastonbury manors, and thus very useful for the comparison of wages paid to plough-drivers on different manors.

Using these average prices and the information noted above about grain liveries, I calculated proxy grain livery values for the plough-drivers hired on the Glastonbury manors. In order to do this, I multiplied the size of the grain livery by the grain livery percentage of a certain grain and the price of that same grain. The manor of Batcombe may serve as an example of this procedure. Barley comprised 60 per cent and *currallus* 40 per cent of the grain that was distributed to Batcombe's stipendiary *famuli* in 1302-3. Multiplying the total grain received by a plough-driver (4.33 quarters) by 60 per cent and then multiplying the product by the average price of barley (2.37s.) allowed me to determine that the proxy value of barley given to the Batcombe plough-driver is 6.16s. Making the same calculation for *currallus*, I determined that the proxy value of *currallus* given to the plough-driver is 4.0s. Thus, the proxy grain livery value for the Batcombe plough-driver is 10.2s.

Table 3 Continued

^g Roscorn 'was probably over dry or scorched grain, and it, too, may have been wheat since it followed cural in the accounts' (Keil, 'Estates of Glastonbury Abbey', p. 237).

^h Tolcorn was multure, i.e., 'corn retained by [the] miller as payment for grinding' (P. D. A. Harvey, *Manorial Records of Cuxham, Oxfordshire, c. 1200-1359* (Historical Manuscripts Commission and Oxfordshire Rec. Soc., 50, 1976), p. 798). On Glastonbury manors, *tolcorn* often contained barley and never contained wheat.

ⁱ Dredge was a mixture of barley and oats.

²⁰ GAD 11271.

TABLE 4. Spearman rank correlation analyses of the 1302-3 data contained in Table 1.

<i>Variable 1</i>	<i>Variable 2</i>	<i>rho</i>	<i>z-statistic</i>	<i>p-value</i>
Percentage of grain sold	Money wage	0.246	1.045	0.2960
Percentage of grain sold	Grain livery	-0.478	-2.030	0.0424
Percentage of grain sold	Total wage	-0.248	-1.051	0.2933

TABLE 5. Spearman rank correlation analyses of the 1311-12 data contained in Table 2.

<i>Variable 1</i>	<i>Variable 2</i>	<i>rho</i>	<i>z-statistic</i>	<i>p-value</i>
Percentage of grain sold	Money wage	0.170	0.799	0.4242
Percentage of grain sold	Grain livery	-0.419	-1.966	0.0493
Percentage of grain sold	Total wage	-0.276	-1.292	0.1962

Plough-driver's proxy grain livery values are listed in Tables 1 and 2. In addition, the money wage received by each plough-driver is listed and the total wage is calculated by summing the two. In order to determine whether or not there was a relationship between grain commercialization and the wages paid to plough-drivers, I completed Spearman rank correlation analyses of the data contained in these tables.²¹ As can be seen in Tables 4 and 5, there is a significant negative relationship between grain commercialization and the proxy grain livery values in each of the three cases (1302-3: $\rho = -0.478$, $p = 0.0424$; 1311-12: $\rho = -0.419$, $p = 0.0493$). The selling of large percentages of grain appears to have led to, or at least contributed to, the distribution of low value grain to plough-drivers. Thus, it seems that profit was one of the guiding forces in policy decisions on certain manors. That is to say, high value grains were not usually given to plough-drivers on manors that sold large percentages of their products because they would bring in the greatest profits when sold at market.

Did the money wage paid to plough-drivers on the Glastonbury manors balance out the disparity in grain livery values? As can be seen in Tables 1 and 2, this was clearly not the case. Indeed, plough-drivers who received high value liveries also often received high money wages. For example, a plough-driver on the manor of Westonzoyland in 1302-3 received a high-value grain livery (10.87s.) and a high money wage (5s.). At the same time, a plough-driver on the manor of Uplyme received a low-value grain livery (9.78s.) and a low money wage (3.83s.). Thus, money wages do not seem to have balanced out disparities in grain livery values.

Nor does proximity to markets seem to have balanced out the disparity in grain livery values. Inlying manors of low grain commercialization seem to have been just as well-placed for market

²¹ Spearman rank correlation analysis measures the strength of the relationship between two ordinal variables. The analysis provides a correlation coefficient, ρ , in the form of a number between -1 and +1. The closer ρ is to -1 or +1, the stronger the relationship (either negative or positive) between the two variables. A ρ equal to zero indicates that no relationship exists. The analysis also tests the likelihood that the observed correlation occurred by chance. It is common statistical practice to set a 95 percent confidence level for this test. That is to say, the correlation coefficient is significant if there is only a 5 per cent chance or less that the coefficient occurred by chance. The result of this test is the z -statistic and its significance is reported as the p -value. Thus, I have considered the correlation coefficients reported below to be significant if the z -test has produced a p -value of 0.05 or less.

each type of grain.²⁶ The only indicator variable that was statistically significant in the regression equation was barley. This means that whether or not a grain was barley is an important predictor of the amount of grain given to *famuli*. That is to say, when barley was given to *famuli* it was likely to have been given in larger amounts than when wheat, rye or a mixed grain was given. These other types of grain were not significant predictors of the amount of grain given to *famuli*. This probably occurred because barley was the grain most frequently and most abundantly given to *famuli* on the Glastonbury manors.

While the total number of *famuli* hired was not a significant factor, both price and availability were statistically significant in the regression equation. In order to perform the analyses, it was first necessary to transform one of the variables (available grain) using its logarithm. The available grain amounts are not normally distributed because several of them are outliers: while most of the available grain amounts were between one and 100 quarters, a small number of manors produced extremely large amounts of grain. For example, Westonzoyland produced 264 quarters of wheat and 561 quarters of barley (net of seed).²⁷ Because these outliers decreased the significance of the regression equation it was necessary to use the logarithm of this variable in the analyses.

Although not immediately apparent, the regression equation of the 1302-3 Glastonbury data does seem to corroborate the above-mentioned negative relationship between grain commercialization and grain livery composition. The equation indicates that the amount of a certain type of grain given to *famuli* increased when the availability increased and when that particular grain was barley. The amount decreased, however, when the price of that grain increased. That is to say, higher value grains were less likely to be given to *famuli* in their liveries. This seems to indicate that the commercialization of grain was an important factor in determining the distribution of grain to *famuli*.

Before making this assumption, however, it is necessary to look at the results of the other regression analyses. Using the 1311-12 Glastonbury data, I found that the following multiple regression equation was best able to predict the amount of each type of grain given to *famuli*.

$$Y = 5.588 + 6.527(B) + 2.866(\log A) - 1.797(P)$$

(6.719) (4.238) (-3.519)

Adjusted $R^2 = 0.48$ $F = 33.990$ $p = 0.0000$
 $N = 103$ (t -statistics in parentheses)

Y = amount of grain given to *famuli* (q.)

B = indicator variable denoting barley

A = amount of available grain (q.)

P = price of grain (s.)

[All variables are significant at the 0.05 level.]

6.744 quarters for each unit (shillings) that the price increases and that the amount would increase 4.658 quarters for each unit (quarters) that the availability increases.

It is important to emphasize that I am utilizing these regression analyses to try to determine which variables are best able to predict the amount of a certain grain given to the group of *famuli* as a whole. We can infer, however, that the results of the analyses are applicable to individual *famuli*, including plough-drivers. As noted above, we can make this assumption because it is probable that the percentages of grain given to the group

of *famuli* as a whole were analogous to the percentages of grain given to individual *famuli*.

²⁶ An indicator variable is a binary variable, i.e., each indicator variable is assigned a value of zero or one. In this case, each type of grain is assigned a value of zero or one depending on what particular type of grain is being considered in the regression analysis. For example, if barley is the grain under consideration, it receives a value of one while all other types of grain receive a value of zero.

²⁷ GAD 11246.

This equation is very similar to the equation for the 1302–3 data. Aside from adjustments to the coefficients, the equation has remained the same. Again, the indicator variable for barley and the quantitative variables of price and availability of grain were the only variables that were significant predictors of the amount of grain given to *famuli*. In this equation, however, the coefficients indicate that whether or not a grain was barley was a more important factor than with the 1302–3 equation. This seems to indicate that barley was given to *famuli* more often in 1311–12 than in 1302–3. Nonetheless, the fact that the price of grain has remained a significant variable seems to provide further evidence that grain commercialization was a significant factor in determining the composition of the grain liversies of *famuli*.

These correlation and regression analyses have shown that commercialization seems to have influenced the choice of what types of grain the abbot of Glastonbury distributed to his *famuli* (specifically, his stipendiary plough-drivers). These workers received lower value grains on manors of high grain commercialization. In general, the higher the price of a grain, the less likely it would be given to *famuli*. Thus, they received much less wheat than barley. For example, in only four out of 42 cases (10 per cent) did the abbot distribute wheat (the most valuable grain in medieval England) to his *famuli* in their grain liversies when other bread grains were available.²⁸ The impact of this practice cannot be known for certain. It is probable, however, that those *famuli* who did receive wheat had a better diet than those who did not. As wheat contains about 20 per cent more protein than barley,²⁹ *famuli* who received wheat in their grain liversies, and thus ate more wheat bread, certainly must have benefited from the higher levels of protein in their diet. Current research shows that protein deficiency will lead to reduced growth in children, loss of muscle mass in adults and susceptibility to disease among all ages.³⁰ It is possible that such symptoms manifested themselves in the lives of *famuli*, but there is no extant evidence that could prove such a theory.

The spending power of *famuli* might also have been negatively affected by commercialization. They might have chosen to sell some of the grain from their liversies in order to acquire spending money in addition to that offered by their money wage.³¹ Plough-drivers on manors of high grain commercialization were, however, often at a disadvantage because they had been given lower value grain. For example, the proxy grain liversies of plough-drivers on Glastonbury manors of high grain commercialization were often one to two shillings less than those of their fellows on manors of low grain commercialization (see Tables 1 and 2.) It is important to note, however, that the disparity was greater during times of high inflation. For example, the price of both wheat and barley sold by Glastonbury manors increased by 42 per cent from 1302–3 to 1311–12. Because wheat was originally more expensive, however, the price disparity increased. Thus, those who continued to receive barley in 1311–12 could acquire about 1s. more if they sold one quarter of their barley than in 1302–3. On the other hand, those who continued to receive wheat in 1311–12 could acquire about 1.5s. more than in 1302–3 if they sold one quarter of their wheat. (See the grain prices listed in Table 3.) This is precisely what happened in 1311–12. As

²⁸ As might be expected, the percentage of cases in which wheat was given to *famuli* was much lower on manors of high grain commercialization (4 per cent) and higher on manors of low grain commercialization (18 per cent).

²⁹ See United States Department of Agriculture,

Composition of Foods: Cereal Grains and Pasta, Washington, DC (1989), pp. 22, 86.

³⁰ R. E. C. Wildman and D. M. Medeiros, *Advanced Human Nutrition* (2000), pp. 149–50.

³¹ Farmer, 'The *famuli*?', pp. 233–4.

can be seen in Tables 1 and 2, the average disparity in grain livery values increased from 0.68s. to 1.44s. It seems that the negative impact of commercialization was even greater during times of higher prices. Thus, the plough-drivers working on manors of high grain commercialization who received low value grain would have been at an even greater disadvantage in terms of spending power.

II

Having established that there was a negative relationship between grain commercialization and the value of grain given to stipendiary plough-drivers and that this probably detrimentally affected their diet and spending power, I will attempt to determine whether such treatment of plough-drivers might have been the result of estate policy. That is to say, did the abbot of Glastonbury and those who managed his manors consciously exploit the market and the labourer to achieve high profits?

It seems quite likely that the abbot of Glastonbury and his monks did possess such an estate policy. For reasons of cost efficiency, the abbot usually expected to receive grain from his inlying manors and profits from the sale of grain from his outlying manors. Because he expected a supply of cash from his outlying manors, the abbot and his monks emphasized commercialization and a drive for profit manifested itself on these manors. This emphasis can be seen in a marginal note written on an account roll by one of the abbey's auditors. In 1315-16, the reeve of the Wiltshire manor of Longbridge Deverill was warned not to carry grain to various markets unless a better sale could be achieved than on the manor itself.³² While this example is from a Glastonbury manor not included in this study, it nonetheless indicates that profit was a conscious goal and abbey officials did not want a reeve decreasing his manor's profit by spending money on unnecessary trips to market.³³

How did this policy of profit-seeking directly affect plough-drivers and their grain liveries? It seems probable that such a policy would dictate that *famuli* would not be given high value grains in their liveries if they could instead be sold at a high price on the open market. The abbey's auditors would have been charged with implementing a policy of acquiring as high a profit as possible from the sale of grain, and of communicating this policy to individual reeves. Most likely, the reeves would then have carried out this policy on their manors. The auditor, however, only had contact with the reeves once a year and was not there to supervise them when they sold grain and when they distributed grain to *famuli* every 12 weeks. The reeves were aware, however, that they would be held accountable for all grain sales at the annual audit. If the reeves had not received what the auditor thought was reasonable profit from the sale of grain, they would be held accountable for the difference. The expectation placed on reeves was that they would maximize profits by selling at the highest price whilst keeping the costs of transporting grain to markets to a minimum. If the auditor thought that a reeve could have acquired a larger profit from the sale of grain, he would amend the account with a 'fictitious sale'. For example, he might add four quarters of barley to the total amount of barley produced

³² GAD, 10688. David Farmer reported on this note in his article 'Two Wiltshire manors', p. 7.

³³ No Longbridge Deverill accounts survive for the years 1302-3 and 1311-12.

and then note that this amount had been 'sold on account' for a certain amount (e.g., 4s. per quarter). In this case, the amendment of the account added 16s. to the total profits of the manor. The reeve was then responsible for paying this amount to his lord.³⁴ In addition the frequent participation of manorial officials in the selling of grain on non-Somerset manors probably ensured that reeves followed estate policy. Some grain sales were negotiated by senior officials such as the chamberlain and others were made *per litteras domini*.³⁵ Although this evidence comes from account rolls of a slightly later date (1332-3) than the time period of this study, it is quite probable that such central management of grain sales also occurred during the years 1302-3 and 1311-12.

Monastic officials were also more regular visitors to outlying manors of high grain commercialization than inlying manors of low grain commercialization. The steward and the cellarer and one or more bailiffs would each make annual or semi-annual official visits to all of the abbey's manors to hold courts and ensure efficient administration of day-to-day tasks. The steward and the cellarer, however, often made additional official visits to outlying manors. For example, in 1302-3, the steward and the cellarer made 18 additional official visits to the 12 outlying manors for which account rolls are extant. On the other hand, these officials made only four additional visits to the seven Somerset manors.³⁶ Thus, it seems that there was a greater presence of abbey officials on outlying manors than on inlying manors to ensure that the day-to-day operations were running smoothly and that estate policy regarding everything from grain production to cheese sales was being followed. With the emphasis on profit and the large amount of supervision, reeves probably sold as much high value grain as they could for the highest prices they could secure. Under such circumstances, it seems unlikely that *famuli* would receive much high value grain in their liveries.

III

In sum, Spearman rank correlation analyses seem to indicate that there was a significant negative relationship between grain commercialization and the value of grain distributed to plough-drivers on Glastonbury manors. In addition, multiple regression analyses have shown that grain commercialization was a significant factor in determining the amount of each type of grain that was given to stipendiary *famuli*. Glastonbury abbey's profit-seeking estate policy seems to have dictated that grains that could fetch high prices on the market were usually sold rather than given to *famuli*. In general, this policy manifested itself on manors distant from the main household and not on manors within the home county of Somerset which provided the abbey with its major supply of grain.

It would seem that the findings presented in this paper have provided concrete evidence to corroborate the suggestions of Bailey, Britnell and Masschaele discussed earlier. Not everyone,

³⁴ This auditing procedure was prevalent in England during the time period of this study. See P. D. A. Harvey, *Manorial Records of Cuxham, Oxfordshire, c. 1200-1359* (Historical Manuscripts Commission and Oxfordshire Rec. Soc., 50, 1976); Farmer, 'The *famuli*', p. 225. For evidence of the procedure on the Glastonbury manors,

see GAD, 11216, 11246, 11271.

³⁵ GAD, 8083, 9730. David Farmer discussed this evidence in 'Marketing the produce of the countryside', in E. Miller (ed.), *Agrarian History of England and Wales*, III, 1348-1500 (1991), pp. 366-7.

³⁶ GAD, 11246, 11271.

and certainly not stipendiary *famuli* on these manors benefited from increased commercialization. Indeed, if these small-holding peasants were in as precarious a position as Bailey has suggested, the decrease in spending power created by the distribution of low-value grains might very well have been quite devastating. The task is now to discover whether demesne *famuli* working for lords in other areas of England were affected in similar ways. It seems quite possible that workers on manors located in the much more highly commercialized south-eastern counties were negatively affected by commercialization to an even greater degree than the Glastonbury *famuli*. Only further research will reveal whether or not this was actually the case.