

# The Long-Run Impact of the Dissolution of the English Monasteries\*

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February 2021

## Abstract

We examine the long-run economic impact of the Dissolution of the English monasteries in 1535, during the Reformation. Since monastic lands were previously not marketed and relatively unencumbered by inefficient types of customary tenures linked to feudalism, the Dissolution provides variation in the longevity of feudal institutions, which is plausibly linked to labor and social mobility, the productivity of agriculture and ultimately the location of the Industrial Revolution. We show that parishes impacted by the Dissolution subsequently had higher levels of industrialization, a greater share of the population working outside of agriculture, experienced a ‘rise of the Gentry’ and higher innovation and yields in agriculture. Where Catholics lingered, there was less development. Our results are consistent with explanations of the Agricultural and Industrial Revolutions which emphasize the commercialization of society as a key pre-condition for taking advantage of technological change and new economic opportunities.

**Keywords:** Church land, Agriculture, Industry, Gentry.

**JEL classification:** N43, N63, N93, O14, Q15.

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A remarkable economic transition took place in large parts of the world in the past 250 years. This “Great Divergence” (Pomeranz, 2000) led to the gap between poor and rich nations of the world expanding from a factor of 4 or 5, to as much as 100. It started with technological innovation, industrialization and urbanization in Britain. Critical to this process was a labor force that was mobile enough to move to the new factories and industrial cities such as Manchester and Birmingham and an agricultural surplus to feed them. The ability of factors of production to be allocated through the market, rather than via feudal regulation or custom, has long been hypothesized to be a major factor behind the success of Britain, and is one hypothesis for why the Industrial Revolution started there, rather than elsewhere (Pirenne, 1927, 1936, Polanyi, 1944, Hicks, 1969, Postan, 1973).

In this paper we empirically test this ‘commercialization’ hypothesis: The release of factors of production, in particular land and labor, from feudalism and custom was an important precondition for industrialization. We do so by focusing on the Dissolution of the English monasteries, which occurred during the English Reformation in the 1530s, as a natural experiment.<sup>1</sup> The impact of the Dissolution on factor markets was first emphasized by Tawney (1941a). He stressed that the expropriation, and subsequent fire sale, of the assets held by the monasteries in England, including about 1/3 of all land, created a huge impulse towards the commercialization of both labor and land. While Tawney emphasized the Dissolution as a shock affecting all of England, we build on his hypothesis by studying its impact *within* England, exploiting local variation in the incidence of the Dissolution.

Why would the expropriation of monastic assets create markets and impact subsequent development patterns? Before the Reformation, monastic land could legally not be sold, thus inhibiting its efficient allocation to people who could use it best. The Dissolution changed this because the Crown rapidly sold off the expropriated monastic assets (Habakkuk, 1958). In terms of marketability of land, this put monastic land on a par with

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<sup>1</sup>The Dissolution began in 1535 when Henry VIII expropriated all monastic assets in England. By doing so, he broke with the Catholic Church and founded the Anglican Church.

non-monastic land. Yet, a key difference between monastic and non-monastic lands that enabled higher subsequent development lies in the lower incidence of ‘feudal’ land tenure on monastic lands. Critically, few monastic tenures were “customary” copyholds (Kerridge, 1969).<sup>2</sup> The difference in the incidence of feudal tenure was a direct consequence of the Black Death. The monasteries, and the Church more broadly, were powerful landlords, and whereas tenants negotiated perpetual leases at low fixed nominal rents after the Black Death with non-monastic landlords, monasteries were more effective at negotiating short leases. As a result, the incidence of perpetual copyhold tenure on monastic lands was 70% lower than on non-monastic lands. This ‘less feudal’ land could be sold to whoever could use it most efficiently after the Dissolution, when the shorter tenure contracts lapsed.

In the Appendix we develop a simple, historically grounded model of perpetual copyhold tenure to illustrate why, in a world of emerging economic opportunity, it is economically inefficient. First, even though a copyholder, paying a fixed rent, is the residual claimant of the returns on his investment, the investment is specific. This leads to inefficiently low rates of separation and labor mobility since the specific investments cannot be liquidated in the presence of potentially attractive outside options. Second, for the copyholder, the presence of such options naturally leads to under-investment, since a more attractive outside option may come along. Third, the presence of perpetual copyholding undermines the efficient allocation of land because those *owners* could use it best are unable to benefit from any productivity increases they bring since such benefits would completely accrue to the copyholders.<sup>3</sup>

Since the incidence of such tenure contracts was lower on monastic land, we anticipate monastic lands to feature relatively more mobility out of agriculture and into newly

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<sup>2</sup>Most important for us was a specific type of customary tenure known as copyhold of inheritance. This fixed the nominal rent of the tenant (and his heirs) in perpetuity. There were other forms of copyhold whose rents could be re-negotiated, usually after three lives, effectively 100 years.

<sup>3</sup>One can think of this in terms of “misallocation” in the sense of Hsieh and Klenow (2009) and Restuccia and Santaeulalia-Llopis (2017) provide evidence on the relationship between this and the commercialization of land, though in a very different context.

expanding sectors like manufacturing, but only after land became marketable following the Dissolution. Additionally we expect to see higher levels of agricultural innovation and yields due to the better incentives on land without perpetual copyholding. Ultimately, we may expect these places to industrialize.

To test these hypotheses we have collected data on the impact of the Dissolution, industrialization, labor force composition, social change, and measures of agricultural innovation and yields across 15,000 parishes - the lowest administrative unit in England until about 1860. We compare parishes that were impacted by the Dissolution in the 1530s to those that weren't.

To measure the impact of the Dissolution we digitized the Valor Ecclesiasticus, the survey of each monastic asset in the entire country with its annual income that Henry VIII commissioned prior to the expropriation in 1535. One very important feature of this data is that it records each manor each monastery owns, generating variation in where monasteries are landlords, rather than where the monastic buildings themselves were. For our main explanatory variable we code an indicator variable to measure the presence of monastic properties in a parish. This captures the discrete impact of the commercialization of monastic lands.

Using data on all textile mills in England in 1838, we find that monastic parishes are more industrialized than non-monastic parishes. Monastic parishes also employ a smaller share of the working age male population in agriculture in 1831, and a commensurately larger share in commercialized sectors, like trade and handicraft. Figure 1 visualizes the relationship between the Dissolution and industrialization, and figure 2 does the same for employment in agriculture.

Naturally, the pre-Dissolution distribution of monastic assets was not randomly assigned. Monasteries were endowed by rich patrons, who gave manors to support the monastery. Such monastic endowment occurred by and large in the two centuries fol-

lowing the Norman conquest of 1066 and ended around 1300. To capture the potential (dis)incentives to gift a particular plot of land, we control for a large number of potential determinants of the location of monastic lands. Most importantly, we use a tax census from just before the Dissolution as a summary measure of pre-existing differences in development. Monastic parishes may still have been on different trends. We collected information on our outcome variables from before the Dissolution, and compare monastic to non-monastic parishes, before and after the Dissolution, in a two-period panel. We first verify that monastic parishes were in fact on parallel pre-trends, using four cross-sections of income before the Dissolution. Then, using data on water mills from the fifteenth century, and occupational structure from the fourteenth century, we verify our main results: monastic parishes are one percentage point more likely to be industrialized, relative to mean of four percent. Employment in monastic parishes is 15% less agricultural, and 13% higher in commercialized sectors of the economy.

These reduced form results are consistent with our hypothesis, the Dissolution is associated with industrialization, and ‘release’ of labor out of agriculture. The rest of our paper is dedicated to understanding why we observe these effects.

We first focus on the medium run, prior to the Industrial Revolution, before turning to immediate effect of the Dissolution. First, we test one of the most famous hypotheses in economic history, due to Tawney (1941a, b). He argued that the Dissolution spurred social change, creating a class of commercialized farmers, the ‘Gentry’, in between the traditionally feudal classes of Lords and the yeomen farmers (the model of Doepke and Zilibotti (2008) can be thought of as a microfoundation for this change). We use a unique census from 1700 that records the number of Gentry in each of 24,000 of the largest towns/cities and villages in England and Wales to measure the presence of the Gentry. We use the Inquisitions post Mortem to construct a pre-Dissolution measure of the incidence of gentry.

Second, the Reformation was not just about the breaking up of monastic assets of

course. Potentially more profound was the religious conversion that scholars since Weber (1905) and Tawney (1926) have connected to entrepreneurship, human capital formation and industrialization (Becker and Woessmann, 2009, Cantoni, 2015, Cantoni, Dittmar and Yuchtman, 2018, Barro and McCleary, 2003, McCleary and Barro 2019). To investigate this we digitized the 1767 Returns of papists, which was a government investigation reporting the number of Catholics in each parish.

We find, consistent with Tawney, that Gentry are more likely to live on formerly monastic lands. We also find that monastic lands experienced more rapid conversion and thus subsequently had fewer Catholics, a point to which we return below.

We hypothesize that the immediate effects of the Dissolution would be to spill over into more dense trade and exchange, or to ‘commercialize’ parishes that were monastic. This could simply be because the Gentry was able to buy up land unencumbered with feudal tenures, which allowed renegotiation of leases. We measure the presence of local markets in 1516 and 1600 to measure commercialization. We also measure the presence of copyhold around 1520 and the second half of the nineteenth century. We find that monastic parishes are more likely to have a recurring market, and are indeed less likely to be unencumbered by ‘feudal’ copyhold tenure.

Taken together, our results are consistent with commercialization of the countryside as a precondition for industrialization. The final part of our paper aims to understand the mechanisms via which the changes in society (Gentry and Catholics) and economic institutions (markets) may have impacted structural change and industrialization.

To do so we use data on agricultural patents filed by parish residents, enclosure of commonly owned and governed land, and crop yields as proxies for productivity and measures of innovation and investment in agriculture.

Our theory suggests that the better allocative efficiency that arose from allowing those best able to use lands unencumbered by feudal tenures would spur investment. We measure

investment we use data recently compiled by Dowey (2013) on the number of agricultural patents registered in a parish between 1700 and 1850. We use data from Heldring, Robinson and Vollmer (2020) on the universe of Parliamentary enclosures, an investment in the reorganization of property rights. Finally, we use data on wheat yields per acre in 1836 from Kain (1986) to directly proxy agricultural productivity. We find that monastic income is positively and significantly correlated with patenting, enclosure, and agricultural yield. These results are consistent with our model of the adverse incentive effects of perpetual copyholding.

What was the role of the social changes we documented in these processes? It is plausible that the impact of Gentry or the persistence of Catholics on these investment outcomes were significant. The Gentry would have had greater investment incentives, a point we substantiate with a review of the case study literature, since they could enter into economically rational tenurial relations. They could also more effectively enclosure common land because they had good connections to Parliament that had to enact this type of property rights rationalization. Catholics, on the other hand, were discriminated against, facing arbitrary expropriation of land and assets and taxed at higher rates. The case study literature suggests this severely inhibited their incentives to invest as we discuss in the next section.

We assess this question in a correlational mediation exercise, where we regress the presence of a textile mill on the share of Catholics in the population before the Industrial Revolution, and on the number of local Gentry. We find that Catholics are strongly negatively associated with industrialization, whereas the presence of Gentry is strongly positively correlated. These effects operate independently, as including both measures in horse-race exercise does not change their estimated effects, nor the estimates' precision.

Taken together, our findings link the spread of the market, brought about by the Dissolution, to economic and social change. These changes have been hypothesized to be crucial

preconditions for the Agricultural Revolution and ultimately industrialization, but have not been tested before. Our results suggest that the end of monastic restrictions on the marketability of 1/3 of the land in England and relative incidence of customary tenure, itself directly linked to feudalism, were important for fundamental changes within England. The lagged abolition of feudal land tenure in France and Germany may be behind why England pulled ahead on the world stage in the eighteenth century. Continental Europe only transformed after their political revolutions in the nineteenth century finally did away with servile labor and customary land tenure relationships (Acemoglu, Cantoni, Johnson and Robinson, 2011).<sup>4</sup>

Our paper is related to quite a few other contributions in addition to those we have discussed above. Our findings are consistent with the literature on the Agricultural Revolution which has stressed that this was due to changes in economic institutions, particularly the spread of markets often in connection with enclosures (Jones, 1974, Overton, 1996). Though our evidence does not speak to the issue of the extent to which the Agricultural Revolution helped to cause the Industrial Revolution (see Clark, 2014) they are consistent with them being connected. Our results are also consistent with Tawney's hypothesis and also with Catholicism being an impediment to industrialization.<sup>5</sup>

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<sup>4</sup>While our account restores a rather traditional theory of the prominence of England among Western European countries to the center of the discussion, our findings likely generalize outside this context. Pre-colonial Africa, for example, was characterized by an almost total absence of factor markets and land is not a marketable commodity in most of the continent today. Though a labor market appeared in the colonial period, slavery also persisted until after World War II in large areas. Similarly, eastern Europe was relatively poor and characterized by serfdom until the middle of the nineteenth century. In Latin America, explicit restrictions on indigenous labor persisted in Guatemala until the 1940s and Bolivia until the 1952 revolution. Finally, scholars point to the development of factors markets in Song China as one of the reasons why it had higher living standards than England before the Industrial Revolution (von Glahn, 2016).

<sup>5</sup>Tawney's papers generated a large literature. This focused on a plethora of issues; whether or not the aristocracy had really declined in favor of a rising class of Gentry (Stone, 1965); whether or not Gentry really were more commercial or efficient than large landowners (Heal and Holmes, 1994, Chapter 3 for this literature); and whether or not the Gentry were the group who led the rebellion against Charles I (see Jha, 2015, for evidence on this). The consensus view of historians on these issues, as expressed by Clay and Overton above, now seems to be that indeed there was a big change in the distribution of land in 16th century England as a result of the Dissolution and, moreover, it makes sense to talk about the rise of the Gentry.

The paper proceeds as follows. The next section provides some important historical background including a discussion of the process of the Dissolution of the monasteries and what happened to monastic lands afterwards. Section 3 discusses the data in detail, particularly the collection of the Valor, and how we compiled this data. We also discuss the other variables we use in the analysis and present some of the descriptive statistics. Finally, we describe our econometric models. Sections 4-8 present our results. Section 9 concludes.

## 1 Setting: The monasteries and customary tenure

In this section, we provide the necessary background to the Dissolution of the Monasteries and our hypotheses. We discuss the initial establishment of monasteries in England, and their subsequent development. We focus on the crucial role of the Black Death and the Dissolution in determining the incidence of feudal tenure across parishes in England. We also discuss the key friction which made copyhold of inheritance, the relatively more common form of land tenure in non-monastic parishes, detrimental to productivity and labor mobility. Finally, we discuss how monastic regulations impeded transactions in monastic lands prior to the Dissolution.

**Early monasteries.** After the fall of the Western Roman empire, several large monasteries were founded, such as Glastonbury, Lindisfarne and Jarrow. Many of these Benedictine establishments were raided by the Vikings, resulting in the virtual, but not full, destruction of monasticism in England by the early 9th century. The fraction of land held by monasteries in the north, where raids were more frequent, fell to well below 10% (Fleming, 1985). On the eve of the Norman Conquest, there were a mere 35 monasteries in England (Douglas, 1964).

After the Norman conquest in 1066, there was a steep acceleration in monastic foundation. In our data, we see that 600 monasteries were founded in the century after 1066.

At the time of the Dissolution in 1535, there were about 825 in all of England. This boom in foundations was closely related to the process through which monasteries are founded, which we discuss now.

**Monastic foundation.** Monasteries were founded by a patron, usually the head of a wealthy landowning family. This person would endow the monastery with land to build the physical monastery on, and with lands that would generate income to support the monks. Over time, patrons from the same family could add land to the endowment of the monastery. In exchange, the patron was entitled to stay at the monastery, and it was understood that the monks would pray for their patron. Endowing a monastery was seen as an act of piety. After 1300 because of legal changes we discuss below, we see that new foundations drop considerably. Instead, endowing private chapels in churches, or ‘chantries’, becomes the popular expression of piety. Monastic patronage could be sold, but if a family died out, monastic patronage escheated to the crown. As a result, the crown was the official patron of many monasteries at the time of the Dissolution.

Because patrons would endow monasteries with land from their own holdings, where monasteries owned land was determined by where the patron owned land. We know a great deal about landownership around the conquest because it was recorded in the Domesday book. William the Conqueror expropriated all Anglo-Saxon nobles save a handful, and redistributed their lands to his followers from Normandy. He deliberately scattered their landholdings. He did this because lords could raise militias in proportion to their landholdings, and William worried that if he gave consolidated landholdings a lord could raise a large army in one place and challenge him. He made an exception for the Welsh and Scottish borders, where he needed ‘marcher’ lords to defend the country.<sup>6</sup>

We see the scattering of landholdings in our data. Most monasteries hold land all over England. This creates variation in which manors were owned by monasteries, without there

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<sup>6</sup>See for example Douglas (1964) and Barlow (2014).

being monks physically present. This allows us to focus on monastic versus non-monastic ownership of land as a source of variation in the incidence of feudal tenure. We return to this point below. We can validate this narrative using the Domesday data. For each manor in the Domesday book, we record whether it was owned by a monastery before the conquest in 1066 and after, in 1086. We code an indicator equal to one if a manor was not owned by a monastery before the conquest, but was passed to a monastery after the conquest. We regress this indicator on the income generated by the manor before the conquest in a bivariate linear regression. We find a small and insignificant correlation. This suggests that where monasteries got land in the wave of monastic foundation after the conquest is uncorrelated with the economic output of a manor, and is consistent with the scattering of landholdings for political rather than economic purposes.

After this initial wave of establishment, monastic endowment effectively stopped after *Magna Carta* in 1215 and the passing of the Statutes of Mortmain in 1279 and 1290 (Raban, 1974). These documents prohibited donating land to monasteries because the feudal dues on the land were no longer payable to the Crown after donation. The subsequent relevant history of the monasteries revolves around two massive events: the Black Death, which created variation between monastic and non-monastic landlords in the type of tenancies they had on their lands, and the Dissolution, which ended monasticism in England, but bequeathed the difference in land tenure relationships to the new owners of the monastic lands.

**The Black Death and the incidence of feudal tenure.** The Black Death ended serfdom as the dominant way of organizing rural labor relationships. Due to the large drop in population, the villeins enjoyed increasing bargaining power, and were able to negotiate advantageous leases at low fixed nominal rents, called copyholds. This maximized the wedge between rental rate and the price they got for agricultural output (see Bailey (2016) for a comprehensive review of the evidence on the decline in serfdom and Hoyle and French (2007)

for a clear discussion of the nature and importance of copyhold). There were two sorts of copyholds: ‘of inheritance’ which lasted forever, and ‘for lives’ usually three lives (or three generations). It was called copyhold because a copy of the agreement was kept in the local manor court. The link between villeinage and copyhold has been pointed out frequently by medieval historians. Vinogradoff (1923, p. 80) traces copyhold to norms that “a free man ... cannot be ejected by his lord against his will, providing he is doing the services due from the holding” arguing that this was the “germ of copyhold tenure”. Tawney (1912, pp. 46-47) observed “copyholders are the descendents of villeins ... copyhold tenure, is in fact, villein tenure to which the courts from the end of the fourteenth century have gradually extended their protection” and Overton (1996) notes “villein tenure gradually changed its name to copyhold” (p. 31). Villeins preferred such tenure because rents were lower. We can see this in an inquisition made in the early sixteenth century into ‘inclosures’ by the Tudor government. Rents are lowest for copyholders, lower than rents on the demesne, for leaseholders, freeholders or tenants-at-will (Davenport and Leadam, 1898, pp. 561-565).

Importantly, there was variation in the success of villeins in securing indefinite copyhold. Swanson (1989) notes that the Church was more aggressive in opposing the changes which were forced on landowners by the collapse in their labor supply arguing that after the Black Death there was a “gradual decline (but not total abolition) of serfdom. Here again, ecclesiastics faced the same forces as their lay counterparts, but were seemingly less willing to give way” (Swanson, 1989, pp. 201-202). For example, Durham priory was drawing up lists of serfs until well into the 15th century, in 1497 Tavistock abbey was collecting servile dues and enforcing labour services and in 1502-3 the bishopric of Lichfield and Westminster Abbey demesne leases were still demanding customary labor services from serfs. See MacCulloch (1988) on the widespread persistence of serfdom into early Tudor England. These authors suggest that, because monasteries were better able to bargain with villeins, the incidence of the ‘feudal’ tenure which was most favorable to the ex-

villein, copyhold of inheritance, was lower on monastic lands. What types of tenure did they have? The predominant forms of tenure were leasehold, or copyhold for lives, which usually expired every 99 years, though there was regional variation in what was considered a life.

How stark was the difference between monastic and non-monastic landlords? At the time of the Dissolution, as much as two thirds of all land in England was held as copyhold (Youings, 1967, p. 308). Although we are not aware of systematic medieval surveys of the extent of types of land tenure, we are able to reconstruct a partial picture.<sup>7</sup> When a monastic property was expropriated, surveyors would oftentimes draw up a final valuation which determined the tax base when its customary taxes reverted to the crown. In some cases, these records include additional information on the type of contract between the monastery and the tenant. These additional returns are published in the seven volumes of the *Monasticon Anglicanum* (Dugdale, 1693). For 2,136 tenure contracts we are able to ascertain whether it was a perpetual copyhold of inheritance contract, a copyhold for lives, or another type of contract. 13% of these contract were copyhold of inheritance contracts. Though it is not clear how representative this sample is, the number is consistent with the conventional wisdom amongst historians that copyholding of inheritance was relatively rare on monastic lands. Youings' estimate is that 2/3 of land was under copyhold in all of England, with about half copyhold of inheritance and half copyhold for lives (Tawney, 1921, p. 26, Overton, 1996, p. 35). Our estimate of 13% for monastic lands therefore implies that the incidence of copyhold of inheritance is almost 70% lower there.

Remarkably, copyhold tenure, a direct descendent of feudal tenure, lasted until it was finally abolished in 1925 by the Law of Property Act. In 1688 around 2/3 of the land remained under copyhold Allen (1992, p. 95). Even as late as the 19th century copyhold was widespread and Beckett and Turner (2004) document that the Copyhold Commission,

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<sup>7</sup>see French and Hoyle (2007) for a discussion of available sources.

formed in 1841 to convert copyholds into freeholds, had to deal with thousands of cases, nearly all, logically enough, copyholds of inheritance.

**The frictions introduced by copyhold of inheritance.** The difference between monastic and non-monastic tenancies is significant because copyholds of inheritance, relatively absent from monastic lands, had significantly negative effects on productivity, labor mobility and the efficient allocation of land. We make these points more formally in the Appendix with a simple model of the copyhold of inheritance tenure. We show three main results. First, compared to different types of contractual relationships, copyhold of inheritance led to lower investment. Second, it led to inefficiently low labor mobility. Finally, it was associated with inefficient matching between farmers and farms.<sup>8</sup>

The intuition for these results is simple. A tenant (and his dynasty) with a copyhold of inheritance pay a fixed nominal rent. They are thus the residual claimant on investment. However, the investment is specific in the sense that if they leave, they cannot liquidate it. In a world of increasing mobility and potentially attractive outside options this leads to inefficient under-investment relative to a situation either where the landowner farms the land or rents it out at market rents. Under copyhold of inheritance the landlord does not want to invest, because the returns would accrue to the tenant. The fact that investment is specific leads not just to too little investment, but also inefficiently low mobility because individuals wish to stay to enjoy their investments. Finally, the nature of this contract means that there will not be efficient matching. In a world where some farmers can use the land more productively than others, there will be no tendency for matching to be efficient when all of the productivity gains accrue to a copyholder.

These effects were less pronounced on copyhold for lives because, while nominal rents were also fixed at customary levels, after three lives, possibly 100 years, the copyhold

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<sup>8</sup>These results all necessitate some degree of financial market imperfections or liquidity constraints otherwise the landlord could buy the tenant out of the copyhold of inheritance contract which was legally possible.

contract lapsed and had to be renegotiated. At such a juncture landlords could adopt more market based contracts in order to claim part of the agricultural surplus which accrued to tenants under customary land relations. Such inefficiencies were even less prevalent on shorter leases, like lease- or freeholds.

**The situation before the Dissolution.** On the eve of the Dissolution, there were around 825 monasteries in England and Wales.<sup>9</sup> These monasteries, together with cathedrals and parish churches owned about a third of all land in England and Wales (see Table 1, Mingay, 1976, p. 44 and Woodward, 1966, p. 33). We saw that these lands were spread out all over England, and often were far away from the where the monks lived. Importantly, these lands were relatively unencumbered by more feudal copyhold of inheritance tenures. Note that there were important differences in the economic orientation of monks across monastic orders. The Cistercians, for example, were thought to be more outwardly oriented.

**The Dissolution** Henry VIII, who had become King in 1509, declared himself head of the Church in 1534. His initial objective was to appropriate all taxes that churches and monasteries traditionally paid to the Pope. In order to assess the revenue potential of the Church, Henry ordered an assessment of the yearly income of all ecclesiastical possessions in England. The resulting reports are published in 1535 as the *Valor Ecclesiasticus*.<sup>10</sup> Between 1536 and 1540 parliament passed several acts that transferred their ownership of all monasteries in England to the Crown, effectively expropriating all assets of the entire monastic sector.<sup>11</sup> Expropriation often involved a peaceful handover of the monastic

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<sup>9</sup>See Woodward (1966, p. 2). There were many types of monastic religious establishments, such as nunneries, friaries, abbeys and priories. We use the term monasteries throughout this paper. Much has been written on the Dissolution and the reformation more generally, see for instance Gasquet (1899), Woodward (1966), Youings (1971), Knowles (1979) and Duffy (2005). Savine (1909) deals exclusively with the *Valor Ecclesiasticus*. See Haigh (1993) and Bernard (2007) on the Reformation more broadly, Scarisbrick (1968) on Henry VIII and Elton (1953) on Henry's government.

<sup>10</sup>The titles and specifics of the relevant acts, the state of the surviving Valor records, the methods of the Valor enumerators as well as our method of coding the Valor data are all described in Sections 3 and 4 of the Appendix. Section 4 includes a description the Valor records for the manor of Helton, Lolbroke and Bell as an example. The Appendix also describes the process of Dissolution followed by the Crown.

<sup>11</sup>Dissolution of church property was not without precedent in England. During the Hundred Years War

buildings and its assets to the crown, and the pensioning off of the monks and nuns. Sometimes it was done forcefully and many important catholic relics were destroyed in the fervor that accompanied 'dissolution'. The Dissolution went hand in hand with Henry's withdrawal from the Roman Catholic church and as such constituted the Reformation in England.

Initially, Henry had intended to manage the monastic lands and collect taxes. He instituted a new ministry for this purpose, the court of Augmentations, but was soon forced to dump all land to finance an escalating war with France. He gave part of most coveted assets, like the monastic buildings that he left standing, to friends and followers but individual manors were by and large sold at the fixed price of 20 years income. We do not have a full manifest of who bought what, but what is clear is that many of the former non-religious functionaries of the monasteries, like the bailiffs who collected rents for the monks, and the stewards, who represented the monasteries in civil society, were often among the buyers.

It is also clear that the Dissolution greatly thickened the land market. In 1603, one commentator remarks: "In these days there go more words to a bargain of ten-pound land a year than in former times were used in the grant of an earldom" (Youings, 1967, p. 304). By 1600, the land market had developed, and many buyers had consolidated small pieces of lands into estates. One commentator remarks in 1610: "lands pass from one to another more in these latter days than ever before" (Youings, 1967, p. 303). In Devon, the number of transactions in the land market tripled in the years immediately after the Dissolution (Kew, 1970). The most comprehensive study of the land market after the Dissolution is Habbakuk (1958), who first documented the increased dynamism in land markets after the

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and throughout the later Middle Ages, the alien priories, priories that were dependent on a monastery in France, were dissolved. In 1520 Cardinal Wolsey dissolved some twenty monasteries to pay for the foundation and endowment of an Oxford college and a school in Ipswich. On the continent, Swedish, German and Swiss rulers had successfully dissolved several catholic monasteries in the early sixteenth century (Woodward, 1966, p. 49).

Dissolution.

**The Reformation** The Dissolution was part of the much broader Reformation. In 1530, to a first approximation, 100 % of people in England were Catholics. Initially the creation of the Church of England did not stop people maintaining their Catholic beliefs. In fact it was only during the reign of Elizabeth I, particularly after the Pope excommunicated her in 1570, that strong pressure was brought to convert. Already the 1559 English Act of Uniformity had required all men and women to attend Protestant churches on Sunday or pay a 12 shilling fine. A 1563 act levied a fine of 100 marks and up to a year in prison on anyone attending a Catholic mass. A 1581 Act raised the fine for failing to attend church to 20 pounds per month and equated the activities of priests with treason. This latter decision was spurred by an influx of continental trained Catholic priests after 1574 aimed at re-converting the country. Over one hundred priests were executed. Penalties for refusing to convert, typically signalled by a refusal to attend protestant church on Sunday, became known as “recusancy”. In addition to the monthly fine a convinced recusant could be imprisoned (many were) and 2/3 of their lands and all their goods were potentially forfeit. In the reign of Charles I this was adjusted so that alternatively recusants would have to pay rent to the government on 2/3 of their land. As Charles himself put it, he wanted to make sure that “in the course of time they would [not] become mendicants” adding “we do not seek their ruin” (quoted in Havran (1962), p. 92). James I had previously strengthened the “recusancy laws” by barring Catholics from the professions and from holding public office. He also introduced an oath of allegiance which if refused, something which the Pope advocated, could be met with life imprisonment and the forfeiture of all property. Catholics were discriminated against until the Catholic Emancipation Act of 1829. After 1683 Catholics had to pay double the rate of the land tax and after 1700 were forbidden to buy land and Protestant next of kin could claim the inheritance of Catholics.

The net effect of these measures, amongst other things, led to sharp declines in the

number of Catholics. An authoritative estimate, due to Bossy (1975, p. 192) is that in 1603 there were 40,000 Catholics in England (see Sheils, 2004, p. 257, 264, for an argument that is likely a serious under-estimate, probably by one half). For 1760, we see in our data that there are 64,300 recorded Catholics in England.

The literature has proposed various explanations for the different rates of conversion in different parts of England.<sup>12</sup> From our perspective, however, the economic consequences of remaining Catholic must have been highly significant. Undoubtedly the fines and penalties on the Gentry were imperfectly enforced with Cliffe (1969) noting “the pressure applied was not so consistently heavy as to force them inexorably into bankruptcy and ruin” (p. 221). Nevertheless, between 1600 and 1642 102 Yorkshire families had their main estates seized for recusancy (Cliffe, 1969, p. 224). Cliffe’s reconstruction of the finances of Philip Constable, a Catholic gentleman from Everingham shows in 1632-33 he paid about 20 % of his income in recusancy fines (p. 222). He concludes “the potential dangers could not be lightly ignored and many Catholic landowners preferred to attend Protestant services rather than hazard their estates” (Cliffe, 1969, p. 181). Heal and Holmes’s (1994) conclusions are similar and they record that “Catholic families experienced financial difficulties, became enmired in debt, and sold up” (p. 150).<sup>13</sup>

These facts have two important implications for our study. First, holding the intensity

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<sup>12</sup>There are three main arguments in the historical literature. Bossy (1975) placed central emphasis on the role of Catholic missionary activity from the continent arguing that where the missionaries went contained greater number of Catholics. He also recognized however that Catholicism persisted longer in the north and west because there were “a variety of administrative barriers between oneself and hostile authority” (1975, p. 82). Effectively, people feared the implementation of the fines and penalties less and this reduced the opportunity cost of staying Catholic. Finally Haigh (1975) argued that Catholicism persisted in places where religious beliefs were more intense and especially where there was a devotion of Mary and the Saints. As Sheil puts it “the distribution of Elizabethan Catholics reflected those areas with the strongest attachment to traditional forms in the early sixteenth century” (2004, p. 259)

<sup>13</sup>“Some figures suggest that financial embarrassment was suffered by a higher proportion of recusant than of Protestant gentry families: a disproportionate number of the gentry families in late Elizabethan Sussex and Surrey obliged to sell land were recusants; in early Stuart Yorkshire 51 per cent of recusant families, as against 34 per cent of their Protestant counterparts, were in financial difficulties” (Heal and Holmes, 1994, p. 150). Aveling (1966) and Manning (1969) contain many similar examples from Yorkshire and Sussex respectively.

of people's religious beliefs constant, whether or not one converted depended on the opportunity costs of doing so. In highly productive places, for example, the threat of losing one's land is greater. Second, to the extent that one remained Catholic, the threat to property rights and excess taxes might plausibly reduce investment. Since our argument is that the Dissolution created better economic opportunities, one would then expect this first argument to imply that more Catholics converted in places impacted by the Dissolution. The second implies that the greater the number of Catholics in a parish, the worse long-run economic outcomes ought to be.

## 2 Hypotheses

We here re-cap this discussion and re-state our main hypotheses.

**Immediate effects of the Dissolution.** Existing evidence suggested that the initial effect was for a much thicker land market to emerge after the Dissolution and a better matching of commercial farmers, gentry, to previously unavailable monastic lands.

We expect this to lead to greater investment (including in enclosing lands) and higher productivity as gentry could take advantage of the non-feudal tenures and, as non-perpetual copyhold lapsed, could change to leaseholds or at least re-negotiate the rents on copyholds they chose to re-new (Youings, 1967). Thus we expect to see a lower incidence of copyhold on formerly monastic lands.

Institutionally, we hypothesize that there would be a growth of other markets in response to agricultural expansion and rising productivity.

Sociologically, we expect to see more gentry in parishes impacted by the Dissolution and fewer Catholics, since the opportunity cost of remaining Catholic was higher.

### **Long term effects of the Dissolution**

Ultimately the rise of the gentry and heightened commercialization should allow for greater labor mobility and the movement of labor out of agriculture into new occupations

such as manufacturing. This would be accentuated in former monastic lands both by the relative absence of perpetual copyholds, which impeded mobility, and also by the increases in investment (including the adoption of labor saving technologies) and enclosures which likely displaced labor.

We therefore expect a lower fraction of the labor force to be employed in agriculture as fewer farmers are locked into favorable but restrictive feudal contracts.

We finally hypothesize that the Dissolution is linked to industrialization. We do so by building on the previous arguments. The idea that increased commercialization of the economy was an important precondition for the success of the industrial revolution in England has a very long pedigree in economic history (Pirenne, 1927, 1936, Polanyi, 1944, Hicks, 1969, Postan, 1973). Because we hypothesize that the Dissolution creates variation in the functioning of markets, we expect that there is an ‘ultimate’ effect of the Dissolution on industrialization. The most likely mechanism in our data is the more ready availability of labor. But it is also possible, and consistent with case study literature we discuss in the Appendix, that the gentry provided a class from which subsequent industrial entrepreneurs emerged.

### **3 Data and Empirical Framework**

For our empirical specifications we use parishes as our unit of observation. Parishes are the relevant local ecclesiastical and civil administrative unit for much of England’s history, and their boundaries have changed very little between the Dissolution and the Industrial Revolution. Importantly, medieval manors, the relevant economic unit in the country side were often coincidental with parishes. That said, names of individual villages and manors within our parishes sometimes change considerably over time. Section 4 in the Appendix describes the procedure we followed to assign observations in different datasets to the

appropriate parish.<sup>14</sup>

### 3.1 The Valor Ecclesiasticus

We obtain our main independent variable, an indicator for whether a monastery owned a manor within a parish, from the Valor Ecclesiasticus. We refer to such parishes as monastic parishes. We use a transcript of the surviving original returns made by the British Record Commission in the first half of the nineteenth century as our source (Caley and Hunter, 1810, 1814, 1817, 1821, 1825, 1831). We exploit the fact that each individual revenue generating unit, such as a manor, is located in a village and a parish and, therefore, has a place name (see the example return in Section 4 of the Appendix). This enables us in principle to identify each unit and attributed it to a parish, even though the owner of the unit, such as a monastery, may be located elsewhere. This way we measure whether the local lord of the manor is a monastery, irrespective of where the monastery is located. Figure 1 maps the spatial distribution of Monastic properties across England, and shows that our data covers modern England almost entirely.<sup>15</sup>

### 3.2 Outcome variables

We record most of our outcome variable at two points in time, once after the Dissolution and once before. In this section we describe each of our datasets and their sources.

**Industrialization.** In 1838 Parliament ordered a return of the “number of persons employed, of the description of the manufacture, and of the nature and amount of the moving power in all the Factories...” (Parliament, 1839, p. 3). This return records each industrial mill in England indicating its manufacture (cotton, wool, worsted, flax or silk),

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<sup>14</sup>Kain and Oliver (2001) reconstructed the administrative map of parishes for England. Their map has been digitized as the *GIS of ancient parishes*, which we use in this paper

<sup>15</sup>We restrict our attention to income from physical assets. This income is referred to in the records as ‘temporal income’. The Valor also records ‘spiritual income’, which are mostly customary duties payable to monastic or ecclesiastical officers.

whether it was water or steam powered and the number of people employed. We record an indicator variable equal to one if a parish contains at least one textile mill, and a variable measuring the number of mills in a parish. To capture the potential location of manufacturing mills before the Dissolution we record the presence of mills in the fifteenth century (1399-1477) from the Inquisitions post Mortem.<sup>16</sup> The inquisitions are property surveys of tenants of the King carried out at death. Since these surveys record all assets with their manors, we can record whether a manor had a water mill in the fourteenth century. We use this as a measure of early industrialization across England.

**Occupational structure.** We use the digitized version of the 1831 Population Census (Gatley, 2005) to compute shares of adult male population above twenty employed in different occupational categories.<sup>17</sup> We focus on the share of adult males over 20 years of age employed in agriculture which, on average, equals 62 percent across our dataset of parishes, and the share employed in trade and handicraft. Other categories that are distinguished in the census data are people employed as laborers, people employed as bankers or in other skilled professions and a category for those not fitting one of these categories. There is a small category for manufacturing, employing two percent of adult males. Since we can not find a matching category in the fourteenth century, we focus on trade and handicraft. Results using just manufacturing for the Nineteenth century are similar.<sup>18</sup> To measure occupation structure before the Dissolution we record the fraction of people employed in agriculture and in trade and handicraft from the 1381 poll tax, which was raised to fund the ongoing Hundred Year’s war (Gibbs, 2015 and Fenwick, 1998, 2001). In our data we observe about 33,000 individuals with their occupations, and we map each

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<sup>16</sup>The source for these data is ‘Mapping the Medieval Countryside [online]’. Available at <http://www.inquisitionspostmortem.ac.uk/> (accessed: November 2020).

<sup>17</sup>The 1831 census is the first proper complete census in England, earlier returns in 1801, 1811 and 1821 are all incomplete and were collected indirectly (for example by asking local priests).

<sup>18</sup>We have been able to reconstruct census data for about twelve thousand of our parishes. Regressions including variables based on the census will therefore have a lower number of observations than variables that do not include such variables.

individual occupation to a category that matches the 1831 census categories.

**The Gentry.** We collect data on the presence of the Gentry come from John Adams' *Index Villaris, or an Alphabetical Table of all Cities, Market-towns, Parishes, Villages, Private Seats in England and Wales* (Adams, 1700) which is a systematic survey of the 24,000 largest cities/towns/villages in England published originally in 1680. We use the total number of Gentry living in a particular locality from the most up to date version published by Adams, from 1700. Data before the Dissolution come from the Inquisitions post Mortem, which record whether a tenant of the King had a 'Sir', 'Knight', or 'Chevalier' title. Since these data vary at the manor level, and we record the title of the landlord, we likely over-estimate the number of Gentry in this data source, since any person likely lives at one or two of his manors, but may own more. We return to this point in the results section.

**Religion.** In the seventeenth and eighteenth century, the English House of Lords initiated several surveys to document the extent of Catholicism in England. The resulting figures are known as several 'Returns of Papists'. The most complete return is from 1767 and it documents about 70,000 Catholics in nearly 2,500 parishes (Worrall, 1980, 1989). We digitized this source and count the total number of Catholics in each parish. We normalize the total number of Catholics by population in 1831.<sup>19</sup>

**Markets.** To measure the initial development of markets following the Dissolution we use *Gazetteer of Markets and Fairs in England and Wales to 1516* (Letters et al., 2003). This source records medieval physical markets and fairs in towns and villages across England up to 1516, and their survival until 1600. Because the total number of markets fell over this period, we measure whether a market survived until 1600 with an indicator equal to one if a parish had a market in 1600, zero if it had one in 1516 but no longer in 1600 and missing otherwise. It is important to note that these are goods markets primarily, and we

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<sup>19</sup>Note that the normalization means that the number of observations we have for this variable is equal to the number of observations in the 1831 census.

use these data instead of measures of the development of the land or labor market from the mid-sixteenth century, which are not available.

**Copyhold.** We record copyhold from three sources. Post-Dissolution, we rely on the annual reports of the copyhold commission which, from about 1840, published yearly reports detailing archaic copyhold contracts that were converted to freehold or leasehold, parish by parish. We record the total number of copyhold contracts converted over this period. For the pre-Dissolution period, we use the Tudor Domesday of inclosures (Davenport and Leadam, 1898), which records whether a copyhold was enclosed in the early sixteenth century, for Berkshire and Buckinghamshire counties. We record the count of copyholds in a parish in this data source.

### 3.3 Mechanisms

**Agricultural Patents.** We compute the number of patent holders from the returns of patent holders in Woodcroft (1854), which were previously used by Dowey (2013). These returns record the place of residence of the patent holders and we used this place to geographically locate the patents. We use the count of patents in a particular place, not the count of patentees (there can be multiple patentees on one patent). The variable we construct is the total number of patents that were registered to people living in a parish between 1700 and 1850.

**Enclosures.** We use data on the location of parliamentary enclosures from *A Domesday of English enclosure acts and awards* by Tate and Turner (1978) as compiled and analyzed by Heldring, Robinson and Vollmer (2020). We record parishes mentioned in each enclosure act and code a dummy that is equal to one if land in a parish was enclosed between 1750 and 1840.

**Agricultural yield.** We record wheat yields from the 1836 tithe surveys, digitized by Kain (1986), as our proxy measure of productivity. As part of the tithe commutation act of

1836 which commuted the tithe into money payments, agricultural statistics were collected for large parts of England. After assigning parishes to individual yield observations in this dataset we obtain a sample of 4148 parishes for which we have wheat yield, measured in bushels per acre. To measure crop yield before the Dissolution, we take data from ‘Three centuries of English crop yields, 1211-1491’ project (Campbell, 2007). We record wheat yield in bushels per acre from this source as well.

### 3.4 Control Variables

**Domesday survey.** To assess balance and the origins of the geographical spread of monastic properties, we rely on the digitized version of the Domesday book by the Domesday book online project (Hull, 2018). The Domesday book was the assessment of property in England ordered by William the Conqueror before seizing virtually all land of the Norman nobility. It records who the landowner was of a manor,<sup>20</sup> and who the tenant was, before and after his expropriation. It also records the income a manor generates. We measure the income generated by monastic parishes before and after the Norman Conquest, and we also code an indicator if a parish was passed from non-monastic to monastic ownership after the conquest.

**Lay Subsidies.** We record a proxy for income from the lay subsidies at two points in time, 1332 and 1525, as a summary measure of development differences before the Dissolution. The source for this measure is the Tudor lay subsidies analyzed by John Sheail (Sheail, 1968, see Hoyle, 1994, for a useful introduction to interpreting Tudor tax subsidies) for 1525 and Glasscock (1975) for 1332. The Lay Subsidy of 1525 was 1524/25 and records the amount of tax raised and the number of taxpayers in each parish or village. It taxed, for each household, the most important source of income of the head of a household, defined as either personal property, landed incomes, or wages (Sheail, 1968, p. 111).<sup>21</sup> Tax rates

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<sup>20</sup>We attribute each manor to parish.

<sup>21</sup>The returns cover the entire country except the counties Northumberland, Durham, Cumberland,

were: a flat rate of four pence per pound if the primary source of income was wage income, one-fortieth (six pence per-pound) on goods and one-twentieth (one shilling per pound) on landed incomes. If the goods were valued at more than twenty pounds, the rate increased to one-twentieth as well. Hence taxation was to some extent progressive. If the household did not earn at least one pound in wages per year, had one pound in landed income per year, or possessed two pounds worth of goods, it was not recorded in the survey. From this data, we record total income per capita in each parish. The Lay Subsidy for 1332 was similar. It taxed one-tenth of all movable wealth above a threshold, and records total receipts per parish. We proceed similarly, and record total tax income, normalized by the population,

### 3.5 Descriptive Statistics

Table 2 contains the descriptive statistics of our outcome variables, and our variable of interest, an indicator equal to one if a parish was ‘monastic’. The first two columns give means and standard deviations of all variables. Subsequent columns give means for parishes that were monastic and parishes that were not. The last two columns provide a t-test of the difference of means.

There are several interesting patterns in this table. First, about a third of parishes are monastic, which is in line with the estimates cited in section 1 of the total share of land owned by monasteries being equal to about a third. Second, when we implement a simple difference of means exercise we see that monastic parishes are more likely to have a textile mills, and employment is lower in agriculture and higher in industry in monastic parishes. We also see that the number of Gentry is higher, and the number of Catholics lower. Finally, monastic parishes have more markets, and fewer copyholds. We now introduce our

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Westmorland and Cheshire (all in the North). The Cinque Ports (Hastings, New Romney, Hythe, Dover and Sandwich) were also omitted. If there were several returns available (such as one for 1524 and one for 1525) we averaged over the available returns.

estimation framework for estimating the effect of being monastic on these outcomes studied in this section.

### 3.6 Estimation framework

In this section we present our main estimating equations, and discuss the nature of selection into monastic status.

Our starting point is a simple model which aims to estimate the cross-sectional relationship between the impact of the Dissolution of the Monasteries and our outcome variables. We estimate the following model using OLS:

$$y_{pc} = \gamma_c + \alpha_M \cdot M_p + \mathbf{X}'_p \cdot \alpha_X + \varepsilon_p \quad (1)$$

Here  $y_{pc}$  is our dependent variable of interest in parish  $p$  in county  $c$  which could be, for instance, the proportion of the labor force employed in agriculture.  $M_p$  is an indicator if a monastery owned land in parish  $p$  so that  $\alpha_M$  is the main coefficient of interest.  $\gamma_c$  is a county fixed effect ( $n=44$ ). The vector  $\mathbf{X}'_p$  always includes the physical area of parish  $p$  and Lay Subsidy revenues in 1525, as a summary measure of development differences before the Dissolution. Finally,  $\varepsilon_p$  is a heteroskedasticity robust (White) standard error.

**Cross-sectional selection.** We naturally face the question what determines whether a manor is owned by a monastery. Ultimately, as we described in section 2, this is the product of a long historical process, starting with the founding of early Benedictine monasteries after the collapse of the Roman empire. Because most of these early monasteries were destroyed in Viking raids, the most important defining event for the distribution of monastic properties was the Norman Conquest in 1066. William the Conqueror redistributed virtually all land in England to his knights and to abbots of new monasteries. This introduced the continental orders to England (e.g. Franciscans, Cluniacs), and reshaped the

pattern of land ownership in England. We saw that in the immediate aftermath of the conquest, monasteries did not get particularly (un)attractive land. But, subsequent patterns of bequest of land to the monasteries may have favored land that was more desirable.

We approach this issue firstly through the use of covariates, the most important ones being differences in development as captured by income in the Lay Subsidies and county fixed effects. These covariates ensure that we make local comparisons. If historically monasteries were simply located in the richest or most productive parts of the country, we would not expect to see a relationship between the Dissolution and industrialization, conditional on our covariates. It may of course still be the case that there are unobservables that vary at the parish level that correlate with subsequent development, and are not captured by either pre-existing income differences. We can not rule this out, but we think it is relatively unlikely in light of the overall development of the English economy between the late Middle Ages and the Industrial Revolution. Before the Dissolution, the richest and most developed part of England was the South, which was heavily involved in wool trade with the Continent. The Industrial Revolution made the North the richest part of the country (Darby et al, 1979). Our results are therefore more likely to be confounded by monastic and non-monastic parishes being on different *trends*.

**Trends, and comparisons over time.** The second part of our empirical analyses instead focuses on differences over time. For most of our outcome variables, we observe data at two points in time, after the Dissolution early on in the Industrial Revolution, and in the later Middle Ages. This allows us to estimate changes over time, comparing changes in monastic parishes to changes in non-monastic parishes. We do so by estimating the following model:

$$y_{pt} = \beta_M \cdot M_p \cdot T_{post} + T_{post} + r + \nu_{pt} \quad (2)$$

Where now  $y_{pt}$  is an outcome of interest for parish  $p$  either before or after the Dissolution,

$t \in \{pre, post\}$ .  $T_{post}$  is a time fixed effect and  $M_p \cdot T_{post}$  measures the effect of a parish being monastic after the Dissolution. Since  $r$  is a vector of parish fixed effects,  $\beta_M$  measures the change over the Dissolution in monastic parishes, relative to the same change in non-monastic parishes.  $\nu_{pt}$  is a heteroskedasticity robust standard error, clustered at the parish level. We restrict the sample to create a balanced two-period panel. In practice this means we restrict to parishes for which we have pre-Dissolution data.

In order for a comparison of changes to be identified, we require monastic and non-monastic parishes to be on parallel pre-trends. We assess this assumption in Table 3, using data from the Domesday book for 1066, before the Conquest, and for 1086, after the conquest, and the Lay Subsidies of 1332 and 1525. We compute the changes in income per capita in between each of these surveys, and estimate equation 1 using these measures as the dependent variable.<sup>22</sup> Columns report the different pairwise comparisons, and our indicator for a parish being monastic is the variable of interest. We report standardized coefficients (coefficients obtained after subtracting from each outcome and right hand side variable its mean and dividing by its standard deviation). Row 1 reports results. For example, column (1) uses the change in income per capita in the Lay Subsidies as the dependent variable. If we find that our monastic indicator is correlated with this measure this means that monastic parishes are growing differently than non-monastic parishes between 1525 and 1332. We find a small and insignificant coefficient. We find similarly small coefficient for each pairwise comparisons. This suggests that, on average, monastic parishes were not on different trends prior to the Dissolution.

**The Reformation as a simultaneous shock.** When we estimate equation 2 we include parish fixed effects, accounting for any unobserved level differences between parishes. Because monastic parishes are not on different pre-trends, we capture the change in outcome variable due to the expropriation of Monastic parishes, subject to one important

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<sup>22</sup>Before we compute percentage changes, we min-max rescale each measure. We also omit the Lay Subsidy covariate from equation 1, since it is now an outcome.

caveat. An informal requirement for models like ours is that any effects are observed close in time to treatment. If this isn't the case, other shocks may have happened that correlate with the Dissolution. The most natural candidate for such a shock is the Reformation itself. The Reformation had two main effects that are relevant for our study: the conversion of Catholics to Anglicans, and the pensioning off of Monks. We discussed the first shock at length in section 1, and we will test for a direct effect of the Dissolution on the presence of Catholics below. The effect of the removal of monks may be important, in light of previous contributions emphasizing the cultural importance of the presence of monks and nuns (Andersen et al., 2017). Note that, however, we measure the impact of the Dissolution using data on where the monks owned land and were landlords, rather than where they lived themselves. We can omit all parishes where the physical monastic buildings were from our analysis. Results are unchanged. It may also be the case that the Dissolution proxies for a future correlated shock. The consensus in the historical literature on agricultural development certainly is that the Dissolution was a watershed event, perhaps only rivalled by the Parliamentary Enclosure movement in terms of impact on the country side, but we can not rule out that there is some unmeasured other shock affecting our results. Subject to this caveat, we pursue our interest in the long-run effect of the Dissolution, and we refer to estimates from our model as 'long-diff' estimates, emphasizing this aspect of our study.

## 4 Main Results

In this section we present the main results of our paper. We hypothesized that the Dissolution can be seen as a shock to factor markets because Monastic parishes were less encumbered by feudal restrictions on labor and property. The Dissolution may therefore provide variation in the commercialization of the English countryside. When the innovations that marked the Industrial Revolution came along, these places were better positioned

to take advantage of these development.

To test this hypothesis, we show three sets of results. We first focus on long-run economic outcomes, starting with industrialization. We find that parishes that were impacted by the Dissolution employ are more likely to be industrialized in the nineteenth century. We then focus on the heart of the commercialization thesis, the freeing up of labor from feudal constraints. We find that impacted parishes employ relatively fewer people in agriculture and more in trade and handicraft in 1831. We then trace the effect back through time to the Dissolution. We first focus on social changes brought by the commercialization of the countryside. Tawney’s famous ‘Rise of the Gentry’ thesis posited that the Dissolution, through commercialized agriculture created a new social class, in between the feudal lords and villeins. We find that monastic parishes are home to more members of the gentry in 1700. Due to arbitrary spoliation and formal repressions of Catholics, it was much less attractive to be Catholic in places that rapidly transformed after the Dissolution. As a result, we find fewer Catholics in monastic parishes, both in 1600 and in 1760. Third, we focus on the direct impact of the Dissolution. We find that monastic parishes are more likely to be home to a regularly recurring local market and, using data on the incidence of feudal copyhold tenure, we find that monastic parishes are indeed less feudal.

## 4.1 Textile mills

We start by estimating the effect of the Dissolution on industrialization by using data on the location and size of textile mills from Parliament (1839). Our results are in Table 4. We study two dependent variables, an indicator equal to one if a parish contained a textile mill, and a count variable for the number of mills. When we show estimates of equation 1 we measures these variables in 1838. When we show estimates of equation 2 we instead measure mills in either the 14th century or in 1838, as described in section 3.

Column (1) of Table 4 provides estimates of equation 1 using the mill indicator as

the dependent variable. The estimated effect of the Dissolution is in row 1. Column (2) provides estimates of equation 2, using the same outcome variable. The estimated effect of the Dissolution is in row 2. Columns (3) and (4) follow the same structure but use the number of mills as the dependent variable. We find a strong, positive relationship between the Dissolution and the location of industrial activity, using either model. Take the estimated effect in column (1),  $\hat{\alpha}_M = 0.01$  (s.e. 0.004). This estimate implies that monastic parishes are more likely to have a textile mill in 1838, with the effect size about equal to one quarter of the sample mean. In column (2), we re-estimate the effect of the Dissolution in our two-period panel, where we control for parish fixed effects. Since we have data on pre-Dissolution mills, we study whether the Dissolution differentially increased the presence of mills. We find a very similar treatment effect, 0.01 (clustered s.e. 0.006). Monastic parishes are about 25 percent more likely to have a textile mill than non monastic parishes. When we look at the scale of industrialization in columns (3)-(4), monastic parishes are also more industrialized on the intensive margin, although these results are less precisely estimated.

## 4.2 Occupational structure

In Table 5 we study occupation structure in 1531, focusing on employment in agriculture and in trade or handicraft. Columns (1) and (2) use employment in agriculture as the outcome variable, and columns (3) and (4) employment in trade and handicraft. Even columns present estimates of equation 1 and odd columns present estimates of equation 2.

In column (1) we show the cross-sectional estimated effect of the Dissolution on employment in agriculture. We find a negative and statistically significant effect of being Monastic on the fraction of males over 20 in agriculture. This effect is virtually all absorbed by a commensurate increase in the fraction of males over 20 in trade or handicraft, which goes up. Monastic parishes see a 3 percentage point reduction in employment in agriculture, and 2 percentage point increase in employment in industry. Relative to its mean of 62%,

the reduction in agricultural employment does not appear to be large. But, most of this decrease goes into an increase in employment in trade and handicraft. A 2 percentage point increase in employment in industry is about 11 percent of its mean. In columns (2) and (4) we instead estimate ‘long-diff’ effects. We find similar effects, especially for employment in trade and handicraft. We find a larger estimated negative effect for employment in agriculture, which may be due to the smaller sample size as a consequence of the lower number of parishes enumerated as part of the fourteenth century poll tax.

Our results on textile mills and employment speak most directly to the hypothesis advanced by Pirenne (1927, 1936), Polanyi (1944), Hicks (1969), Postan (1973). Their argument is that the commercialization or ‘marketization’ of the English economy, led to labor being able to freely be reallocated to new economic opportunity when it arose. Consistent with these ideas, we find that the Dissolution impacts the composition of the labor force and, ultimately, industrialization. In the next two sections, we study the immediate consequences of the Dissolution.

## **5 The Rise of the Gentry and Catholic conversion**

In this section we study social and religious change as two more potential effects of the Dissolution. First, we examine the impact of monastic income on the rise of the Gentry. Second, we study the effect of the Dissolution on the presence of Catholics. Existing data strongly suggests that the Gentry increased greatly in numbers and in the amount of land they controlled. Table 1, from Overton (1996, Table 4.8), shows that while in 1436 the Church held around 20-30% of land with the Crown holding 5%, the sum of these two numbers declined to 5-10% by 1688, mostly due to the Dissolution. In the same period the landholdings of the middling and lesser Gentry, the people relevant for Tawney’s hypothesis, went from 25% to 45-50% of the total. In appendix section 2, we provide case study and family history evidence for individuals who ‘rose’ as a consequence

of the Dissolution. In this section, we use the number of Gentry present in parish  $p$  in 1700 (Adams, 1700). Second, we measure the number of Catholics in 1760. In total we find 64,300 Catholics throughout England, and we normalize the number of Catholics by the 1831 population. For both gentry presence, and Catholics, we have pre- and post-Dissolution observations. We therefore proceed with the same analysis as we implemented when we studied industrialization and employment structure.

Table 6 reports results. For the presence of the Gentry, we find a positive and significant effects in both our OLS and ‘long-diff’ models. We find that the effect of the Dissolution is associated with a 0.2 increase in the number of Gentry, relative to a sample mean of about 0.7. This result is consistent with Tawney’s Rise of the Gentry hypothesis (Tawney, 1941a,b).<sup>23</sup> In columns (3) and (4) we test for the effect of the Dissolution on the geographical spread of Catholics. We find that monastic parishes have a significantly lower share of Catholics in the cross-section (column (3)) as well as in our panel (column (4)). In Column (3), for example, we find that the fraction of Catholics is about one percentage point lower in monastic parishes, relative to a sample mean of 12 percent.

## 6 Markets and copyhold

In this section we focus on the immediate impacts of the Dissolution. We argued that the Dissolution had two early impacts. First, by dumping land on the land market that was not previously tradable, the Dissolution facilitated matching of productive individuals to land. Monastic land, in addition, was less encumbered by perpetual copyhold tenure. This meant that land tenure contracts would lapse after the Dissolution and could be renegotiated.

In this section we attempt to measure both these impacts. We have no means to directly measure land markets, but we hypothesized that the greater levels of investment

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<sup>23</sup>Jha (2015), using different sources of information, fails to find support for Tawney’s secondary claims about the Gentry’s role in the English Civil War.

and productivity induced by the Dissolution should have spurred markets more broadly. We therefore use as an outcome variable presence of local goods markets from Letters (2003). To measure copyhold, we count the number of copyholds that were converted in the nineteenth century. For the 16th century, we count the number of copyholds in a smaller set of parishes from (Davenport and Leadam, 1898). We assume that parishes that are in our 16th century data, and are not in the records of the copyhold commission, do not have any copyholds.

Table 7 shows results. We find that monastic parishes are 9 percentage points more likely to have a surviving market, relative to a mean of 0.3.<sup>24</sup> We find an equal treatment effect in column (2), estimating equation 2. In column (3) and (4) we test for the presence of copyhold. In column (3), we find a negative treatment effect, indicating that in 1850, monastic parishes had fewer surviving copyholds. This effect is large, -1.17 (s.e. 0.74) relative to mean of 6.7, but imprecisely estimated. Importantly, however, we can compare changes over time in column (4). We find that in the balanced sample of parishes for which we have information before the Dissolution, the Dissolution is associated with a large reduction in the number of copyholds equal to about 23% of the sample mean of the nineteenth century copyholds. The overall sample mean is lower since the number of recorded contracts per parish is lower in the sixteenth century data.

## 7 Mechanisms

In the previous section we showed that the Dissolution impacted industrialization, the allocation of labor between agriculture and trade/handicraft. We also showed that the Dissolution led to social change. Finally, we showed the immediate impact of the Dissolution on markets and copyhold.

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<sup>24</sup>Note that the sample here is parishes that had a market in 1600. The sample average therefore shows that one-third of parishes that had a market in 1516 still had a market in 1600. In monastic parishes, the survival rate is 9 percentage points higher.

In this section we focus on several plausible mechanisms linking the Dissolution to these outcomes. Specifically, we study enclosure, innovation in agriculture, and agricultural yields. Each outcome captures a form of investment or innovation, which is the type of change that would be facilitated by better developed factor markets or more commercially minded Gentry. Enclosure was a political process that ended in the abolition of informal property rights to land. It had to be initiated by landowners, and we hypothesize that more commercialized parishes were more likely to petition for enclosure. In particular, members of the Gentry were often members of parliament as well, and would petition Parliament for enclosure in parishes where they owned land. Heldring, Robinson and Vollmer (2020) provide further detail to the Parliamentary Enclosure movement and the construction of the data. Besides a great incentive to enact policies that potentially improve outcomes, we hypothesize that better developed factor markets directly impact the incentives to innovate. This is simply because the returns to innovation are higher, as are the returns on investment. For example, it is less profitable to invest in agricultural technology if any investment cannot be liquidated. To study this prediction, we focus on innovation, measured by the number of agricultural patents filed by residents of parish  $p$  in the period 1700-1850, and agricultural yield, measured by wheat yield in bushels per acre. For enclosure and innovation we have a single cross-section, and we therefore estimate equation 1 for these outcomes. For yield, we have a pre-Dissolution cross-section, and we therefore estimate both equation 1 and 2

Table 8 reports results. In column (1) we use the number of agricultural patents as the dependent variable. We find an significantly higher number of patents filed by residents of monastic parishes. The increase, 0.02 (s.e. 0.007) is equal to the sample mean. In column (2) we use our enclosure indicator as the dependent variable, and find that monastic parishes are 8 percentage points more likely to be enclosed, relative to a mean of 0.37. Finally, in columns (3) and (4) we use wheat yield, first in our cross-section and then in our panel. We find higher wheat yield in both analyses. Note that our preferred estimate from our

panel, in column (4), is large, about a quarter of the sample mean, but comes from a small sample of parishes for which we have data both pre- and post-Dissolution. The estimate in column (3) is much smaller. The most plausible interpretation of our results in this section is that parishes which were not encumbered with copyhold tenancies were far more attractive places to enclose, and to invest in.

## 8 Comparing Catholics and Gentry

In Table 9 we take our intermediate results on the Catholics and the Gentry and study their correlation with industrialization. Both variables capture important channels of transmission from the Dissolution to the Industrial Revolution, but they capture different aspects. We interpret the presence of Gentry, following Tawney, as a direct outcome of increased economic dynamism and commercialization of the countryside. The presence of Catholics plausibly also affects economic development through other mechanisms, such as discrimination, as we saw in section 1.

In column (1) we simply estimate equation 1 with our mill indicator as the dependent variable and the share of the population that is Catholic in 1760 as the right hand side variable. We find a negative and significant correlation with economic development. The mean share Catholics is about 3 percent. This implies that in parishes with a higher share of Catholics by its mean is associated with a decline in the probability of having a mill of about 10% of its sample mean. This effect is consistent with both repression of Catholics, as well as arguments that put an emphasis on cultural attitudes of Catholics being less conducive to investment (Weber, 1905). For Gentry, we observe an opposite correlation (column (2)). Having an additional member of the Gentry is associated with a higher probability of having a mill by about 25% of its sample average, consistent with the evidence in section 1 on the involvement of the Gentry in funding and engaging in industrialization. It is important to note that neither of these results are interpretable as

causal.

An interesting question is whether these mechanisms operate separately, or that in parishes where people remained Catholic fewer Gentry ‘rose’. In column (3) we include both measures simultaneously. Both point estimates are unchanged and equally precisely estimated, suggesting that the presence of Catholics and Gentry are orthogonal correlates with industrialization. A final question we ask is whether the Catholics and Gentry jointly explain the full effect of the Dissolution. We do not expect this to be the case since our hypothesis is that the increased dynamism of the land and labor markets affected farmers as much as Gentry by ‘freeing’ them from feudal land tenure relationships. In column (4) we include our indicator for monastic parishes as an additional regressor as well, and we find that it correlates with industrialization, even when we include the share of Catholics and number of Gentry.

## 9 Conclusions

In this paper we conducted what to our knowledge is the first empirical investigation of one aspect of the salient commercialization thesis about the causes of industrialization and the industrial revolution in England. Though we cannot test the idea that it was commercialization that caused the industrial revolution, we used the impact of the Dissolution of the monasteries in England between 1536 and 1540 as a source of variation in the extent of commercialization within England. Tawney (1941a,b) first proposed that the Dissolution and subsequent sell off of church land, representing around 1/3 of agricultural land in England, created a huge shock to the land market with profound consequences. We argue that this can be viewed as a natural experiment in the modernization of economic institutions and we hypothesized that the subsequent thickening of the land market would have had a major positive impact on resource allocation and incentives. This was particularly because monastic lands were relatively free of customary perpetual copyhold tenancies which were

a direct legacy of feudalism. To investigate this we digitized the 1535 Valor Ecclesiasticus, the census that Henry VIII commissioned on monastic incomes.

Using the presence of monastically owned land at the parish level as our main explanatory variable we showed that the Dissolution had significant positive effects on industrialization which we measured using data from the 1838 Mill Census, the first time the British government collected systematic data on this driving sector of the Industrial Revolution. We also showed the Dissolution was associated with structural change, specifically the movement of labor out of agriculture and into more commercialized sectors of the economy.

We then examined several channels which might link the Dissolution to these long-run outcomes. We should that the Dissolution was associated, as Tawney hypothesized, with social change and the rise of a new class of commercially minded farmer. It was also associated with faster conversion from Catholicism, another factor plausibly linked to better economic performance.

We further found the Dissolution to be associated with greater agricultural investment, measured by parenting and land enclosures, and higher wheal yields.

All in all, our findings support a quite traditional theory of the industrial, and perhaps agricultural revolution; that it was at least partially caused by the increasing commercialization of the economy which unleashed a series of power institutional, social and economics effects. <sup>25</sup>

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<sup>25</sup>Though it is not the focus of our analysis, our findings also support other channels, such as the importance of the presence of natural resources emphasized by Clark and Jacks (2007), Allen (2009), Crafts and Wolf (2014) and Fernihough and O'Rourke (2014).

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Figure 1: Spatial distribution of Monastic property. One dot indicates at least one monastic property in 1535.

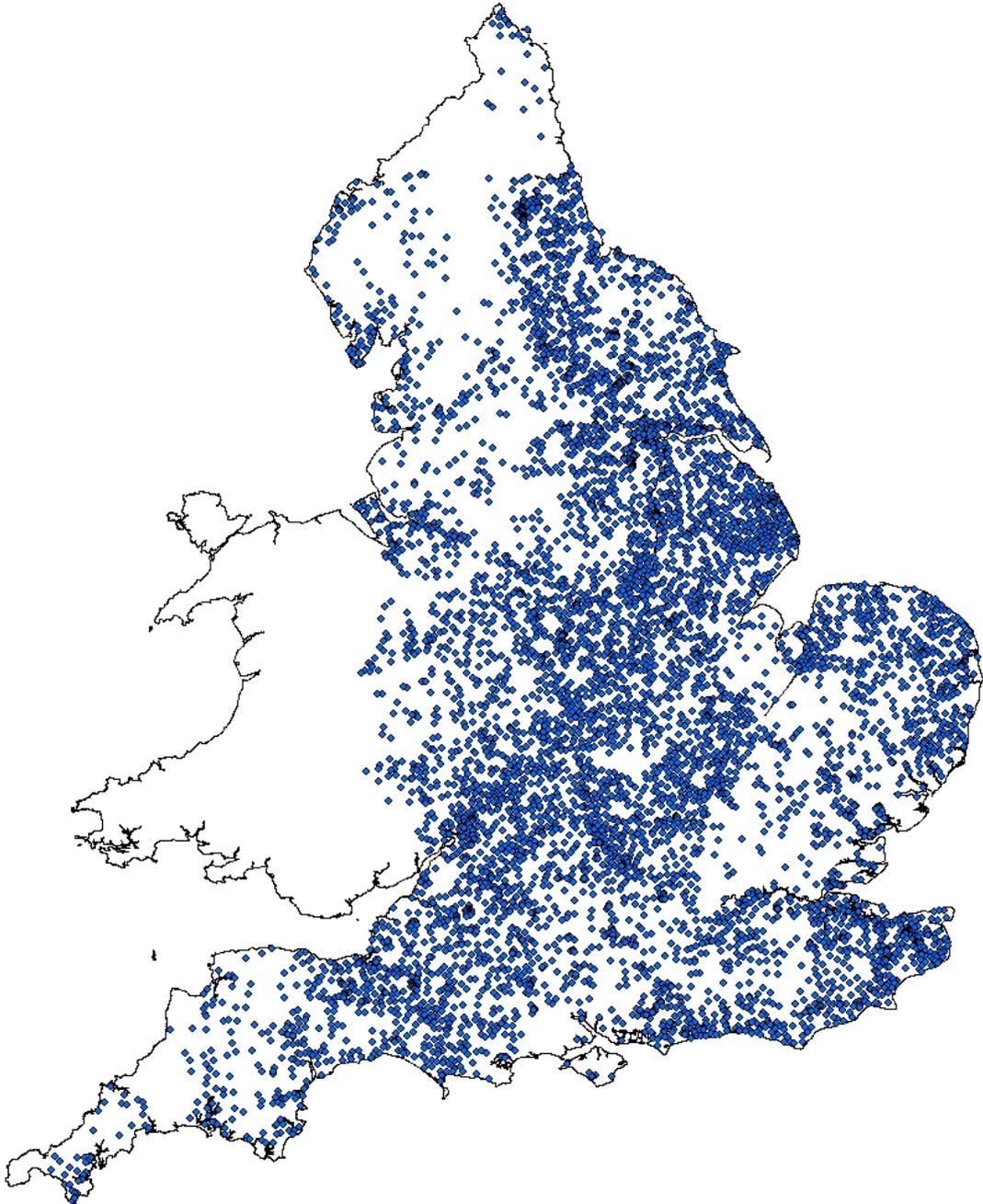
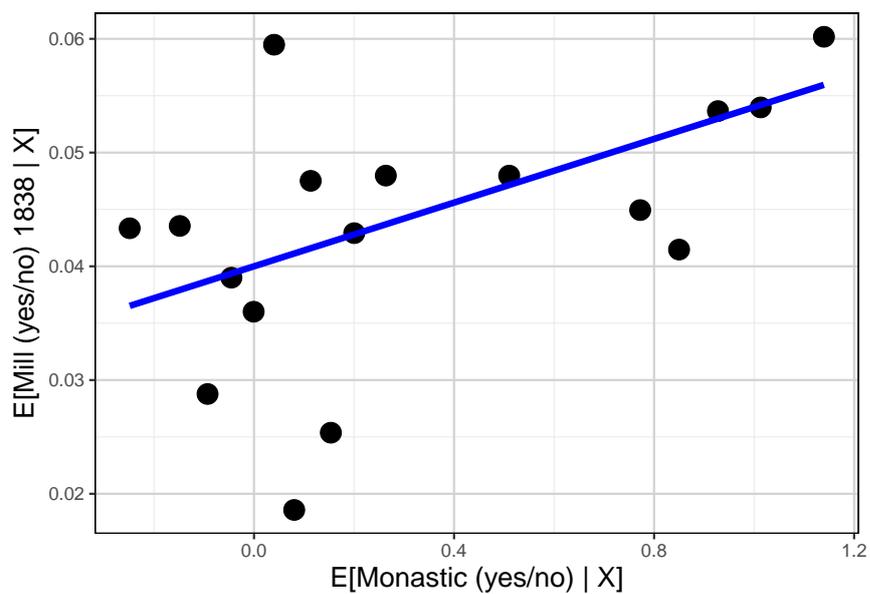
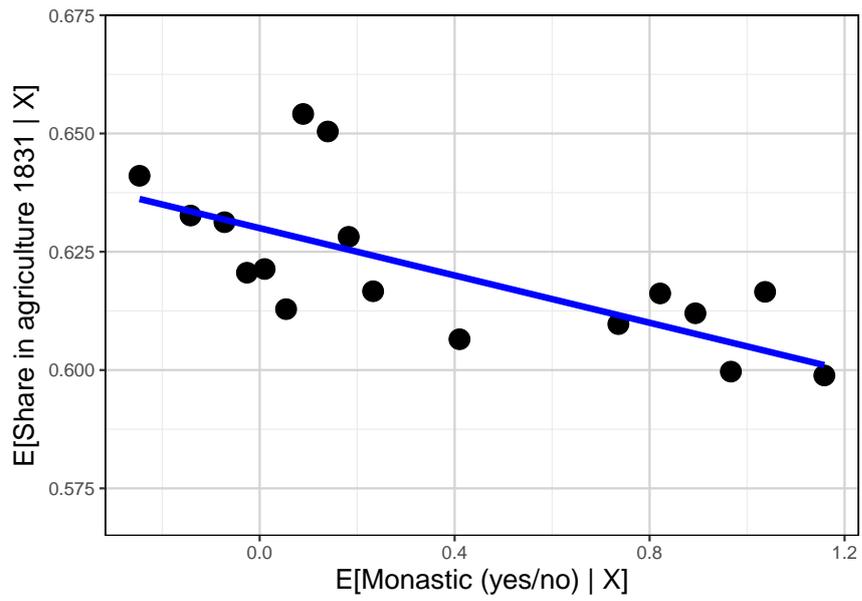


Figure 2: The Dissolution and industrialization in 1838



The regression line is fitted on our full dataset. The dots summarize the data by computing the mean of the monastic and mill indicators within 17 bins of values of the monastic indicator, after partialling out income per capita in the 1525 Lay Subsidies, parish area and a vector of county fixed effects.

Figure 3: The Dissolution and employment in agriculture in 1831



The regression line is fitted on our full dataset. The dots summarize the data by computing the mean of the monastic indicator and the share of males over 20 in agriculture in 1831 within 17 bins of values of the monastic indicator, after partialling out income per capita in the 1525 Lay Subsidies, parish area and a vector of county fixed effects.

Table 1: DISTRIBUTION OF LANDOWNERSHIP IN ENGLAND IN 1436 AND 1688: PERCENTAGES OF CULTIVATED LAND OWNED

	1436	1688
Aristocracy and greater Gentry	15-20	15-20
Middling and lesser Gentry	25	45-50
Yeomen, family farmers and other small owners	20	25-33
Church & Crown	25-35	5-10

Notes: Adapted from Clay (1986, p. 143)

Table 2: SUMMARY STATISTICS FOR OUTCOME VARIABLES VARIABLES

	N	Mean	S.D.	Non-Monastic	Monastic	Difference	t-stat
<i>Panel I: Post-Dissolution</i>							
Monastic (yes/no)	16290	0.32	0.47				
Mill (yes/no) 1838	16290	0.04	0.20	0.04	0.05	0.01	2.26
Nr. of Mills 1838	16290	0.16	2.28	0.14	0.19	0.05	1.34
Share in agriculture 1831	12859	0.62	0.25	0.62	0.62	-0.01	-1.82
Share in trade/handicraft 1831	12859	0.18	0.13	0.17	0.19	0.02	7.86
Number of Gentry 1700	16290	0.67	1.00	0.58	0.87	0.29	17.61
Share Catholic 1760	12546	0.03	0.11	0.04	0.02	-0.01	-7.65
Market (yes/no) 1600	2146	0.31	0.46	0.27	0.35	0.08	4.01
Copyhold count 1850	2075	6.75	15.75	7.13	5.95	1.18	1.60
Nr. of Agricultural Patents 1700-1850	16290	0.02	0.28	0.02	0.04	0.03	5.33
Parliamentary Enclosure 1750-1840	16290	0.37	0.48	0.32	0.48	0.16	20.25
Wheat Yield (bushels/acre) 1840	4028	21.71	4.51	21.62	21.87	0.24	1.62
<i>Panel II: Pre-Dissolution</i>							
Monastic (yes/no)	16290	0.32	0.47				
Mill (yes/no) 1399-1477	9321	0.06	0.24	0.06	0.06	0.00	0.14
Nr. of Mills 1399-1477	9321	0.07	0.29	0.07	0.07	0.00	0.29
Share in agriculture 1370	1035	0.35	0.34	0.33	0.37	0.04	1.78
Share in trade/handicraft 1831	1035	0.12	0.18	0.12	0.13	0.01	0.91
Number of Gentry 1399-1477	9321	0.74	0.45	0.73	0.77	0.04	4.41
Copyhold count 1520	155	0.41	0.88	0.34	0.54	-0.20	-1.33
Wheat Yield (bushels/acre) 1211-1491	153	3.76	1.03	3.86	3.66	-0.19	-1.16

Table 3: TRENDS BEFORE THE DISSOLUTION

<i>Dep. var.: % change in income between</i>	1525-1332 (1)	1525-1086 (2)	1525-1066 (3)	1332-1086 (4)	1332-1066 (5)	1086-1066 (6)
Monastic (yes/no)	0.0139 (0.0121)	-0.00844 (0.0125)	0.0149 (0.0129)	-0.0198 (0.0201)	-0.00879 (0.0242)	0.00145 (0.0126)
Control for Parish area	Y	Y	Y	Y	Y	Y
County fixed effects	Y	Y	Y	Y	Y	Y
Observations	6645	7105	5480	3928	2757	5480
$R^2$	0.0434	0.0118	0.0324	0.0170	0.0462	0.0615

Notes: All regressions are estimated using OLS. The unit of observation is a parish. All variables are standardized (transformed to have zero mean and unit standard deviation). Heteroskedasticity robust standard errors are reported in parentheses. Monastic (yes/no) is an indicator equal to one if a parish contained at least one manor owned by a monastery in 1535 (Caley and Hunter, 1810, 1814, 1817, 1821, 1825, 1831). \* indicates statistical significance at the 10 percent level, \*\* at the 5 percent level, \*\*\* at the 1 percent level.

Table 4: THE DISSOLUTION AND INDUSTRIALIZATION

<i>Dep. var.:</i>	Mill (yes/no) 1830 (1)	Mill (yes/no) (2)	Nr. mills 1830 (3)	Nr. mills (4)
<i>Model:</i>	<i>OLS</i>	<i>Long-diff</i>	<i>OLS</i>	<i>Long-diff</i>
Monastic (yes/no)	0.01*** (0.004)		0.11** (0.052)	
Monastic (yes/no) * Post-Dissolution		0.01** (0.006)		0.11** (0.052)
Control for Lay Subsidy Revenue	Y	Y	Y	Y
Control for Parish area	Y	Y	Y	Y
County fixed effects	Y	N	Y	N
Parish fixed effects	N	Y	N	Y
Post-Dissolution fixed effect	N	Y	N	Y
Mean dep. var.	0.04	0.05	0.16	0.09
Observations	16243	18642	16243	18642
$R^2$	0.05	0.53	0.02	0.50

Notes: All regressions are estimated using OLS. The unit of observation is a parish. Heteroskedasticity robust standard errors are reported in parentheses. In columns (2) and (4) these are clustered at the parish level. Mill (yes/no) is an indicator variable equal to one if there was a mill in parish  $p$  in 1838. Number of Mills is the total number of cotton, wool, flax and worsted mills in parish  $p$  in 1838 (Parliament, 1839). Monastic (yes/no) is an indicator equal to one if a parish contained at least one manor owned by a monastery in 1535 (Caley and Hunter, 1810, 1814, 1817, 1821, 1825, 1831). \* indicates statistical significance at the 10 percent level, \*\* at the 5 percent level, \*\*\* at the 1 percent level.

Table 5: THE DISSOLUTION AND OCCUPATIONAL STRUCTURE

<i>Dep. Var.: Share of working population in</i>	<u>Agr. 1831</u>	<u>Agr.</u>	<u>Trade/handicraft 1831</u>	<u>Trade/handicraft</u>
	(1)	(2)	(3)	(4)
<i>Model:</i>	<i>OLS</i>	<i>Long-diff</i>	<i>OLS</i>	<i>Long-diff</i>
Monastic (yes/no)	-0.03*** (0.005)		0.02*** (0.003)	
Monastic (yes/no) * Post-Dissolution		-0.07** (0.027)		0.02* (0.013)
Control for Lay Subsidy Revenue	Y	Y	Y	Y
Control for Parish area	Y	Y	Y	Y
County fixed effects	Y	N	Y	N
Parish fixed effects	N	Y	N	Y
Post-Dissolution fixed effect	N	Y	N	Y
Mean dep. var.	0.62	0.47	0.18	0.16
Observations	12831	1754	12831	1754
$R^2$	0.10	0.63	0.03	0.71

Notes: All regressions are estimated using OLS. The unit of observation is a parish. Heteroskedasticity robust standard errors are reported in parentheses. In columns (2) and (4) these are clustered at the parish level. Share in agriculture is the share of males aged 20 and above employed in agriculture in the 1831 census. Share in trade/handicraft is the share of males aged 20 and above employed in trade or handicraft in the 1831 census. Monastic (yes/no) is an indicator equal to one if a parish contained at least one manor owned by a monastery in 1535 (Caley and Hunter, 1810, 1814, 1817, 1821, 1825, 1831). \* indicates statistical significance at the 10 percent level, \*\* at the 5 percent level, \*\*\* at the 1 percent level.

Table 6: THE DISSOLUTION AND SOCIAL CHANGE

<i>Dep. var.:</i>	Nr. Gentry 1700	Nr. Gentry	Share catholic 1760	Share catholic
	(1)	(2)	(3)	(4)
<i>Model:</i>	<i>OLS</i>	<i>Long-diff</i>	<i>OLS</i>	<i>Long-diff</i>
Monastic (yes/no)	0.23*** (0.018)		-0.01*** (0.002)	
Monastic (yes/no) * Post-Dissolution		0.20*** (0.025)		-0.01*** (0.002)
Control for Lay Subsidy Revenue	Y	Y	Y	Y
Control for Parish area	Y	Y	Y	Y
County fixed effects	Y	N	Y	N
Parish fixed effects	N	Y	N	Y
Post-Dissolution fixed effect	N	Y	N	Y
Mean dep. var.	0.67	0.77	0.03	0.01
Observations	16243	18642	12522	25092
$R^2$	0.12	0.52	0.17	0.52

Notes: All regressions are estimated using OLS. The unit of observation is a parish. Heteroskedasticity robust standard errors are reported in parentheses. In columns (2) and (4) these are clustered at the parish level. Monastic (yes/no) is an indicator equal to one if a parish contained at least one manor owned by a monastery in 1535 (Caley and Hunter, 1810, 1814, 1817, 1821, 1825, 1831). \* indicates statistical significance at the 10 percent level, \*\* at the 5 percent level, \*\*\* at the 1 percent level.

Table 7: THE IMMEDIATE IMPACTS OF THE DISSOLUTION

<i>Dep. var.:</i>	Market (yes/no) 1600	Market (yes/no)	Copyhold count 1850	Copyhold count
	(1)	(2)	(3)	(4)
<i>Model:</i>	<i>OLS</i>	<i>Long-diff</i>	<i>OLS</i>	<i>Long-diff</i>
Monastic (yes/no)	0.09*** (0.021)		-1.17 (0.742)	
Monastic (yes/no) * Post-Dissolution		0.08*** (0.020)		-1.46** (0.663)
Control for Lay Subsidy Revenue	Y	Y	Y	Y
Control for Parish area	Y	Y	Y	Y
County fixed effects	Y	N	Y	N
Parish fixed effects	N	Y	N	Y
Post-Dissolution fixed effect	N	Y	N	Y
Mean dep. var.	0.31	0.66	6.74	0.83
Observations	2144	4292	2070	310
$R^2$	0.06	0.76	0.05	0.51

Notes: All regressions are estimated using OLS. The unit of observation is a parish. Heteroskedasticity robust standard errors are reported in parentheses. In columns (2) and (4) these are clustered at the parish level. Monastic (yes/no) is an indicator equal to one if a parish contained at least one manor owned by a monastery in 1535 (Caley and Hunter, 1810, 1814, 1817, 1821, 1825, 1831). \* indicates statistical significance at the 10 percent level, \*\* at the 5 percent level, \*\*\* at the 1 percent level.

Table 8: MECHANISMS

<i>Dep. var.:</i>	Nr. Patents	Enclosure	Wheat yield 1840	Wheat Yield
	(1)	(2)	(3)	(4)
<i>Model:</i>	<i>OLS</i>	<i>Long-diff</i>	<i>OLS</i>	<i>Long-diff</i>
Monastic (yes/no)	0.02*** (0.007)	0.08*** (0.008)	0.24* (0.134)	
Monastic (yes/no) * Post-Dissolution				2.90*** (0.964)
Control for Lay Subsidy Revenue	Y	Y	Y	Y
Control for Parish area	Y	Y	Y	Y
County fixed effects	Y	Y	Y	N
Parish fixed effects	N	N	N	Y
Post-Dissolution fixed effect	N	N	N	Y
Mean dep. var.	0.02	0.37	21.71	13.85
Observations	16243	16243	4025	152
$R^2$	0.00	0.19	0.30	0.96

Notes: All regressions are estimated using OLS. The unit of observation is a parish. Heteroskedasticity robust standard errors are reported in parentheses. In columns (2) and (4) these are clustered at the parish level. Monastic (yes/no) is an indicator equal to one if a parish contained at least one manor owned by a monastery in 1535 (Caley and Hunter, 1810, 1814, 1817, 1821, 1825, 1831). \* indicates statistical significance at the 10 percent level, \*\* at the 5 percent level, \*\*\* at the 1 percent level.

Table 9: MECHANISMS COMPARISON - INDUSTRIALIZATION

<i>Dep. var.:</i>	Mill (yes/no) 1838			
	(1)	(2)	(3)	(4)
Share Catholic 1760	-0.11*** (0.016)		-0.10*** (0.016)	-0.10*** (0.016)
Number of Gentry in 1700		0.01*** (0.002)	0.01*** (0.002)	0.01*** (0.002)
Monastic (yes/no)				0.01*** (0.004)
Control for Lay Subsidy Revenue	Y	Y	Y	Y
Control for Parish area	Y	Y	Y	Y
County fixed effects	Y	Y	Y	N
Mean dep. var.	0.04	0.04	0.04	0.04
Observations	12522	16243	12522	12522
$R^2$	0.05	0.05	0.05	0.05

Notes: All regressions are estimated using OLS. The unit of observation is a parish. Heteroskedasticity robust standard errors are reported in parentheses. Monastic (yes/no) is an indicator equal to one if a parish contained at least one manor owned by a monastery in 1535 (Caley and Hunter, 1810, 1814, 1817, 1821, 1825, 1831). \* indicates statistical significance at the 10 percent level, \*\* at the 5 percent level, \*\*\* at the 1 percent level.

# Appendix for: The Long-Run Impact of the Dissolution of the English Monasteries

This appendix contains supplementary material for the paper *The Long-Run Impact of the Dissolution of the English Monasteries*.

## 1: A model of copyhold agriculture

We now develop a simple model to illustrate the argument in the introduction that copyholding is economically inefficient and which provides a theoretical foundation for why the dissolution of the monasteries led to greater labor mobility and higher productivity. We sketch the implications for the efficient allocation of land. We focus on copyholding of inheritance because this was permanent. With copyholding for lives, at some point, often after three lives, a landlord could refuse to re-new the copyhold and could instead rent out the land under a different market based tenancy agreement. One could imagine therefore that as copyholding became less efficient, such copyholders vanished. Indeed, the gap between copyhold rents and market rents became increasingly large. Tawney (1912, p. 122) gives many examples of the divergence between customary and market rents. For example, “At Amble, in 1608, the surveyor gives the rent of the customary tenants as 16 pounds and five pence” while the market rent would be “93 pounds 4 shillings and 4 pence”. On the manor of Hexham, 314 copyholders paid a rent which was one quarter of the market rent. Thus we would expect copyhold for lives to vanish. This is exactly what Beckett and Turner’s (2004, p. 288) data suggest since they find that 95% of the cases dealt with by the Copyhold Commission in the nineteenth century were copyholds of inheritance.

Copyholders of inheritance were a different matter. As Clay (1984, p. 88) puts it “the only way open to the lord of a manor to rid himself of copyholders of inheritance was to buy their farms if and when they were prepared to sell.” The data suggest that this by and large did not happen and this would be consistent with the type of imperfect capital

markets story formalized by Galor and Zeira (1993) and particularly Banerjee and Newman (1993) where capital market imperfections stop efficient ownership structures emerging.

The key theoretical observation is that in a copyholding contract, while copyholders had the right to pay a fixed ‘customary rent’ (and a ‘fine’ which we abstract from since adding it into the analysis does not change anything of substance) and therefore were the residual claimants on their own investments, this can only lead to efficient outcomes in the case where the copyholder (or his dynasty) remains on the land forever. Yet in the period we consider, early modern and modern England, there was rapid socio-economic change, urbanization and industrialization, so it is very plausible that attractive outside options were emerging. In this case, while a copyholder may have a low fixed rent, he cannot liquidate or realize the value of any investment in the land, which is specific. This feature leads to two outcomes; under-investment relative to the social optimum; and a socially inefficient level of separations since the presence of the fixed investment leads the copyholder to stay on the land when, from the social point of view, they should be exercising the outside option. This is so since we assume that a landlord can hire someone else to farm the land should the copyholder quit. We show that copyholding was inefficient relative to both the farming of the land by the owner and “rack renting” which seem to have been the two most important alternatives. Our model also shows that various arguments in the economic history literature about the efficiency of copyholding are implausible.

## The Model

Consider a farm with the land owned by a landowner which can be farmed by one tenant. The model is static and all agents have linear utilities. At the start of the period the tenant can make an investment  $i$  to increase productivity. After doing so he may receive an outside option  $w \in \{w^H, w^L\}$  with  $w^H > w^L$ . We assume that the option  $w^H$  arises with probability  $p$ ,  $w^L$  arises with probability  $q$  and with probability  $1 - p - q$  there is no

outside option. If the tenant does not take any of the outside options then he produces output which is a differentiable, strictly increasing and strictly concave function  $f$  of  $i$ , with derivative denoted  $f'$ .

We first consider the case of a copyholder. In this simplest of models, if the copyholder does not quit, he pays a fixed ‘customary’ rent  $r^c$  to the landowner, making him the residual claimant on his investments. We assume that if an agent quits then whoever is the owner of the land has the ability to hire another agent to farm the land and that person would be willing to accept a contract as long as  $f(i) - r^c \geq 0$ .<sup>26</sup> Though the copyholder is the residual claimant if he does not quit, since he does not own the land, this investment is specific in the sense that the copyholder cannot realize its value unless he stays on the farm. It is immediate that the copyholder will quit if

$$w^s \geq f(i) - r^c \text{ for } s \in \{H, L\} \quad (3)$$

To focus on the case of interest we now state a sufficient condition on  $r^c$  so that when the outside option is high, the copyholder will find it optimal to quit, while when it is low he will not. This is

$$f(f'^{-1}(\frac{1}{1-p})) - w^L > r^c > f(f'^{-1}(1)) - w^H. \quad (4)$$

The second inequality in (4) implies that even if the copyholder invests at the surplus maximizing level, it is still optimal to quit if the outside option is high. The first inequality assures that it is not optimal to quit in the low state.

Such a copyholder therefore solves the maximization problem (folding in the optimal quitting decisions using backward induction)

$$\max_i -i + pw^H + (1-p)(f(i) - r^c) \quad (5)$$

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<sup>26</sup>It would be straightforward to allow for frictions in this process and it would not alter the basic conclusions of the analysis, though of course the details would change in important ways.

This problem has the first-order condition at an interior solution  $1 = (1 - p)f'(i^c)$ . Since  $1 - p < 1$  and  $f$  is concave, investment is below the socially optimal level. This is for the intuitive reason that the investment is specific to the land. The copyholder has the right to farm the land and pay the fixed rent  $r^c$ , but he cannot realize the value of any investment if he leaves and this leads to under-investment. If the value of the outside option is extremely attractive, then the copyholder quits anyway.

Not only is investment inefficiently low here, but so are separations. The fact that in state  $w^L$  the copyholder does not quit is because he cannot realize the value of his specific investment. In this model, given the assumption about frictionless replacement, expected total surplus is  $f(i) - i + pw^H + qw^H$  which is obviously maximized when the copyholder quits if an outside option materializes.

It is clear in this set-up that the landlord himself would not have any incentive to invest in the land, this is because all marginal rents would accrue to the copyholder. This is consistent with the historical record. Clay (1985, p. 206) observes “Inevitably customary tenants ... received less day-to-day attention from their landlords ... than did those let for rack rents” and in many cases they were “left to their own devices” since custom did not entitle “Landlords to regulate their tenants’ husbandry practices in detail in the way that owners of non-customary lands ... were able to do”. He also notes that copyholders “stood in the way of estate reorganization” (Clay, 1986, p. 87). French and Hoyle (2007, p. 9) describe copyhold as “fatal to the landowning interest” and Tawney describes it as “a safeguard of the tenants’ interest rather than of those of the manorial authorities” (1912, p. 132).

We now consider the polar opposite case where the agent owns the land. In this case if an attractive outside option appears then the agent can exercise it and sell the land. Denote the price of the plot of land by  $\ell$ . To simplify notation, we fold in the fact that it will be optimal to sell the land in the case that the agent receives an outside option. Hence

his optimization problem is

$$\max_i -i + p(w^H + \ell) + q(w^L + \ell) + (1 - p - q)f(i)$$

The price of land will be determined by its value. If the landowner has invested an amount  $i$ , then the plot will produce  $f(i)$  and someone would be willing to pay up to that amount. Hence  $\ell \leq f(i)$ . For simplicity we assume that the landowner is on the short side of the market so that this inequality holds as an equality. In this case we can re-write the maximand

$$\max_i -i + p(w^H + f(i)) + q(w^L + f(i)) + (1 - p - q)f(i).$$

It is immediate that investment is efficient and  $1 = f'(i^\ell)$  with  $i^\ell > i^c$  and that with probability  $p+q$  the landowner takes the outside option and sells his land. With probability  $1 - p - q$  no outside option appears and the landowner works his own land.

In this model it is clear that separations are also socially efficient. Now that the tenant owns the land he can realize his specific investment by selling the land and thus take advantage of the outside option.

A third situation which arises frequently in the literature on British economic history is so-called “rack rent”. The loose idea is that in such a contract the landlord is able to manipulate the rental rate on the land in order to extract all of the surplus from the tenant. A simple way of formulating this idea in the context of the present model would be to assume that the landlord can set the rental rate and that he also himself decides on the amount of investment in the farm. Let  $r^R$  denote the rental rate. Let  $r^Q$  be the rental rate charged to a new tenant who is brought in if the initial tenant quits. Under the assumptions so far,  $f(i) - r^Q \geq 0$ .

Now the landlord chooses these rates and the amount of investment to maximize expected profits net of investment costs and taking into account the endogenous decision of

the tenant to take the outside option. This maximization problem has to satisfy a participation constraint so that a tenant initially accepts the contract. Define  $\mathbf{1}_{w^H \geq w^R}$  to be an indicator function such that  $\mathbf{1}_{w^H \geq w^R} = 1$  if  $w^H \geq w^R$  where  $w^R$  is the income a tenant receives if they stay on the farm and pay the rent  $r^R$ . If the tenant quits the landlord hires a new tenant and pays then  $r^Q$ . The participation constraint follows from the fact that if a tenant does not accept the contract we assume they get in expectation  $pw^H + qw^L$ . Hence it is

$$\begin{aligned} & p \mathbf{1}_{w^H \geq w^R} w^H + (1 - \mathbf{1}_{w^H \geq w^R}) (f(i) - r^R) \\ & + q \mathbf{1}_{w^L \geq w^R} w^L + (1 - \mathbf{1}_{w^L \geq w^R}) (f(i) - r^R) \\ & \quad + (1 - p - q) (f(i) - r^R) \geq pw^H + qw^L \end{aligned}$$

In considering the optimal level of  $r^R$  note that for the landlord to always stop the tenant quitting then it would have to be that  $\tilde{r}^R = f(i) - w^H$ . However, since, if we assume that a replacement tenants breaks indifference by accepting a contract, we have  $r^Q = f(i) > \tilde{r}^R$ . Thus it cannot be optimal to stop quitting. This implies that the participation constraint collapses to

$$\begin{aligned} pw^H + qw^L + (1 - p - q) (f(i) - r^R) & \geq pw^H + qw^L \\ \text{or } (1 - p - q) (f(i) - r^R) & \geq 0. \end{aligned}$$

Thus the rack-renting landlord maximizes

$$\max_i pf(i) + qf(i) + (1 - p - q)f(i) - i$$

imposing  $r^Q = f(i)$  and from the participation constraint  $f(i) = r^R$ . Investment is again

efficient with  $1 = f'(i^R)$ . Moreover, separations are also socially efficient.

We can sum up the results of this model in the following way

**Proposition:** Compare two parishes, one dominated by copyholding of inheritance and the other not. The parish with copyholding would be characterized by lower average investment and productivity and lower rates of exit from agriculture.

This is the main result which we use to interpret our data. It is worth emphasizing again that it does hinge on imperfect capital markets. If these were not present then the landowner would be able to buy out the copyholder of inheritance and move to either of the other options. However, as we have discussed, the assumption that capital markets were imperfect seems reasonable in early modern England and as a matter of fact, extensive copyholds of inheritance persisted into the 19th century. Critically, as we discussed in the introduction, monastic lands seem not to have developed copyholds of inheritance which predominated in non-monastic lands. Hence the Dissolution made available land which was not encumbered by such contractual forms.

That it did so has a further implication for the efficiency of resource allocation. Imagine that there are idiosyncratic factors that influence the productivity of land, so that some people are more productive on a farm than others. Normally, one would imagine that markets would efficiently match those who could use land most efficiently to it. It is clear that copyholding would impede this efficient matching since if a more productive person purchased a piece of land any rents they generated would completely accrue to the copyholder. Thus not only would investment and separations be inefficient with copyholding, productivity would also suffer because matching would not be efficient.

It is worth discussing a common argument in the literature about the efficiency of copyholding. French and Hoyle (2007, p. 11) state, for example, that “it is not clear why the survival of copyhold should have inhibited capitalist development, because copyholds could be bought, sold and let just like any form of freehold property”. Our model shows that this

argument is not correct unless the transaction sold the land to the sitting copyholder. The fact that a landlord could sell a copyhold to someone else, who was not the copyholder, does not imply that copyhold was economically efficient. Anybody who bought such a copyhold would have a sitting copyholder with exactly the incentives that we have outlined. The new owner would anticipate that the copyholder might receive an attractive outside option in the way we have modelled it above and would tend to under-invest. Therefore, even if one bought a copyhold from an existing landlord, this does not stop the logic driving the inefficient under-investment derived above, or the socially inefficient quitting decision. Therefore, although an individual would be prepared to pay up to the maximized value of (5) to obtain a copyholding, the fact that they did so does not imply that the allocation of resources is efficient. Finally, the last argument we made shows that even if land subject to copyholds was transacted, there were no incentives for the person who could have used that land best to purchase it.

One final important conceptual issue to discuss is how, when the results of this section depend on imperfect capital markets, it was possible for a land market to emerge after the Dissolution. If people could afford to buy land why could they not buy out copyholders of inheritance? The reason seems to be related to the distribution of wealth. Landowners who had sitting copyholders of inheritance were outside the monastic sector. They got a very poor return on their lands and would not have been in a position to buy out their tenants, nor purchase monastic lands. Instead these were likely bought and sold by others, both by favorites of the Crown who had received the lands on the cheap and by new Gentry who had made their money elsewhere, for example in commerce.

## **2: Further historical background**

This section reviews the historical background to the Dissolution of the monasteries and the Valor Ecclesiasticus, the relationship between the expropriation of the monastic lands,

institutional change in the land market and the rise of then Gentry.

## **Acts of parliament leading up to the compilation of the Valor**

In 1532 Parliament passed ‘An Acte concernynge restraynt of payment of Annates to the See of Rome’.<sup>27</sup> This act diverted the Annates payed by anybody with the rank of bishop or higher from the Pope to the Crown. Hunter (1834) argues that this act was meant to strengthen the kings bargaining position with the Pope. A second act was passed in the parliament that sat from January 15th 1534. This act made it ‘unlawful to make any payment on any pretence to the See of Rome, and severing the connection which had existed between the two states’ (Hunter, 1834, p.13).

Parliament next decided that all payments to the Pope were now to be paid to the king instead. This passed in the parliament that sat from November 3rd 1534 in the act titled ‘An Acte Concerninge the payment of Firste Fruites of all dignities benefices and promocyons spirituall, and also concerning one annuell pencyon of the tenthe parte of all the possessions of the Church, spirituall and temporall, graunted to the Kinges Highnes and his heires’. This act also named the king as the head of the Church of England for the first time. In order to assess how much revenue Henry VIII could expect he sent out surveyors, called commissioners, to record the value of incomes generated by ecclesiastical property in England. The Valor Ecclesiasticus is the summary report of these commissioners.

## **How the survey underlying the Valor Ecclesiasticus was carried out**

Every diocese received commissioners, at least three, tasked with assessing the value of all ecclesiastical possessions in that diocese. The survey started on January 30th 1535 and was

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<sup>27</sup>This section builds mostly on Hunter (1834). See also Youings (1971) and Knowles (1979). Annates are synonymous with first fruits or first year’s profits of every benefice, to be collected when the benefice changed occupier. A benefice is an ecclesiastical position, such as a parish priest.

to be finished by the Octaves of Holy Trinity (usually the 8th Sunday after Easter; Knowles (1979) cites the 1st of May). All commissioners were to be local notables, below the rank of Baron (Hunter, 1834, p. 19). These notables were usually the justices of the peace, mayors, sheriffs and the local Gentry (Savine, 1909, p. 17). The oath of the commissioners can be found in the second volume of the Valor. The commissioners then split up into parties of at least three, divided the diocese among them and administered the survey. The subsequent collection of the incomes was left to the bishops who were expected to collect the amount due by Christmas and deliver it to the Exchequer by April of the following year (Savine, 1909, p. 3).

After the survey, Henry decided to expropriate the English monasteries. He started with the monasteries that were valued under 200 pounds. In 1536, parliament passed an act popularly known as the Dissolution of the Lesser Monasteries Act, which expropriated 453 monasteries (Jack, 1970, p.1). In 1539, The Second Act of Dissolution followed, expropriating all remaining monasteries.<sup>28</sup>

## **The process of dissolution**

There were three broad ways in which the Crown obtained ownership of a monastery. The first was outright expropriation. This method was most commonly used when dealing with smaller monasteries. The abbot would sign a 'deed of gift' transferring ownership to the Crown. A second way was surrender. After the initial wave of dissolution, larger monasteries were charged with some crime and were given the choice to surrender and receive pensions or to be tried in court. The third way was dissolution by negotiation. Some of the larger abbeys managed to secure favorable arrangements for themselves before signing the deed of gift. The full procedure of dissolution is outlined in Youngs (1971, p. 73).

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<sup>28</sup>For an exact chronology of the Dissolution of the lesser monasteries see Jack (1970) and Hoyle (1995). Gasquet (1899) includes in appendix I a list of monasteries that paid the Crown to not be dissolved.

After the Dissolution, some of the expropriated lands were given away as gifts by the King. Even before the first commission for the sale of lands was established in 1539 a total of 234 grants had been made (Youings, 1971, p. 117). Not coincidentally, one of the first grantees was the Chancellor of the Court of Augmentations (the government body in charge of the dissolution), Richard Rich.<sup>29</sup> Other grantees included Henry's Chief Minister Thomas Cromwell and several members of the aristocracy. The total amount of land granted appears to have been relatively small. For Devon, it was about 25% of the expropriated monastic land and for Leicestershire around 15% (Youings, 1967, p. 343).

Although the Crown initially intended to lease out the remaining land, it quickly decided to sell the land because the task of managing vast tracts of land was beyond the bureaucratic capacity of the government. Additionally, in 1543 a war with France broke out which left the Crown in need of quick cash. It is therefore no surprise that although selling of the lands started as early as 1539, between 1543 and 1547 the Court of Augmentations oversaw the sale of two thirds of all expropriated land. By 1558 virtually land had been sold (Habakkuk, 1958).<sup>30</sup> Most sales of monastic land were concluded at the fixed price of 20 years income.

Who were the people that bought the monastic land? Although no comprehensive data source exists, the case study evidence suggests that monastic lands were often sold to people who were associated with the monasteries, either as employees or as tenants (Youings, 1971). This meant that monastic land was sold locally. From the perspective of the Court of Augmentations, under pressure to sell land fast, selling to local people was the expedient manner to dispose of the land. For instance, almost all religious houses had a steward, who would officially represent the monastery, acting as an ambassador, and one

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<sup>29</sup>Richard Rich was originally a lawyer with no noteworthy background. He would be knighted and be styled Baron Rich during his lifetime. For three centuries his descendants would be part of the English peerage (Carter, 2004).

<sup>30</sup>The process of obtaining land was as follows: Prospective buyers would need to obtain an updated assessment of the income of the lands they desired from the local augmentations officer. The request and the updated *valor* would then be submitted to the Court in London. If approved, the sale would be concluded. The prices were initially set at twenty years' rent. Around 1560 the price had gone up to the equivalent of 30 years' rent and by 1600 it was 40 (Habakkuk, 1958).

or more receivers, who would collect rents and other dues. Most houses also employed bailiffs, associated with the manor courts.<sup>31</sup> Once the Dissolution started, these officials often secured new leases on monastic land seeking to entrench their positions. After the Dissolution, they renewed these leases with the Court of Augmentations (Woodward, 1966, p. 328; Jack, 1965). Local people were also involved in the Dissolution as short-term employees of the court of augmentations. After the Dissolution, they were often the first to acquire former monastic lands (Youings, 1971, pp. 67, 70).

After the Dissolution of the Monasteries there were three remaining categories of church landholders: bishops, cathedrals, and colleges (both ecclesiastical and Oxford/Cambridge). Yet as Heal (2008) documents, by 1650 the lands of the bishops and cathedrals were sold off as a consequence of them siding with Charles I in the Civil War. Though after the Restoration the bishops got their land back it was generally leased out to the new occupant in very long leases (typically 99 years). At the end of this process, the only remaining lands in the hands of the Church were held by Oxford and Cambridge colleges and some cathedrals, and parish churches which owned the plot of land they were on.

We now discuss the Valor Ecclesiasticus in more detail.

## **The Valor Ecclesiasticus**

This section describes the state of the Valor Ecclesiasticus archival records, our method for coding the data and an example from the manor of Helton, Lolbroke and Bell.

### **The state of the Valor Ecclesiasticus records**

The original returns of the Valor are held in the National Archives at Kew Gardens in London and consist of 22 volumes and 3 portfolios.<sup>32</sup> The Record Commission published

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<sup>31</sup>For a description of the various offices associated with a early modern manor, see Levett (1927).

<sup>32</sup>The dedicated website is at <http://www.nationalarchives.gov.uk/records/research-guides/dissolution-of-the-monasteries.htm>.

a transcription of the records titled *Valor ecclesiasticus temp. Henr. VIII. : Auctoritate regia institutus*, consisting of six volumes that were published, respectively, in 1810, 1814, 1817, 1821, 1825 and somewhere between 1831 and 1834 (Caley and Hunter, 1810, 1814, 1817, 1821, 1825, 1831). One of the editors, Joseph Hunter, wrote a historical introduction to the survey (Hunter, 1834). He reports that some parts of the survey are lost. The most important ones are:

- The diocese of Ely.
- A substantial part the diocese of London.
- The counties Berkshire, Rutland, Northumberland.
- A substantial part of the diocese of York, including the whole of the deaneries of Rydal and Craven.<sup>33</sup>

Smaller parts that were lost (such as an individual rectory, or some manors) were taken from third sources and printed in the Record Commission edition. The most important third source is the *Liber Valorum* (Ecton, 1711) which is a compilation of abstracts of the original records that were made for Henry VIII. These abstracts are usually referred to as the King's Book (or *Liber Regis*). These compilations, however, record the total (net) taxable income for an ecclesiastical unit and don't specify the geographical source where the components of the income was generated which precludes us from getting a clean measure of the income of a unit, see below. When recording the data, we have tagged the observations that are taken from third sources. Excluding them from the analysis does not change the results (not reported).

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<sup>33</sup>A deanery is an ecclesiastical administrative division, comparable to the hundred.

## The organization of the Valor

The Valor is recorded in a very systematic way. The main geographical unit by which the survey can be broken down is the diocese. Within every diocese there is a clear order in which the lower level units are coded, with the monasteries featuring most prominently. The exact order is given below. Next to this ordering of units, there is an ordering of the income data within each unit. All income is first of all divided into temporalities and spiritualities. Temporalities are all incomes that the monks/benefice holders receive from activities, like farming, that are not theirs by virtue of holding the specific benefice.<sup>34</sup> The most important parts of the temporal income are the incomes from demesnes in manu (farmed by the benefice holder) and from payments of tenants on Church lands (Savine, 1909, p. 85). Spiritualities are those incomes to which benefice holders are entitled by virtue of holding the benefice. It also includes income from glebe lands (lands designated to support the benefice holders) and from oblations (another church tax). The second distinction in the returns for individual ecclesiastical units is between gross and net income. Gross income represent total income, and net income represents income (*valet clare* or *Et remanclare* (clear value remaining) in the returns) over which sums payable to the king would be determined. The following deductions from gross income were allowed (Hunter, 1834):

1. Rents resolute to the Chief Lords, and all other annual and perpetual rents and charges.
2. The alms which were due to the poor, according to any foundation or ordinance.
3. Fees to stewards, receivers, bailiffs and auditors.
4. Synodals and procurations,<sup>35</sup> with which most abbeys and benefices were charged.

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<sup>34</sup>A benefice is a position within the Church.

<sup>35</sup>Synodals and procurations are ecclesiastical fees.

Monetary values in the Valor are recorded in *l.s.d.* or *£.s.d.* notation. This refers to pounds (*librae*), shillings (*solidi*) and pennies (*denarii*). There are 12 pennies in a shilling and 20 shillings in a pound. Particular details regarding the notation of income are in Lindley (1957).

Within the Valor, there is a fixed order in which ecclesiastical units appear (taken directly from Hunter, 1834): per diocese we have

1. The See of the bishop or archbishop.
2. The endowments on the various offices in the cathedral church.
3. Archdeaconries/Deaneries with their claims, and per entry the following:
  - (a) Monasteries and colleges.
  - (b) Parsonage, vicarages, chantries and free chapels.

If a deanery is home to a monastery, this monastery is listed before the other benefices in the deanery and has a specific ordering, namely:

1. Income of the precincts (i.e. any land immediately surrounding the monastery).
2. Income from lands in the county in which the house stood.
3. Income from lands in other counties
4. Income from impropriate rectories (rectories for which the proceeds went to a layman).

### **An example: the manor of Helton, Lolbroke and Bell**

The manor of Helton, Lolbroke and Bell was a possession of Abbotsbury abbey and was located in Bridport deanery (in the Valor it is called *Byrport*) in Dorset. Figure A-11 is a photograph of the entry as it appears in the Record Commission edition of the Valor.

Note that we omitted any deductions from this picture, it just lists temporal and spiritual income.<sup>36</sup>

Figure A-11: The manor of Helton, Lolbroke and Bell in the Valor Ecclesiasticus

MAN'IU' DE HELTON LOLBROKE & BELL.					
Valz in reddit' assis' in Helton p annū	xl	xvij	vij	} £ S <sup>m</sup> s. d. lxj v v	
Reddit' p <sup>r</sup> dnicaliū i <sup>b</sup> m ad firmā dimifs' p a <sup>m</sup>	ix	xiiij	vj		
Reddit' assis' in Lolbroke & Bell p a <sup>m</sup>	vj	xiiij	iiij		
In p <sup>f</sup> icuis cur' i <sup>b</sup> m videlt in finibz hiet' & at p <sup>q</sup> ui-fit' cōibz annis	iiij	—	xij		
Et in reddit' resolut' abbtī & conventui de Milton ad mañiū suū de Milton excun' de p <sup>e</sup> dict' mañio de Helton	—	xiiij	iiij	} £ S <sup>m</sup> s. d. — xlviij viij	
Et in quod <sup>a</sup> m reddit' solut' an <sup>ti</sup> & imp <sup>p</sup> m vic' Dors' p tempe existent' p quod <sup>a</sup> m reddit' voc' Whithertrent	—	xx	—		
Et an <sup>ti</sup> solut' hundr' dñi R' de Whitway p a <sup>m</sup>	—	ij	—		
Et in feodo Gilōti Kaynell bafsi & recept' reddit' mañij de Helton p <sup>e</sup> d' p annū	—	xiiij	iiij		

<sup>36</sup>In order to distinguish these sources of income in the text knowledge of the scribal Latin in which the Valor is recorded is required. A valuable introduction to this as well as a glossary of terms and scribal abbreviations can be found in Martin (1949).

The first entry is an assize rent (*reddit assis'*, a fixed rent) in Helton, which gives an annual income of £: xl s: xvii d: vii. The next entry is a part of the demesne (*tr'daicaliu*) that is not farmed by the rector (*firma dimiss'*) for which he receives a rent. The next entry is another assize rent in Lolbroke & Bell. Then we have an entry that records proceeds from the manor court (*pficuis cur'*) and several other incomes (*al' pquisit'*) taken for an average year (*coibs annis*).

The next two entries are two rents (*reddit' resolut*) that are owed to an abbot and payable to his manor (*abbi & conventui de Miltonad maniu suu*). The second figure is payable to the vicar of archdeaconry of Dorset (*vic'Dors'*). The third entry is payable to the master of the hundred Richard de Whitway (*hundr dni R de Whitway*). The last entry is payable due to the local bailiff of the manor Gilbert Kaynell (*Gilbti Kaynell balli*).

We are interested in the income from assets, or temporal income. For this manor, these are the assize rents from lands held by the manor, or the first three entries in figure A-11. We therefore coded three entries into our database for this manor, two in Helton and one in Lolbroke and Bell. The next step is to assign Ordnance Survey grid references to each of the three places. To find these we followed the method outlined below. Going through every entry in the six volumes of the Valor this way created the database we used for the analysis in this paper.

## **The Rise of the Gentry**

In this section, we provide case study evidence on the connection between the Dissolution and the rise of the Gentry. We also provide evidence for the involvement of the Gentry in early industrialization.

There is a large body of case study evidence that suggest that the people who bought

the monastic land became members of the Gentry later on. For instance, of the leading Gentry families in Hertfordshire in 1642 less than 10% had been settled there before 1485. In Essex this figure stood at 18%, in Norfolk 42% and in Suffolk 13% (Mingay, 1976, p. 9).<sup>37</sup> Families such as the Knatchbulls from Kent and the Cholwicks from Devon were yeomen at the beginning of the sixteenth century but rose to be among the Gentry over the course of the century, rising to the peerage later. Overall, as noted in Table 1 in the paper, the proportion of land owned by the Gentry increased from 25% in 1436 to 45-50% by 1688. The Church and Crown's share went from 25-35% in 1436 to 5-10% in 1688.<sup>38</sup> The shares of land owned by great landowners and the yeomanry were relatively stable. The numbers in this table square with a great deal of other evidence. For example, the 1524 Lay Subsidy suggests that there were 200 knightly families and 4,000 to 5,000 esquires and gentlemen in England at that time. Thomas Wilson, in his book *The State of England Anno. Dom, 1600*, estimated that these numbers had increased to 500 and 16,000 respectively (Wilson, 1936). Gregory King's calculations of the social structure of England in 1688 (King, 1810) suggest there were 620 knights, 3,000-3,500 esquires and between 12,000 and 20,000 gentlemen (see Thirsk and Cooper, 1972, pp. 755, 766-8, Cooper, 1983, pp. 20-42). Even though the population of England approximately doubled over this period this suggests that the Gentry were indeed relatively rising. Micro estimates for different counties tell a similar story, for instance in Yorkshire heraldic evidence suggests that there were 557 Gentry families in 1558, 641 in 1603 and 679 in 1642 (Cliffe, 1969, pp. 5f). For Warwickshire a similar measure increases from 155 families in 1500 to 288 in 1642 (Carpenter, 1992, p. 90, and see Heal and Holmes, 1994, pp. 11-12, for more discussion).

In the introduction to the paper we suggested that even though this connection has not been explored much before, there is a great deal of case study evidence that suggests

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<sup>37</sup>For additional evidence for Monmouthshire, see Gray (1987). For evidence on sales of monastic land around 1600, see Outhwaite (1971).

<sup>38</sup>For a detailed study of these patterns in Huntingdonshire, see Bedells (1990).

that the Gentry played important roles in the Industrial Revolution. For example, in his seminal study of the history of the British coal industry Nef pointed out the intensity with which Gentry were involved not just in mining the coal under their own lands but also renting other lands with coalfields. In Lancashire and the West Riding of Yorkshire there were

“the Andersons of Lostock, who had pits in Leeds and the surrounding manors, the Ashtons, a well-known Lancashire family with many branches who had pits in the lands around Oldham, the Hultons of Preston, who had pits near Bolton, the Listers, a West Riding family with colliery interest about Halifax and also at Colne, the Gascoignes of Gawthorpe, with colliery interests at Kippax and Barwick-in-Elmet, the Mallets of Normanton, who worked coal in the adjoining manor of Rothwell, and many others. Among the Lancashire families, the Listers alone appear to have been of yeoman extraction. In Durham and Northumberland many of the prominent local Gentry became interested during the sixteenth and seventeenth century in the coal industry” (Nef, 1966, p. 9).

The central role of the Gentry in the Lancashire coal mining industry is amply documented by Langton (1979a,b). He notes for the period 1590 to 1689 that in the coal industry “the landed Gentry provided most of the investment and ability” (1979a, p. 74). Though the Gentry suffered financial problems after this, his data indicates that for the period between 1690 and 1739 almost 50% of the collieries in central Lancashire were both owned and operated by landed Gentry while more were leased and operated by Gentry (1979a, Figure 28, p. 124).<sup>39</sup>

A fascinating case which brings together many of our arguments is that of the Hesketh family. The Hesketh family had lived in Rufford in Lancashire from around 1250. On the

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<sup>39</sup>Swain (1986, p. 197) concludes his study of Lancashire by noting “Thus we find that the Gentry predominated amongst colliery entrepreneurs.” See Jenkin (1983) for a similar conclusion in the case of South Wales.

eve of the Dissolution, the family owned several manors around Rufford and leased lands from Chester Abbey. After the Dissolution, these lands were leased from the king. One member of the Hesketh family, Thomas, was knighted in 1553 and in 1561 he purchased the manor of Hesketh-with-Becconsall (around five miles from Rufford) that had until recently been part of the Priory of St. John of Jerusalem in England. His son, called Sir Robert Hesketh, was elected a member of parliament for Lancashire. His will indicates that he had the right to ‘dig and delve for coal and other materials’. Indeed, by the middle of the seventeenth century we find the Heskeths partnering with four local gentlemen and a yeoman to open a mine in Wrightington, some six miles from Rufford. Many years later, in 1761, a Thomas Hesketh acquired the title of baronet. The baronetcy is called ‘the Hesketh baronetcy, of Rufford in the county palatine of Lancaster’. By this time, the Heskeths were not only regular members of parliament but they were financing the Industrial Revolution, being involved in several mines in Shevington, a mere eight miles from Rufford (Farrer, 1908; Langton, 1979a, pp. 76, 126; Hasler, 2006).

Note that the importance of the Gentry was not simply that they themselves were involved in industry, but that they also played an important role in forming partnerships and financing the main entrepreneurs - for example the relationship between the gentleman Thomas Bentley and Josiah Wedgewood (McKendrick, 1964) (see Hudson, 2002, for more examples).

### **3: Construction of our dataset**

This section discusses the unit of observation in our study, a historical parish, as well as our methods for matching data from different sources to individual parishes.

## Unit of observation

Our unit of observation is an area from the *GIS of the Ancient Parishes of England and Wales*, which is based on the work of Roger Kain and Richard Oliver (Southall and Burton, 2004; Kain and Oliver, 2001). The GIS consists of an ArcGIS shapefile with an underlying database.<sup>40</sup> Since areas may consist of several disjoint shapes<sup>41</sup>, we collapse the shapefile to collect these into one shape. The resulting database has 17898 unique shapes. Having created our unit of observation this way, we then merge each data source to this database using either one of two methods:

1. We directly match an observation in a data source based on its name to a corresponding area in the database underlying the shapefile of the GIS of Ancient Parishes.
2. We record Ordnance Survey grid references<sup>42</sup> for each unit we want to match, map these units in ArcGIS and spatially join them to the shapefile in the GIS of Ancient Parishes database. Grid references are found using third sources such as Vision of Britain through time project at <http://www.visionofbritain.org.uk/>, the gazetteer of British places names maintained by the association of British Counties at <http://www.gazetteer.org.uk/map.php> and the gazetteer of British placenames maintained by the Genuki project at <http://www.genuki.org.uk/big/Gazetteer/>. We only use this method if method 1 is unavailable.

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<sup>40</sup>Each area in the underlying database has a type, which corresponds to an administrative unit that was used in the nineteenth century. The most common type is the ecclesiastical parish. Other types of units are townships, hamlets, boroughs, chapelries or divisions. Around fifty percent of areas are parishes, out of a total of 22729 areas. Townships and parishes together make up eighty percent of the areas. For sub parish units, there is a parish identifier as well.

<sup>41</sup>For instance, a parish can consist of a main portion where the parish church is and a smaller detached portion.

<sup>42</sup>The Ordnance Survey, a government mapping agency, has divided England, Wales and Scotland up into hundred by hundred kilometer squares (the 'grid') and assigned a two letter identifier to each grid square. A grid reference then records a place within each square by adding an even number of digits, measuring east and north distance within the grid square, measured from the bottom left corner. For instance, the Tower of London is located at TQ3350080599 which means that it is in square TQ and then 33 kilometers and 500 meters to the North and 80 kilometers and 599 meters to the East, measured from the bottom left corner of the square.

Using either method, we assign a parish to the observations in each data source. For our main variables the exact assignment method is described below. If it was impossible to assign an area number to an observations using either of the above methods, we have not used it in our analysis.

The GIS of Ancient Parishes database uses the administrative structure of England around 1850 whereas we use data that is from before 1850. This creates a problem since in 1844 parliament passed the *Counties (Detached Parts) Act* that reassigned several detached parts of counties (exclaves) to formally be under their ‘mother’ county instead of the county they were physically in. Since we matched names within counties to minimize confusion resulting from repetition of names, this could create a problem. However, the GIS of ancient parishes database records in the commentary category whether a part was transferred. Using this information we matched within county/parish composition as it was before 1844.

We match each variable to our GIS of parishes to arrive at the dataset used in this paper.

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