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The Economics of Company Housing: Historical Perspectives from the Coal Fields

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Students of economic organizations often have debated whether the organizations were a means of obtaining monopoly power or of reducing transactions costs. One organization commonly cited as a classic example of monopoly is the employer-owned company town. In a typical company town, the employer owned the store, the housing, and often provided governmental services, like sanitation and law enforcement. While Fishback (1986) dealt in depth with company stores, in this article, I focus on the essence of the company town: the company's provision of housing. The market-power views of company housing focus on the housing and labor markets. Traditionally, since the company owned the only housing in town, many economists saw company housing as the classic local monopoly. The labor history literature insists that the companies not only exploited the local housing monopoly but used control of housing to limit collective action by workers and obtain monopsony power in the labor market (Corbin, Seltzer). On the other hand, Williamson (1985)

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offers a brief theoretical discussion of company towns as responses to transactions costs associated with the asset specificity of housing to the mine. Yet another view sees company housing as a means of enhancing worker productivity and reducing turnover by better workers. While economists have theorized using little evidence, labor historians collected a great deal of evidence without ever considering what the most efficient form of institution would be in the presence of transactions costs. In this article, I use evidence from independent and company-controlled coal communities in the early 1900s to assess the monopoly and transactions-cost explanations of company housing.

1. Housing in Coal Company Towns

Although some firms in other industries offered company housing to a small percentage of their workers, company housing in the coal industry was centered in company towns where the majority of employees lived in company housing. Magnusson (1920:27) found that 66 of 77 coal employers in his sample of company housing had built new towns rather than building in subdivisions, suburbs, or lots that were already laid out. The typical coal company town in Pennsylvania, West Virginia, Alabama, Kentucky, and Tennessee housed more than 70 percent of its workers. Smaller communities typically housed a larger percentage of their workers. In Illinois and Ohio the companies providing housing rented to a much smaller percentage of their work force.¹ The difference may stem in part from differences in the life cycles of the mines, as well as differences in alternative opportunities. A much larger percentage of the mines in Illinois and Ohio were developed in the 1870s and 1880s than in the other states. Thus as the communities matured, independent housing predominated or the company sold much of its stock of housing. Further, the mines in Illinois and Ohio were located in previously settled areas with more opportunities in other types of employment.

While the quality of company housing ranged from comfortable to shoddy, the housing leases drew the most contemporary comment. Several clauses were identified by the U.S. Coal Commission (1925a:1438–9) as unusual features. First, the leases, which provided for termination by either party ordinarily with five days notice, were more restrictive than normal landlord–tenant leases under West Virginia state law, which required notice based on the timing of rent payments. Since most mines collected rent twice a month, a half-month’s notice would have been required (Lane, 1921:49). The companies could have easily adjusted to such requirements, however, by requiring that rent be paid more often.

1. Magnusson (1920:71) found that in company towns in Kentucky, Tennessee, and Alabama 80.4 percent of the men employed were housed in company houses. In Pennsylvania and West Virginia 70.8 percent of the towns in Magnusson’s list of 24 housed 70 percent or more of their workers. The correlation between number employed and percent housed was -0.56 . In the three communities he studies in the Midwest, the percentages of employees housed were 16, 15.5, and 90.5.

Second, at many mines the lease was contingent on employment.² In representative leases from West Virginia, when the mine worker quit or was dismissed by the company, his company house lease also ended (Hinrichs, 1923:63–9; U.S. Coal Commission, 1925a:1437–9, 1579–87). The West Virginia courts validated the leases on the basis that the miner and his employer had primarily an employment relationship with housing as part of the relationship. The precedents cited were based on the “master–servant” doctrine, referring to situations where servants were housed in the homes where they worked (Hinrichs:63–9).

Third, representative West Virginia and Pennsylvania leases tried to ensure that all tenants and visitors were either family, employed by the company, or approved by it. The clauses ranged from preventing nonemployees from living in or trespassing upon company housing to stipulating that lodgers or boarders had to be employees of the company to keeping the mine worker from entertaining or harboring persons objectionable to the company (U.S. Coal Commission, 1925a:1438–9, 1579–87). The lease at Island Creek Coal Company of Logan, West Virginia, let the company enter the premises and eject any and all improper or suspicious persons (Hinrichs:63).

Fourth, the companies took advantage of the employment relationship to insert clauses allowing them to pay themselves out of the workers’ wages for rent due and damage to property. Leases from some companies in West Virginia allowed them to withhold all unpaid wages at the termination of the lease, until the premises were surrendered (U.S. Coal Commission, 1925a:1438–9, 1579–87).

Other clauses that the Coal Commission found objectionable were clauses that regular landlords at times also inserted into rental agreements. Some companies reserved the right to entry into the property and the right to make and enforce regulations affecting the streets or roads upon which the premises abutted. A number of leases disallowed gambling or illegal activity. A few established limits on the landlord’s liabilities for damage to furniture in eviction proceedings and fines for staying in the house beyond the official eviction date. What troubled the Coal Commission was that some companies fenced the entire town and controlled entry by union organizers and others, who the company found objectionable even though they were not acting illegally.

In the Coal Commission reports (1925a:1438) the coal companies claimed that the provisions were mere forms and were rarely enforced. In West Virginia and Pennsylvania all 32 companies in Magnusson’s (1920:65–66) sample deferred rental payments during times of sickness or shutdown of the mine. Five of 32 companies reported rebates on rent during sickness or unemployment. Several others had no specific policy in that respect but judged each case on its merits. There were also several instances where

2. The U.S. Coal Commission (1925a:1579–87) collected leases from companies in West Virginia, Pennsylvania, and Ohio and published seven representative leases. The employment-contingency clause appeared in all of the representative leases from West Virginia but not in the Ohio lease nor in two of the three leases in Pennsylvania.

pensioners or widows of former employees lived rent-free. However, such treatment was generally dependent on the continued goodwill of both the company and the miner. When relations with miners broke down, the company always had the legal option to remove discharged, striking, or quitting miners quickly from the premises. The key issue in eviction incidents during strikes was not nonpayment of rent, but instead whether the striking worker was still employed at the mine. The strikers claimed to still be employees, while the employer claimed that they had quit and thus were not entitled to the house whether they paid rent or not.

More evidence is needed to investigate the extent of evictions without notice. In the U.S. Coal Commission reports, the coal operators claimed to have been considerably more tolerant and slower to evict than the dictates of justice and humanity required. Corbin (1981:9–10) displays an eviction notice giving more than a month's notice and another that said "I want my house." He then claims that in southern West Virginia "notification was *exceptional*; the coal companies *usually* sent mine guards to the miner's house and *without warning* dumped him, his family, and the furniture onto the company road" (1981:9–10, my italics), citing the Paint Creek–Cabin Creek strike of 1912–1913. Yet this is a misleading picture of the evictions in the Paint Creek strike. The Paint Creek strike began on April 19, 1912. The first eviction notices were not issued until May 8, 1912, and the notices gave 10 days (longer than the contractual 3 days) to move out. The Paint Creek Colliery offered to deliver the household goods on railroad cars and prepay transport charges to any point in the union field of West Virginia or to store the household goods and then ship them prepaid to the place selected by the owner. Although many miners distrusted the companies' intentions, some took advantage of the offer. The company did not evict anybody until June 25, 1912, after a series of shoot-outs (Lynch:631–5; Sprague:190–2; Crawford:22–3). The Paint Creek–Cabin Creek strike itself was not the norm because it was an extraordinarily violent confrontation with egregious actions by all parties. It is not clear that Corbin's description of evictions was commonplace during normal operations or necessarily commonplace during all strikes. Evictions were more common during long strikes, but most strikes were settled peacefully within a week or two. However, the incidents in major strikes do show that the contingent clauses of the housing leases were used by the companies.

2. Monopoly Views of Company Housing

The company town is almost universally considered the classic example of a local monopoly on housing. Companies often owned much of the land around the mines, and some required employees to live in company housing. But the companies' success at charging monopoly rents was determined by the mobility of miners between towns and the extent of competition in the labor market. If the workers' wages adjusted fully to offset higher rents, the company could not exploit their local monopoly.

During the 1910s and 1920s employers in coal mining and other industries generally did not charge monopoly-level rents for housing. In his survey of

more than 200 employers providing housing (64 were coal employers) during the 1910s, Magnusson (1920:49) described the rents on company houses as reasonable and reflecting no attempt to overcharge tenants.³ In the early 1920s the U.S. Coal Commission (1925a:1437) found that rents for company-owned houses were lower than for all others, as were charges for fuel, light, and water. The rents in West Virginia company towns were substantially lower than the rents in Charleston, West Virginia, in the 1920s, but Charleston homes and apartments had more modern conveniences (U.S. Coal Commission, 1925a:1437).⁴

Evidence from Table 1 on internal rates of return also suggests that the rents that most companies charged for housing were not delivering more than a normal rate of return. The top part of the table shows evidence collected by Magnusson directly from company records on annual rent receipts, the original costs of constructing the houses, and for some their annual maintenance costs. The gross rental receipts range from 7.8 percent of the costs of construction in two companies from Ohio and Indiana to 14.8 percent for one company in Alabama. The lower half of the table shows average annual rent per room as a percentage of the average construction cost per room by region for all of the companies that reported information in Magnusson's sample. The percentage ranges from 13.35 percent in West Virginia and Pennsylvania to 17.7 percent in the sample from Alabama, Tennessee, and Kentucky. These percentages are based on gross receipts without taking into account the costs of maintenance and repair of the houses.

The companies faced significant maintenance costs, including annual costs of general repairs, maintenance of town roads, street lighting and improvements, insurance, taxes, and depreciation of the housing. Magnusson reported maintenance costs as percentages of total rental receipts for a number of companies. The types of maintenance costs on the companies' books varied widely from company to company. For example, in Table 1 the single com-

3. Magnusson's sample of employers may not be fully representative. The object of his investigation was to study "the best and most representative" work done by employers. The sample was skewed toward larger housing enterprises, but "in many instances, smaller enterprises were included in the survey because of their representative character, or because they illustrated points of special interest" (49).

4. The Coal Commission (1925a:1519, 1533) found that West Virginia miners paid significantly lower rents but had fewer conveniences than workers in nearby manufacturing districts. In Charleston a three- or four-room apartment in a tenement building, equipped with electricity and gas hookups and running water, rented for \$9 to \$14 a month; a four-room house with more modern conveniences than in company houses rented for at least \$14, but rent of \$25 was more common. Mining houses in the New River District, without electricity or inside running water, rented for \$8 to \$9 a month. Company house occupants often received fuel and light at much lower cost than other wage earners, generally paid nothing for water, and medical service was much cheaper than for similar service in town. The Coal Commission budget studies (1925a:1456) show that rent accounted for only 4.2 to 5.8 percent of the miners' expenditures in West Virginia, Pennsylvania, and Ohio. Haines's budget studies for workers across industries in the 1980s show that coal miners spent a smaller share of their income on rent than did other workers.

Table 1. Calculations of Internal Rates of Return on Company Housing in Coal Mining Regions in the Early 1910s

State, Type of Evidence	Annual Rents as % of Const. Cost	Maintenance Cost as % of Rent Receipts	Net Rents as % of Const. Cost	Internal Rate of Return If House Lasts 25 Years (%)
Alabama, 1 company	14.8	31.8	10.05	8.8
Alabama, 12 companies	11.6	—	5.8 ^b	3.1 ^b
Ohio and Indiana, 2 companies	7.8	32.6	5.25	2.2
Wyoming, 3 companies	11.6	—	5.8 ^b	3.1 ^b
Pennsylvania, 2 companies	8.3	63.4	3.04	a
Evidence Calculated as Average Annual Rent Per Room Divided by Original Construction Cost Per Room				
Pennsylvania and West Virginia, 10,704 dwellings	13.35	—	6.7 ^b	4.4 ^b
Colorado and Wyoming, 995 dwellings	14.8	—	7.4 ^b	5.4 ^b
Alabama, Kentucky, and Tennessee, 4108 dwellings	17.7	—	8.9 ^b	7.4 ^b

Source: Magnusson (1920:64–8, 78–81, 86–9, 96–7, 100). The information in the bottom half of the table is based on weighted averages of room rents and construction costs from tables reporting the number of dwellings charging rent (or construction costs) in a specific range. The values assigned were the midpoints of the range (i.e., a value of 75 cents for a range from 50 cents to \$1). The weights for the weighted averages were the number of dwellings.

^aNo positive internal rate of return would equate the present value of the stream of net rents with the building costs.

^bPresumes that the companies spent 50 percent of their rental receipts on annual maintenance costs. See text for further discussion.

pany in Alabama spent roughly 32 percent of its gross rental receipts on ordinary repairs and a small amount for insurance and garbage collection (Magnusson:83) but did not include any taxes. In contrast, another company in Alabama spent 69 percent of its receipts on ordinary repairs (Magnusson:85), while two others spent 64.2 percent of their receipts on maintenance, replacement, and insurance. The Ohio and Indiana companies in Table 1 spent 32 percent of their rental receipts on repairs, taxes, insurance, and depreciation (Magnusson:89). Among the highest expenditures on maintenance was

the 63.4 percent of rental receipts spent by two Pennsylvania companies in Table 1 on repair costs, insurance, and taxes. In general, companies that did not include taxes and insurance spent from 30 to 41 percent of their rental receipts on maintenance, whereas companies that included the costs of taxes and insurance spent over 60 percent of their rental receipts on costs (Magnusson:67–8, 83–5, 89, 99–100). Where the companies in Table 1 did not report maintenance costs, I used a mid-range figure of 50 percent of rental receipts to calculate the net rents as a percentage of building costs.

Net rents as a percentage of building costs ranged from 3.04 percent for the two companies in Pennsylvania to 10.05 percent for the single company from Alabama. These percentages are the internal rates of return (which equate the present value of the stream of net rents with the building costs) on housing if the houses delivered the net rents to the companies in perpetuity. In most cases the rates of return are similar to the rates of return on other investments at the time. Yet many houses were built to last only about 25 years, and many mines closed before that time. When the short life of the mines is considered, the internal rates of return fall to 8.8 percent in the Alabama company. A number of other companies were earning less than the normal rate of return. The two companies in Pennsylvania were subsidizing housing for their workers. The internal rates of return probably are still biased upward because we have not included the companies' costs of building roads for the town or the costs of purchasing the surface rights to the land where the houses were built.⁵

Why did the companies keep rents low and not exploit their local monopoly? Since miners were relatively mobile between towns, there was little gain to charging monopoly rents. In an econometric study of sanitation in the coal industry, Fishback and Lauszus (1989:136) found that miners demanded a dollar increase in monthly wages for every dollar increase in house rents. Within the coal industry wages also rose to compensate for lower-quality sanitation in the town, lower postaccident compensation for injuries in states without workers' compensation, fewer opportunities to work, and higher store prices. In comparisons of coal miners and manufacturing workers, coal mine workers in the late 1910s and early 1920s received hourly earnings that ranged from 30 to 70 percent higher than the hourly earnings in manufacturing. The high hourly earnings, however, served to compensate workers for longer and more common layoffs, higher accident rates, and living in isolated towns. When all features of the employment package are considered, the workers' utility from mining employment was probably similar to the utility derived from manufacturing (Fishback, 1992:chaps. 6–9, 12).

3. A Means of Raising Productivity and Cutting Turnover

The efficiency-wage literature would imply that companies owned housing as a means of enhancing the productivity of their work force. By providing better

5. Magnusson (1920:86) argued that the land cost could be left out of the calculation because the company had purchased the land primarily for mining purposes. Yet the company had the option of buying only the mineral rights. The cost of surface rights is thus reasonably included as part of the initial investment in the house.

housing the company could increase productivity through enhanced health and work attitudes of workers; through reduced absenteeism; by attracting better-quality workers, often with families; and/or by reducing turnover and its associated costs. This enhanced-productivity explanation is at best a partial explanation, requiring that company housing be superior to the workers' alternatives in other industries. The quality of housing in coal towns ranged from about the same as to far worse than the better housing of industrial workers in cities. In fact, there were quite a number of towns in the lower end of the scale (Fishback and Lauszus). Even within the same community, companies offered a variety of housing, ranging from shacks for bachelors to decent homes for family men to higher-quality homes for foremen. Such a range seems more consistent with meeting the basic housing demands of workers than with seeking to raise productivity by offering higher-quality housing. The enhanced-productivity explanation better explains a subset of towns that practiced "welfare capitalism." Robert Munn (1979:247) found that during the model-town movement in West Virginia in the 1910s roughly half of the *large* bituminous coal companies engaged in some form of welfare capitalism: improving housing, building YMCAs and other recreational facilities, sponsoring garden competitions, improving health care, enhancing schooling, and hiring welfare workers.

4. A Response to Transactions Costs

Contemporary observers claimed that company housing was "necessary" because the coal mines were located in isolated and sparsely settled regions.⁶ Magnusson's (1920:21) survey of mine operators with company housing found that "(t)he first and practically only reason assigned by many mine operators for housing their men is that there are no houses available or likely to be provided. The mine is the only reason why community life has developed in the particular locality." Claims of necessity are misleading because they imply no alternative to company housing. Independent investors or the miners themselves might have provided housing, but few did. Thus we need to explore the key elements that made it more economical for the employer than for an independent investor to provide housing.

While contemporaries emphasized the isolation of the mine and prior lack of settlement around it, they failed to clarify why the isolation was so important. Isolation forced all investments in housing to be highly specific to that one mine. The success of investments in the mine and in housing were therefore strongly intertwined. In fact, the investments in housing and in the mine were of similar size. The inventories of building and equipment at several representative mines from Virginia and West Virginia show that company housing accounted for roughly 45 percent of the taxable value (after depreciation) of buildings, plant, and equipment at the mines; company store buildings, picture shows, and doctor's offices accounted for about 10 percent;

6. Among those who describe isolation and sparse settlement as a major reason for employer housing are Hinrichs (p. 54), Magnusson (pp. 19–21), Allen (p. 7), Brandes (p. 43), U.S. Coal Commission (1925a:1426–8), and U.S. Immigration Commission (vol. 2, p. 206).

and mine equipment, structures, and building accounted for the remaining 45 percent.⁷

Such asset specificity gave the coal employer several cost advantages and other incentives for building and owning the housing that an independent builder did not have. The employer's costs of discovering and surveying housing sites were generally lower because he had already investigated the area for mining purposes. The success of the housing investment was also determined by effective forecasting of fluctuations in the coal industry. The employer had two advantages there. First, since he produced coal, he already forecast coal fluctuations. Second, he decided the number and type of workers he expected to house. The independent, on the other hand, not only had to forecast coal fluctuations but also the employer's response to them.

Independents bore an added hazard because the joint risks from the specific assets of mines and housing were not internalized. When independents owned the houses, the mine operators consulted only their returns from mining in making business decisions. Since mining returns fluctuated, while housing receipts were typically more stable, there were situations in which the mine operator would close the mine in response to negative mining receipts, even though rental receipts might be high enough that a company owning both the mines and the houses would stay open. Thus the independent bore an additional hazard that the mine might shut down prematurely.

Employer ownership of housing also avoided bargaining problems arising from independents exploiting a local housing monopoly. The small number of houses in most towns, the short life of the mine, and the start-up costs of building in an isolated area made it hard to attract more than one or two independents to build housing. An independent builder was therefore in a position to charge higher rents. High rents raised the wage bill to the employer who was forced to pay a higher wage to attract miners despite the higher rent.

The employer might have contracted with the independent to prevent this behavior. However, the contracting costs were potentially quite high. A contract that would effectively limit opportunistic behavior required not only clauses establishing the rents to be charged to the mine's employees but also clauses covering the physical quality of housing to be provided, the additional terms of housing leases, the maintenance of streets, access to wells, sanitation, and a variety of other features that determined the quality of life in the

7. At the five operating coke and coal operations run by the Stonega Coke and Coal Company in Wise County, Virginia, the total net taxable value of buildings, equipment, and the operating plant was \$720,364 in February of 1924. Of that amount, \$327,171 (45.4 percent) was company housing; \$67,365 (9.4 percent) was company store buildings, post offices, doctor's offices, and picture show buildings; and \$325,828 (45.2 percent) was the tipple, water towers, electric plants, mine buildings, and mining machinery. These figures are from inventories taken on February 1, 1924, at Stonega Coke and Coal Company, which owned six mines in Wise County, Virginia. The totals shown are for the Osaka, Keokee, Roda, Arno, and Stonega mines; the Derby mine was left out of the calculations because it was not yet finished and operating. (Source: Box 297, File 3, Records of the Stonega Coke and Coal Company, Westmoreland Collection at the Hagley Museum and Library, Wilmington, Delaware.)

housing. Further, the independent wanted to establish safeguards against the company making unilateral moves, like layoffs that would diminish the workers' demand for the independent's housing. After all, the miner's joint decision to work for the coal company and rent housing from the independent was determined by the actions of both the coal company and the independent. Even after the contracting stage was complete, there remained significant costs of enforcing the contract against opportunistic behavior. The coal company might shut down the mine in violation of the contract and avoid liability to the builder through bankruptcy. Similarly, a builder in financial trouble might allow the quality of housing to deteriorate. The employer, whose mine was the reason for the existence of the housing, saved the costs of negotiating and enforcing the contract by owning the housing himself.⁸

Rather than dealing with an independent, another alternative was for the miners to own the housing themselves. Brandes (1976:43) claims that economies of scale in home building and the inability to obtain credit were major obstacles to the miners owning their own homes, but such obstacles were easily overcome. Given economies of scale, the employer could build the homes and then sell them to the miners. Further, the miners' lack of credit could have been overcome by establishing rent-to-own plans. A more important obstacle to the ownership of homes by the miners was the specificity of housing to the mine in an isolated region. Since the employer had the larger investment in the area, the specificity created incentives for both miners and employers to have the employer own the housing.

The worker's demand for homeownership diminished when there was only one employer within commuting range. The situation gave the employer a short-run monopsony over the services of a homeownership worker.⁹ If the employer cut wages, the homeownership worker faced the choice of working at the mine or being unemployed. The worker might have sold his house, but buyers would have offered a lower price to offset the employers' monopsony position. The transactions costs of buying and selling houses also inhibited the homeownership miner's long-run mobility. Such mobility was useful to the miner because he could maintain his earnings by moving to other mines when the mine where he worked shut down.¹⁰

8. The coal company might have allowed independents to own the surface rights to the land while retaining the mineral rights beneath it. However, mining decisions also involved destroying housing to create a new mine opening, tippel, railroad spur, or slag heap. Unless previously negotiated, the surface owner was in a position to extract extra compensation from the company for these actions. The costs of negotiating these stipulations and enforcing them were avoided when the company maintained control of both the surface and mineral rights to the land. For a discussion of similar problems in other settings, see Klein, Crawford, and Alchian.

9. Magnusson (1920:211) recognized the impact of the specificity of the housing on the miners' bargaining position, while the U.S. Immigration Commission (1911:vol. 2, p. 206) noted the impact of the specificity on the value of the miners' homes when the mine closed.

10. Not all mines were hit equally by fluctuations in coal demand. Captive mines generally continued through downturns in the coal industries. During booms, operations at a number of mines were limited by a shortage of railroad cars to carry coal. A number of miners were able to keep working during strikes by moving to other mines unaffected by the strike.

Further, the miner faced substantial risk of capital losses on his house. He most wanted to leave when the mine closed and the value of his house was at its lowest. The risk of a capital loss on housing in a coal mining town was probably greater than in most urban areas, because the value of housing was so dependent on the success of the mine in a risky industry. The typical miner, with relatively small wealth, had less opportunity than the typical employer to diversify and limit the impact of capital losses on his wealth holdings.

The U.S. Immigration Commission (1911:vol. 2, p. 206) noted that the miners' lack of homeownership was also a function of company policy. Although the company potentially had monopsony power over homeowning miners, miner-owned housing limited the mine employers' flexibility in replacing workers when they banded together and struck. As discussed in the next section, when striking miners owned housing near the mine, the mine operators' costs of housing replacement workers rose substantially, enhancing the strikers' bargaining position.

The importance of asset specificity in the coal industry is shown by the absence of sales of coal company housing to workers. Magnusson (1920:205–23) found that only 4 of 77 coal employers in his sample sold houses to workers. Generally, when miners purchased company homes, the purchases came when the region became more settled, or when companies sold the housing cheaply when the mine closed down. A number of oral histories suggest that miners near the end of their working lives purchased company houses in these fire sales. In general, miners who invested in housing bought farms or houses in independent towns away from the mines.¹¹

In a brief theoretical discussion of the company town, Oliver Williamson (1985:35–8) suggests that miners would not have built or purchased housing in a mining town without some form of contractual safeguard (buy-back clauses, long-term employment guarantees at an agreed-upon wage, lump-sum severance awards) or price reduction to offset the employers' monopsony position. Absent such safeguards workers would demand a wage premium or sign-on bonus. The companies could avoid the costs of negotiating the safeguards, the payment of wage premiums, and the greater inflexibility of replacing workers by owning the homes and renting to miners.

Another potential safeguard for miners who purchased housing was the mine owner's desire to maintain a good reputation among miners. However, the reputation effect may not have provided adequate protection to the homeowning miner. If the employer cut wages after miners bought homes, he had trouble attracting new miners to the town in the future, unless he offered a bonus to guard against wage cuts. However, if the miners had not established safeguards, the damage to the employer's reputation was borne by the homeowning miners as new miners purchased the homes at a low price reflecting the employers' monopsony position. The reputation effect may also have been

11. In a survey of black miners in the early 1930s in West Virginia, Laing (1933:292–300) found that, despite the Great Depression, at least 20 percent owned real estate. Most who owned real estate owned farms, or lots and houses in independent towns.

diminished to the extent that a constant stream of new workers came into the labor market without full information on the reputations of different mines.

There are a number of contractual choices between company ownership of the housing and employee ownership. Williamson (1985:35–8) describes three possible types of rental leases: a short-term lease, a long-term lease with severe penalties for early termination by the worker, or a long-term lease that binds the employer but allows early termination by the worker. Williamson suggests that the long-term lease binding the employer but not the worker is the most efficient, although he leaves the explanation as an exercise for the reader.

Following Williamson's logic, the long-term lease binding the worker has the same inefficiencies associated with the miner owning his own home. Workers would require a wage premium or sign-on bonus to sign a long-term lease binding the worker, because the lease would prevent the worker from leaving and thus make the company a short-run labor monopsonist. Williamson argues that the wage premium raises the employer's marginal costs of production, leading to the employer using inefficient criteria for layoffs. For example, the high marginal costs resulting from the wage premium might cause the employer to lay off more workers during downturns than would be the efficient number.

Williamson sees the long-term lease binding the employer as superior to the short-term lease because the lease binding the employer acts as a contractual safeguard for the worker against injudicious firings and the costs of having to move quickly. Thus, when compared with the short-term lease, the firm avoids paying the wage premium and the consequent inefficient decisions about layoffs. However, Williamson implicitly assumes that there are no problems with inflexibility in hiring and firing workers. Under the long-term lease an unproductive (or striking) miner has the right to remain in the housing beyond his employment, raising the costs to the employer of replacing him. To the extent that writing contingent clauses in long-term leases to resolve problems with unproductive workers was complicated and costly, the short-term lease is efficient. Further, the short-term lease is relatively more efficient as the miners' moving costs decrease. As moving costs fall, miners demand less of a wage premium to accept a short-term lease, reducing the inefficiency of the short-term relative to the long-term lease.

5. A Device to Control Workers and Prevent Collective Action

Labor historians view company housing as a means of controlling workers and preventing collective action (Corbin:122–3, Brandes). There are two elements of housing leases that might be seen as anti-collective-action devices (Hinrichs:63). First, the companies imposed limits on who could enter the town. Second, most housing leases were contingent on employment.

Companies may have limited trespassing on company property to employees and their families to eliminate gambling and forms of criminal activity. However, there are a number of examples where the clauses were used for the purpose of keeping union organizers and other "agitators" off company property (Fishback, 1922:chap. 11).

Making housing contingent on employment might have limited collective action by raising the expected costs of complaining if there was a positive probability that one might be fired. If the worker was fired, he not only incurred the costs of finding a new job but also the costs of finding new housing. But how much was the cost raised? Given that the mine was the only source of employment nearby, if the worker was fired, he had to move anyway to find employment. Most of the cost incurred, therefore, resulted from the location of the mine in an isolated area. The employment contingency clause raised the cost of being fired because the time horizon for leaving the house was shorter than in a standard housing lease. Typical landlord-tenant leases in West Virginia in 1920 gave tenants two to four weeks' notice. The typical mine house lease provided for five days' notice, although if the worker's employment was terminated, the company could evict him immediately. Since many miners moved on relatively short notice even when not fired, the added costs of moving within five days as opposed to two weeks might not have been large.

The employment-contingency clause became most important during strikes. Long-term housing leases enhanced the striking workers' bargaining position. When strikers occupied the mine housing, the company could not hire replacement workers without establishing new quarters, and strikers could more effectively use moral suasion and/or intimidation to prevent workers from returning to work (Brandes:49). With leases contingent on employment, the companies could evict striking workers with little notice. In addition to eliminating the bargaining advantage of the striking workers, the evictions imposed on them additional costs of finding and moving to new housing, often tent colonies in major disputes. The evictions at times backfired by angering the miners, further convincing them that they were right to strike. Clearly, evictions were very emotional events and missteps on either side sometimes brought fierce and violent responses.

In examining the employment contingency of housing leases, the anti-collective-action and asset-specificity arguments are strongly intertwined from the employer's point of view. Under either argument, the employer sought to avoid giving the miners or their union an enhanced bargaining position. The arguments differ in that the asset-specificity argument recognizes that workers also had incentives to rent rather than own in isolated mining towns. By renting and remaining mobile the worker avoided giving the employer monopsony power over his labor as well as investing in housing with significant risk of capital losses.

6. Empirical Tests

Was the desire to limit collective action and the workers' bargaining power the decisive determinant of company ownership of housing? Probably not. Problems with collective action were ubiquitous throughout the coal industry. Therefore if companies sought to use company housing only to limit collective action, they would have established company housing everywhere. Yet the U.S. Coal Commission (1925a:1426-8,1465-7) found that the extent of

company housing varied by region, with more company housing existing in isolated areas where there was little prior settlement. In the coal fields of Southern Appalachia (West Virginia, eastern Kentucky, Tennessee, Virginia, Maryland, and Alabama) and in the Rocky Mountains, the mines were remote from normal settlements, and roughly 65 to 80 percent of the coal miners lived in company towns. In the Midwest (Illinois, Indiana, Kansas, Missouri, and Iowa), where prior development in agriculture and industry had led to self-governing towns and cities with ample transportation connections, less than 20 percent of the miners were housed in company towns. In Pennsylvania and Ohio, where there were mixtures of already settled areas and some isolated area, over 50 percent and roughly 25 percent, respectively, of the miners lived in company towns.

Further, the decline of company housing in the 1930s and 1940s coincided with increased density of settlement and better transportation. The decisive factor seems to have been how greater isolation affected the workers' demands to own housing and the independents' costs of building it. Company towns were more common in more isolated areas because the miners themselves sought to avoid owning housing in a one-employer setting in an uncertain industry. In more settled areas, the miners sought to own their own housing and independents faced no cost disadvantage, overcoming any desire by the company to maintain a company town.

We can investigate the issue further by examining the determinants of company-town status in the coalfields in the early 1920s. The U.S. Coal Commission sent investigators out to survey the quality of life in both company-controlled communities and independent communities in the coal districts of Alabama, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Missouri, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia. From this information a dummy variable was developed with value 1 for company-controlled communities and 0 for independent communities.

We can test the asset-specificity hypothesis using the rough proxies for economic activity listed in Table 2. The asset-specificity hypothesis implies that towns were less likely to be company-controlled when they had larger populations. Larger populations offered a more extensive market for multiple independent builders and landlords to build and rent housing. The company had less incentive to own housing because the competition among independents would have kept them from trying to exploit a local monopoly at the expense of the coal company. Further, to the extent that larger populations meant more opportunities for alternative employment, miners had more incentives to own their own housing.

Most coal seams were found in rural areas where the primary form of alternative economic activity, if any, was in agriculture. In line with the asset-specificity hypothesis, the U.S. Coal Commission suggested that areas with greater agricultural activity prior to and during the coal mining era were less likely to develop company towns. An infrastructure was already present and workers were more likely to purchase housing and land if they saw local agriculture as a viable alternative. With more agricultural development the

Table 2. Results of Probit Analysis on Company-Town Status, 1922

Variable	Mean (std. dev.)	Coefficient (t-stat.)	Elasticity ^a
Company-controlled community	0.71	Dependent Variable	
Intercept	—	1.038*	
		(6.57)	
Population of community (thousands)	1.4569 (4.5162)	-0.61* (8.17)	-0.53
Value of crops per square mile in county (thousands)	\$5.8029 (4.7723)	-0.04* (1.88)	-0.14
Value added in manufacturing per square mile in county (thousands)	\$21.603 (68.291)	0.002 (1.03)	0.03
Union status of district where community located	0.37 (0.46)	0.29 (1.28)	0.06
Change in number of coal miners in county from 1900 to 1920 (thousands)	5.7228 (4.7501)	0.04* (3.10)	0.17
	Percentage of company-controlled communities predicted correctly	97.6	
	Percentage of independent towns predicted correctly	47.8	

Note: Absolute value of *t*-statistic is shown in parentheses below coefficient estimate. Elasticities are evaluated at the sample means. *N* = 470.

Sources: The communities in the sample and the populations of the communities are from the U.S. Coal Commission Records. The company-town status was determined by the schedule filled out by the Coal Commission. Investigators filled out Mining Community Rating Schedule C for company-controlled communities (Boxes 24–32) and Schedule B for independent communities (Boxes 33 and 34). A value of 1 was assigned to company-controlled communities, 0 to independent communities. Published versions of the schedules are in U.S. Coal Commission (1925a: vol. 3, pp. 1592–7).

The union status of the district in which the company was located is from the U.S. Coal Commission *Atlas of Statistical Tables* (1925b:167–68). Union status was designated as 1 for union districts, 0 for nonunion districts, and 0.5 for mixed districts. The schedules did not list the district for the independent communities, but counties were matched with districts using information from Part 1 of the Coal Commission Report (1925a:2034–52). Districts with some union and nonunion towns were given a value of 0.5.

The schedules did not list the county for the company-controlled communities. I found the counties using *Rand-McNally 1945 Commercial Atlas and Marketing Guide* (Rand McNally) and state mining reports. Crop values, square mileage, and value added in manufacturing come from the Inter-University Consortium for Political and Social Research, *Historical Demographic, Economic and Social Data: The United States, 1790–1970*, 1900 and 1920 Data Sets; and from U.S. Bureau of the Census (1921:Table 49; 1923:Table 51; and 1922:Table 4). The change in the number of miners comes from employment figures for 1900 and 1920 in U.S. Geological Survey (1901:357–457; 1924:558–62). Some communities are missing as a result of problems in matching communities with other information.

^aThe elasticity shows the percentage change in the probability of the town being a company-controlled community divided by the percentage change in the variable.

*Statistically significant in two-tailed test at the 90 percent level.

purchase of housing conferred less monopsony power on the local coal employer and the worker was subject to less risk of capital losses from downturns in the coal industry. Agricultural activity is measured as the value of crops per square mile in the county where the town is located. To the extent that coal mines located in the parts of counties adjacent to manufacturing towns, we would expect to see more independent towns in counties with more manufacturing—measured as the value added of manufacturing per square mile in the

county where the town was located. Workers were more likely to purchase housing if they had access to other employment in the area. Finally, a substantial surge in mining activity—measured by the change in mining employment between 1900 and 1920—imposed population pressures on the existing rural infrastructure with offsetting effects. Given the uncertainties in the coal industry and the specificity of the housing to coal mining, coal companies were more likely to provide housing than independents when they were opening new mines and hiring large numbers of workers. On the other hand, an increase in the number of miners might have raised the population density enough to allow an independent town to develop within commuting distance of several mines.¹²

There is no variable that we can use to test directly the anti-collective-action hypothesis. The fact that some companies did not develop company housing suggests that the anti-collective-action hypothesis has less explanatory power because all companies, whether unionized or not, faced potential problems with collective action. However, we can use a unionization variable to test an alternative hypothesis implicit in many labor histories: The non-union areas maintained company housing to keep the union out, but once the union succeeded in organizing the area, the union was able to weaken the company's stranglehold on housing. The hypothesis implies a negative relationship between unionization and the company-town status of communities.

The equation is estimated with probit analysis, and the coefficients and means from the sample appear in Table 2. The results appear consistent with the asset-specificity hypothesis. Towns with larger populations were less likely to be company controlled; the coefficient on town population was negative and statistically significant, implying an elasticity of -0.53 . Towns in counties with more agricultural activity also were less likely to be company towns, suggesting that the presence of an agricultural infrastructure gave independents and workers more reason to build and own housing. The coefficient on the change in mining employment implies that a surge in mining activity led to the development of more company towns, which implies that many of the new mines were not established within commuting range of other mines. On the other hand, company-town status was not negatively related to manufacturing activity in the county where the community was located; the elasticity was positive, small, and not statistically significant. The manufacturing variable probably does not describe very well the manufacturing options within commuting distance for workers in many of the coal communities. Most of the coal deposits were found in the rural parts of counties, even in counties with manufacturing towns. For example, in Jefferson County, Alabama, Bir-

12. Another potential variable is distance from other communities. The Coal Commission reported distance from other communities only for company towns. Calculating a similar distance measure for the independent towns is problematic because of problems in defining nearby towns. A nearby company town might not show up as a community on maps of the period. In the mountain regions, distance in miles is a deceptive measure of the true costs of moving from town to town.

mingham had a substantial manufacturing base, but many of the coal towns in the sample from Jefferson county had no manufacturing and were beyond commuting distance (circa 1920) to Birmingham. Thus measurement error may create biases in the manufacturing coefficient.

The results for the union-membership variable were inconsistent with the hypothesis that employers used company towns to prevent unionization and then eliminated company towns when the area was unionized. The union elasticity was positive, small, and not statistically significant in the regression.¹³ Labor historians may have emphasized unionization so heavily because they failed to control for the effect of the lack of other economic activity on the decision to develop company housing. In fact, when the analysis focuses on unionization and excludes the remaining variables, the coefficient on union has the negative and statistically significant relationship labor historians predict. However, once the analysis controls for the asset-specificity variables, the union coefficient is small and statistically insignificant.

The transactions-cost hypothesis performs reasonably well in predicting the company-town status of communities, using the rule that a predicted probability greater than 0.5 implies a company town and one less than 0.5 implies an independent town. When only the population, agriculture, manufacturing, and change-in-mining-employment variables are included in the equation, the probit analysis predicts 97.3 percent of the company towns correctly and 47.0 percent of the independent towns correctly. When only the union variable is used, it predicts that all the towns will be company towns, thus mispredicting all the independent towns. When the union variable is added to the remaining variables, the accuracy of the predictions are raised slightly—to 97.6 percent of the company towns and 47.8 percent of the independent towns.

7. Comparisons with Other Industries

The findings in the bituminous coal industry do not necessarily imply that asset specificity was the primary reason for employer-owned housing in other industries. Magnusson found that most manufacturing plants with company housing were on the outskirts of major cities or in suburbs. While 86 percent of the coal employers built new towns, roughly half of textile employers and

13. I explored the possibility of multicollinearity between the farm and union variables. The correlation was only 0.70 and multicollinearity diagnostics suggest that there was no real problem. I also experimented with a nonlinear union relationship by interacting the union variable with the population and value-of-crops variables (coefficients of the interactions with the other variables were statistically insignificant). The coefficient on the union variable became much larger and more positive, but this was offset by negative coefficients on the union–population interaction term and the union–crop-value interaction term. The results suggest conflicting union effects: The direct impact of unions was to increase the likelihood of the company town, but more unionization combined with greater population and more agriculture lowered the likelihood of the company town. When looking at the overall impact of each variable, the elasticities of the population, the change in miners, and the manufacturing-value-added variables stayed roughly the same as in Table 2. The elasticity of the crop-value variable was still negative but smaller at -0.024 . The elasticity of the union variable remained small but switched sign to -0.03 .

steel and iron employers with company housing built in existing suburbs, subdivisions, or on plots of land that had already been laid out (Magnusson:29).

Given the presence of competing alternatives for housing, it seems plausible that company housing served a different purpose in manufacturing firms in cities and suburbs. Company housing in manufacturing may have been targeted more at specific subgroups of employees, used as a device to limit turnover among skilled workers (see Section 3). Several aspects of company housing in manufacturing seem consistent with this reasoning. First, manufacturers housed a smaller percentage of their work force than did bituminous mine operators. Where coal companies often housed 70 percent or more of their workers, many manufacturing concerns with company housing housed less than 30 percent of their workers.¹⁴ Second, to reduce turnover among skilled workers the housing would have to be superior. Manufacturing housing often had more modern features and indoor plumbing than coal-mining housing (Magnusson:29–47). One test of this hypothesis would be to examine the company records of the manufacturing concerns to see whether the workers in company housing were typically more skilled or earning more than others. Third, manufacturers in cities accounted for nearly all the firms that sold company housing to workers in Magnusson's survey (1920:205–33). The companies' willingness to have homes near the plant owned by workers suggests that they anticipated a long-term employment relationship. Further, the workers' purchase of the home certainly raised costs of moving, although some manufacturers diminished these costs by offering repurchase options.

Asset specificity still may have played a significant role in these other industries. In Magnusson's survey of reasons for company housing among manufacturers, the number-one answer was that others were not offering housing. Manufacturers in suburbs were sometimes not located near other employers, making the housing more specific to the company's plant. The age of company housing relative to the age of independent housing may illustrate the life cycle of company housing when the plant or mine was producing over several decades. In some cases, the company housing in manufacturing may have been the vestige of an earlier period when the employer's location was more isolated. Although most of the manufacturing areas in the North had long been settled by 1920, company housing was common when the areas were first being settled. Employers might have housed most of their workers in the early days, but as the plant increased in size and the area attracted other

14. In Magnusson's (1920:234–5) study, coal companies that rented housing housed between 53.5 percent of their employees in Ohio and Indiana and 80.4 percent in Alabama, Tennessee, and Kentucky. The next highest range was in the textile industry: between 19.3 percent in the North and 71 percent in the South. The percentages ranged from 15.9 in copper and gold mining in the Southwest to 53.8 percent in iron mining in Alabama. Anthracite coal employers housed only 22.8 percent of their miners. In iron and steel production, at most 29.2 percent of the work force was in company housing, while in miscellaneous industries the percentage was 19.8 percent.

employers, independents and workers were more willing to build housing. While the employer stopped building housing, it still may have been profitable to maintain ownership of the original houses. This seems to be a reasonable explanation for the situation in the anthracite coal industry in Pennsylvania, where employers with company houses in the late 1910s housed only 22.8 percent of their employees. Many of those company houses had been built between 1860 and 1890 (Magnusson:102).

8. Conclusions

Evidence from the coal industry in the early 1900s suggests that transactions-cost explanations of the existence of company towns have more explanatory power than the housing monopoly and anti-collective-action hypotheses. Coal companies were not able to exploit a local housing monopoly because they hired workers in a competitive regional labor market. Evidence from the 1920s shows that coal companies earned roughly a normal rate of return or less on housing and were forced to pay higher wages when they tried to charge higher rents.

The transactions-cost approach emphasizes that employers faced lower information costs and risks than independent contractors in determining the demand for housing. Other transactions costs arose from the asset specificity of housing at isolated mines in areas with little prior settlement. By owning housing, coal employers could eliminate the transactions costs of contracting with independent contractors to prevent them from capturing quasi-rents by charging high housing prices. Employers owned housing in part to limit the miners' ability to stay in the housing and to enhance their own bargaining position, particularly during strikes. In that sense, the anti-collective-action and asset-specificity arguments are similar. Yet the asset-specificity argument goes beyond the anti-collective-action argument by showing that workers also had incentives not to own homes near an isolated mine. Renting allowed the worker to avoid giving the employer short-run monopsony power over his labor and to escape capital losses in a risky industry.

The timing and location of coal company towns is more consistent with the transactions-cost analysis than with the anti-collective-action hypothesis. Although collective action and strikes were ubiquitous in union and nonunion regions, which would have led all companies to establish company housing, there were a number of coal areas where company housing was not predominant. Further, an empirical study of the determinants of company-town status of coal communities in the early 1920s shows several relationships that are consistent with the transactions-cost hypothesis. Company towns had smaller populations and were located in areas with less agricultural activity and larger changes in mining employment.

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