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The Problem of Worker Effort in British Industry 1850 – 1920, with Illustrations Drawn from the Boot and Shoe Trade

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Abstract

When an employer hires a worker, they do not hire the worker for themselves, but for the work or effort they will expend in the job. However, effort represents disutility for the worker, and this creates a Principal-Agent problem, since the interests of employer and worker diverge and the employer will need to find ways to cause the worker to exert themselves. This can entail either creating an incentive system, so that increased effort rewards the worker as well as the employer, or it can involve supervising the worker to limit their scope for taking leisure. Both methods involve cost and benefits are uncertain and thus the 'effort problem' is perennial in the labour process. British employers in the nineteenth century realised this, and were reluctant to engage labour directly, preferring to sub-contract the hiring and management of labour to small masters, senior workers, or outworkers. Yet as the nineteenth century proceeded, centralised employment of workers under a single employer became more common with the spread of steam-powered technology and growing consumer preferences for standardised products. As a result, British employers were confronted with the Principal-Agent problem of eliciting effort. Inexperienced in handling such a situation and lacking expertise in either production processes or the conduct of incentives, they failed to create mechanisms for effectively motivating worker effort. Shop-floor workers retained significant discretion as to how hard they worked, and this discretion was enhanced by trade unions, which saw that by limiting output workers could hope to raise the return to effort and possibly increase total employment and realise other worker-goals, such as exercising skill in their work. Rather than using incentives to raise effort levels, employers used incentives to stabilise effort levels at a mutually acceptable level, with the result that British productivity was lower than it might have been and lower than in the USA. These themes are explored with reference to the boot and shoe trade. It is shown how employers were initially reluctant to employ labour in centralised workshops, but from the 1870s, due to pressure from the trade union and growing use of machinery, shoe production was increasingly undertaken in factories. This confronted employers with the need to secure effort from their workers. In this they had limited success. They did not manage their workplaces effectively and they faced a union determined to limit labour effort with a view to maintaining or raising the reward to

[1] This Occasional Paper is an expanded version of a paper originally presented to the Economic History Seminar, All Souls College, Oxford, in 1993.

effort and pursuing other perceived benefits from lower output, such as hindering the use of machinery and maintaining total employment. The aim of remuneration and supervisory systems was to maintain effort levels rather than increase them, and as a result productivity lagged significantly behind that of the USA. Thus, the shoe industry exemplifies general weaknesses regarding the eliciting of worker effort in British industry, weaknesses that conduced to lower productivity and which continue to this day.

The Principal-Agent Problem

The difficulty faced by an employer in getting work or effort from their employees is a particular instance of the Principal-Agent problem. Principal-Agent problems have the following essential form: a person or organisation (the Principal) wants something done, but is unable or unwilling to do it themselves, and instead engages someone (the Agent) to do it for them in return for a payment. The problem arises from the fact that the utility functions of Principals and Agents diverge: the Principal's interest is to realise their objective as effectively and cheaply as possible, whereas the Agent will have their own objectives and these will not perfectly align with that of the Principal's (for if they did they would not require payment), and further, it is very likely that in pursuing the Principal's objectives the Agent will have to sacrifice some part of their own. It is this trade-off of the Agent's interests against those of the Principal which ensures the Agent must be compensated for undertaking to work for the Principal. In the case of the employment relation, while effort by the Agent (worker) is *positively* correlated with the interests of the employer, it is *negatively* related to the interests of the worker themselves. The worker incurs disutility in undertaking the tasks set (such as the unpleasantness of effort or the opportunity cost of giving up their time to serve the employer's ends) and will have an incentive to minimise the amount of work they do for a given remuneration. What gives them the scope to engage in such actions is incomplete and asymmetric information: the fact that monitoring employee performance involves costs, so no employer will be able or willing to completely check on employee performance – indeed, to do so would undermine the very rationale for delegating tasks in the first place. Thus, in any employer-worker relation, the worker will possess some space to pursue their objectives in ways compromising the interests of the Principal. To put this in the starkest terms: the employer's objective is to secure as much work for as low a wage as possible, whereas it is the worker's interest to do as little work for as high a wage as possible. This is the Principal-Agent problem in the world of work, which is itself an instance of the general phenomenon of *Moral Hazard*. Moral Hazard exists in contexts of asymmetric information, where parties to a contract take advantage of the incomplete information possessed by other agents to act in

ways that further their interests at the expense of others. The worker always knows better than their employer how hard they are working and can use this asymmetric information to shift the terms of the contract to their advantage – most obviously by reducing the effort they expend for a given level of pay. This reduction of effort can be designated as 'shirking' and consists of the worker consuming leisure on the job.[1]

For the employer, there are two ways to assess the level of effort a worker is devoting to their work. On the one hand, the employer can seek to directly measure the worker's labour input to production. In this case, the worker will tend to be paid time-wages and the employer will endeavour to assess performance directly. Alternatively, the employer may judge a worker's effort indirectly, *via* the amount of output they produce. In such cases the worker will tend to be paid by the piece. Other things being equal, we would expect piece-work to be used when the cost or difficulty of assessing labour effort directly is high, output being used as a proxy measure. Whatever the method used, there are available to the employer three main ways of inducing workers to exert (and possibly increase) effort:

1. First, they might motivate effort through (chiefly) monetary incentives, the principle being that the greater the effort a worker puts forth, the greater will be their expected reward at some point in the future. Economic incentives include piece-work, bonus schemes, profit-sharing, and effort-related promotion.
2. The employer might use surveillance and the threat of disciplinary sanctions and dismissal for work-effort deemed inadequate. The potency of this threat is a function of two things: first, the level of supervision, which affects the probability of a worker being caught shirking; second, the difference between a worker's current wage and their next-best expected wage if dismissed adjusted for probability of unemployment. It may be noted that high wages provide, not merely an incentive to exertion, but increase the cost of being dismissed (an aspect of the phenomenon of 'efficiency wages').
3. Lastly, the employer may endeavour to alter the worker's psychological disposition towards the firm, hoping to align the worker's utility function more closely to that of their employer. In so far as this is achieved, the worker can be expected to put forth greater effort for a given degree of supervision and remuneration. This was one motivation behind nineteenth century experiments in industrial paternalism, and the

[1] J.H. Pencavel, 'Work Effort, On-the-job Screening, and Alternative Methods of Remuneration', in R.G. Ehrenberg (ed), *Research in Labour Economics* (Jai Press, Connecticut, 1977), p. 226; Y. Kotowitz, 'Moral Hazard', in J. Eatwell, M. Millgate, and P. Newman (eds), *Allocation, Information, and Markets* (The New Palgrave Dictionary of Economics, W.W. Norton, New York, 1989), p. 207.

formation, around the time of the First World War, of Personnel and Welfare departments in many firms.

2. The Context of the Effort Decision in Nineteenth Century Britain

To appreciate how the problem of worker effort presented itself to British employers in, say, the 1850s, we must step back and consider the general structure of British industry at this time. The provider of capital, whether capitalist or entrepreneur, needs labour services if their capital is to be productive. But they are not wedded to any particular method of securing those services. They may, of course, employ the labour directly and supervise its activity. Or they may employ managers and foremen to do this for them, though here attention must be paid to providing incentives or discipline to ensure that they fulfil their function. To us, these are the obvious means of securing labour services, yet they were much less dominant in the mid-nineteenth century.

Consider, first, the cotton industry, the traditional home of factory production. The self-acting mule, introduced in the 1830s, was operated by skilled male workers, known as minders, who were directly employed by the firm. But they, in turn, recruited and supervised their own assistants, called piecers, whose job it was to mend the broken threads and generally maintain the machines. By this internal sub-contract system, managers and overlookers were relieved of the task of recruiting and supervising younger workers: in the counties of Lancashire, Cheshire, and Derbyshire, which together in the 1830s accounted for one-third of all employment in British cotton mills, 8,136 of the operatives aged under 18 in the spinning section of the industry were employed by other operatives, and only 1,043 were employed directly by firms.[1] Further, the minders, who were paid piece-wages, had a strong incentive to enforce high effort levels from the piecers, who were on fixed time-wages, since while the costs of the extra effort were shared by the work team, the benefits accrued only to the minder.

Sub-contracting prevailed extensively in mining. In the 'Butty-system' of the coal mines, which was strongest in Staffordshire and South Wales, the mine owner would sink the pits and install the necessary plant, and a contractor would then engage to produce the coal at so much per ton, hiring the labourers and supervising their work. Although some miners were on piece work, many worked for day wages, and, as in cotton spinning, it paid the Butty-master' to speed up production and thus enjoy greater earnings. Charles Babbage described the organisation of production in the Cornish tin mines, where groups of workers bid for the right

[1] W. Lazonick, 'Industrial Relations and Technical Change', *Cambridge Journal of Economics*, iii (1979).

to sink shafts and work seams. A similar system existed in the slate quarries of North Wales. Sections of the slate would be let-out to be worked by groups of three to four men; thenceforward, wrote the economist J.E. Cairnes, the functions of the principal capitalist were of an extremely limited kind: 'the plan of operations adopted, the distribution of the labour, its superintendence and reward – of all of this the "contractors" undertake the sole and entire charge.'[1]

The piece-master system occupied an important place in engineering. Here a leading hand contracted to do a certain job at an agreed labour cost. The workers under him were usually employed by the firm and paid a fixed wage. If the labour cost of the work was less than bargained for, the piece-master kept the difference as a bonus, which he sometimes did and sometimes did not share with his men. According to an Amalgamated Society of Engineers survey in 1861 there were 533 piece-masters in Britain. Under the squad system of the shipbuilding industry, groups of specialised workers moved from yard to yard as demand for their skills varied, in each case contracting to perform a certain quantity of work. Ship-platers, who worked by the piece, employed their own helpers on time wages. As in other trades where this relationship prevailed, accusations of 'driving' and 'sweating' were common. One helper complained to the Royal Commission on Labour that the platers:

> attempt to get as much done as they possibly can, and in the shortest amount of time, seeing that the harder we work and the quicker the job is finished, their wages will rise in proportion. The jobs are then finished far sooner than they would be if the men were allowed to work reasonably, as they ought to, and not be driven at it so hard.[2]

In the iron and steel industry the various stages of production were controlled by skilled process workers, such as puddlers, shinglers, shearers, and rollermen, and it was the general practice for employers to contract out the work to these skilled men at a rate per ton, and they in turn hired and paid their own underhands.[3]

Sub-contracting played an important part in the organisation of dock-labour. One of the two great companies at the Port of London – the London and St Katherine's – operated the system. The contractors, of whom there were 250 at the London Dock alone in the 1870s, were engaged on a tonnage basis, and employed the casual labour they required at a rate per hour. The practice was deeply unpopular amongst the dock-hands, as it encouraged the contractors to maximise their profits by employing as few men as possible and working them hard. Sub-contracting was also ubiquitous in the construction industry. The canals were built on this

[1] J.E. Cairnes, *Essays in Political Economy, theoretical and applied* (London, 1873).
[2] *Royal Commission on Labour* (1892), Minutes of Evidence, Group A, Vol. III., Q. 20,632.
[3] F. Wilkinson, 'Collective Bargaining in the Steel Industry', in A. Briggs and J. Saville ed., *Essays in Labour History*, III. (Croom Helm, London, 1977), p. 104.

principle, and later the railway system. In the construction of houses, work was let out separately to plumbers, plasterers, masons, carpenters, and so forth.

Most important of all, consider the numerous trades still conducted on a putting-out or domestic basis in the 1850s. Here the provider of circulating capital often did not provide the fixed capital or supervision at all. He merely paid for the finished product. The outworker was self-employed and monitored their own effort levels. A.E. Musson notes that in 1850 'the great majority of industrial workers were skilled handicrafts men or labourers, working in small workplaces or at home; only a small minority of the labour force was in factories …'.[1] This was especially the case in the Midland hardware trades. The manufacture of chains, nails, nuts, bolts, locks, files, jewellery, and hosiery all took place on a domestic basis. In the Birmingham gun trade the master gun-maker seldom possessed a factory or workshop, but merely a warehouse, into which came various gun components – barrels, locks, triggers, sights – each item made by a specialist craftsman working in small shops or their own homes.[2]

In all these cases, though to varying degrees, the provider of capital contracted-out, that is, passed on to others, the problem of securing labour effort. This did not mean that the principal-agent problem disappeared completely; what it *did* mean was that there was great flexibility in its mode of solution, and the broadly de-centralised approach adopted offered capitalists peculiar advantages. Workers laboured in relatively small groups under an acknowledged leader. The latter received as their remuneration the difference between an agreed contract price and the actual labour cost of the work, and accordingly had a strong incentive to get as much work from the labour they employed as possible. He was also in a good position to do so. As a working overseer, in close contact with a small group of workers, he was well-placed to judge their potential and monitor their performance, and could discharge workers whose effort level was deemed unsatisfactory. Further, the de-centralised nature of employment, and the diversity of circumstances and location of work, made trade-union organisation difficult. In the case of outworkers, the employer paid only for the finished product. If the outworker failed to do much work, it was he – not the employer – who bore most of the cost in reduced earnings (the contractor's chief loss arising from a slower turnaround of stocks). In addition, the multitude of small employers seemed to open-up possibilities for promotion and social advancement, providing workers with an additional motive for hard work.

[1] A.E. Musson, *The Growth of British Industry* (Batsford Academic, London, 1981), p. 149.
[2] For a description of the out-working trades of the Midlands, see G. C. Allen, *Industrial Development of Birmingham and the Black Country* (London, 1929).

Thus, in its approach to the problem of securing labour effort, the British economy at mid-century exhibited considerable diversity and flexibility, and there is every reason to believe that, for the employer at least, this flexibility was advantageous and ensured that the problem of getting workers to work for him was not a prominent one in his calculations.

By 1914 circumstances were greatly altered. The old flexibility had all but disappeared. Domestic work and sub-contracting had significantly declined, and in their place stood the centralised employer of large numbers of workers paid day or weekly wages. The Factory and Workshop returns for 1913 show a total factory population seven-times as great as that employed in workshops.[1] Amongst the factors bringing about these changes were technologies permitting the application of power-driven processes; the emergence of new industries without traditions of domestic work or sub-contracting; intensifying competition; and a shift in consumer preferences towards more standardised products. Government also played its part. The Workshops Regulation Act of 1867 prohibited all work by children below eight years of age and established maximum working hours for women and young people. Its provisions were reinforced when the 1870 Education Act raised to 13 the age of compulsory school attendance in many districts, depriving workshops of cheap child labour.

Another significant contributor to this shift to centralised employment was pressure from trade unions. As collectivist organisations, the decentralised structure of mid-nineteenth century industrial organisation was anathema. This attitude was not merely ideological prejudice: it was rational on purely economic grounds.

To begin with, successful union organisation required centralised and relatively uniform employment conditions. Further, the Webbs, in their *Industrial Democracy*, identified the importance attached by unions to maintaining a high standard rate of reward per unit of labour effort expended. This implies the ability of the union, or workers generally, to limit the overall quantity of effort they expend. Such controls were difficult to enforce under numerous sub-contractors; they were well-nigh impossible to enforce under outwork. Accordingly, we find unions consistently seeking to undermine the sub-contracting and outwork systems in the late nineteenth century.

In the iron and steel industry the unionisation of contractors' underhands began in the 1880s. These new unions were opposed to contracting and pursued a policy of replacing it with the direct employment of all process workers by the firm. Wherever they secured recognition an end to contracting was soon negotiated. From 1851 the Amalgamated Society of Engineers

[1] Musson, *British Industry*, p. 246.

maintained a consistent front of hostility to the piece-master system. In 1861 two resolutions were passed fixing penalties on union members who, working as piece-masters, failed to divide any surplus equally with the men – and on members working for piece-masters where the surplus was not so divided. By 1900 there were few traces remaining of the old piece-master system.[1] Abolition of the contract system was one of the key demands raised in the great London Dock Strike of 1889 and the settlement which ended the dispute indeed provided for the abandonment of the practice.[2] Union pressure to end the sub-contracting of labour in the building trades mounted steadily over these years. In 1892 the Amalgamated Society of Carpenters and Joiners added to its rule-book the provision that no member was to take work on sub-contract or work for any person taking a job on this basis. The General Secretary of the National Association of Operative Plasterers told the Royal Commission on Labour of 1892 that:

> I am happy to say that I find in some of our large centres during these last two or three years they have endeavoured with all their power to put a check to this evil system of sub-contracting, sub-letting, which has been in existence for so long, and consequently they strike.[3]

Writing in 1897, the Webbs noted the strong trade unionist objection to domestic work: 'In all the industries in which "out-working" prevails to any considerable extent, this objection, steadily growing in intensity for the last half-century, has latterly risen into a crusade.'[4] The General Secretary of the English Tailors' Union declared in 1891 that 'wherever there is the slightest sign of the system being introduced into towns where it has hitherto been unknown, it is our duty not to tolerate it for a single minute, but use our utmost endeavours to oppose its introduction, and stamp it out as far as lies in our power in all places where it at present exists.'

The Problem of Labour Effort in Centralised Factories

With operatives now typically engaged in centralised workshops, employers could much less easily delegate the problem of inducing work effort: they were faced, now, with the challenge of securing adequate and even enhanced levels of effort themselves. The key factor militating against their ability to do this successfully was the employer's lack of knowledge and

[1] M. and I. B. Jefferys, 'The Wages, Hours and Trade Customs of the Skilled Engineer in 1861', *Economic History Review*, xvii (1947), pp. 42, 44.
[2] J. Lovell, *Stevedores and Dockers: A Study of Trade Unionism at the Port of London* (London, 1969), pp. 102, 112.
[3] *R.C. on Labour*, C, Vol. II., Q. 17,296.
[4] S. and B. Webb, *Industrial Democracy* (Longmans and Company, London, 1902 edn.), pp. 539-40.

engagement with shopfloor workers and the asymmetrical information and social attitudes corresponding to this.

The first problem was a lack of detailed control and supervision of the work process. A series of historians, notably Lewchuk and Lazonick, have drawn attention to the poorly developed managerial systems within UK factories in the late nineteenth and early twentieth centuries.[1] The organisation of work was delegated to foremen and senior skilled workers, with the result that managers and employers lacked detailed knowledge of production processes and the specific contribution of labour. As **Table 1** shows, the number of workers per foreman was relatively high (averaging above thirty in most trades), and the foreman had numerous responsibilities, having to oversee all aspects of work within a factory department as well as even having to work themselves. This limited the degree to which foremen could monitor or enforce higher effort levels, with the result that the regular rhythm of work within the factory was set by the operatives themselves.

[1] W. Lewchuk, *American Technology and the British Vehicle Industry* (Cambridge, 1987); W. Lazonick, *Competitive Advantage on the Shop Floor* (Harvard, 1990).

Table 1. Average Number of Full-Time Workers Per Foreman in a Range of Industries. 1906

Cotton	36	Ship Building and Repairing	33
Woollen and Worsted	20	Railway Carriage Building	37
Linen	29	Light Iron Castings	32
Silk	25	Brass and Allied Wares	29
Hosiery	41	Electrical Apparatus	28
Lace	79	Paper	54
Carpets	37	Printing	20
Shirts and Blouses	32	Bookbinding	19
Boots and Shoes (ready made)	27	Porcelain, China, Earthenware	87
Building Trades	20	Brick, Tile, Pipe Making	37
Saw Milling and Joinery	19	Malting and Brewing	16
Cabinet Making	19	Chocolate and Sugar Confectionary	20
Engineering and Boilermaking	31		

Source: *Earnings and Hours Enquiry, 1906-07*

Indeed, there was not merely a principal-agent problem between foreman and worker; there was one between employer and foreman too, since the foreman was himself a worker and knew far more about the details of the production process than the employer. An obvious solution for any tendency for a foreman to slack in their duties would be to reward them for raising the performance of their departments. Yet this was not the case. Foremen were typically paid time wages, not through incentive schemes, and, as can be seen from **Table 2**, their average salary exceeded that of the regular hands by about fifty- to sixty-per cent, a differential which could be expected to reflect all the responsibilities they had as well as the skills they possessed. Given that pressing workers to produce more would be stressful and very likely souring of workshop relations, the benefits to foremen of vigorous supervision were probably not sufficient to motivate them to special exertion.

Table 2. Earnings of Foremen and other Adult Male Operatives in Selected Industries. 1906

	Av. Male Earnings (s.)	Av. Earnings of Labourers (s.)	Weighted Av. Wages of Foremen and Ass. Foremen (s.)	Foreman's Wage as Percentage of Av. Wage (%)	Foreman's Wage as a Percentage of Labourer's Wage (%)
Cotton	29	20	41	141	205
Woollen and Worsted	27	20	35	130	175
Boot and Shoe	29	N/A	39	135	N/A
Building	33	24	47	142	196
Saw Milling	27	21	39	144	186
Cabinet Making	33	22	47	142	214
Paper Manufacture	29	21	52	180	250
China and Earthenware	32	22	43	134	195
Brass and Allied Wares	32	20	44	127	220
Light Iron Castings	31	20	48	155	240
Engineering & Boilermaking	32	21	52	163	250
Ship Building	36	21	50	139	240
Railway Carriage Building	31	22	52	168	236
Electrical Appliances	35	25	53	151	212

Source: *Earnings and Hours Survey* 1906-7.

Given the poorly articulated managerial and supervisory systems within most British businesses, the best way for employers to elicit effort from their workers was to reward them through piece wages. As **Table 3** shows, piece-wages were widely utilised within British industry, with workers' remuneration varying according to the amount they produced.

Table 3. Proportions of Workers Paid Day and Piece Wages in Certain Industries. 1886 and 1906

Industrial Category	**1886**		**1906**	
	Time Work (%)	**Piece Work (%)**	**Time Work (%)**	**Piece Work (%)**
Textiles	**40**	**60**	**49**	**51**
Cotton Manufacture	38	62	34	66
Woollen and Worsted	43	57	62	38
Linen	42	58	50	50
Silk	51	49	55	45
Jute	48	52	67	33
Clothing	**N/A**	**N/A**	**62**	**38**
Hosiery	11	89	27	73
Boot and Shoe Manufacture (indoors)	48	52	77	23
Dress) millinery (workshop)	N/A	N/A	99	1
Dress, millinery (factory)	N/A	N/A	43	57
Shirt, Blouse &c.	N/A	N/A	32	68
Tailoring (bespoke)	N/A	N/A	53	47
Tailoring (ready-made)	N/A	N/A	35	65
Corset making (factory)	N/A	N/A	18	82
Pottery, Brick, Glass, Chemicals	**N/A**	**N/A**	**65**	**35**
Porcelain, China, Earthenware	N/A	N/A	38	62
Brick, Tile, Pipe	57	43	66	34
Glass Bottle Making	N/A	N/A	36	64
Paper and Printing	**N/A**	**N/A**	**79**	**21**
Paper manufacture	N/A	N/A	70	30
Printing	75	25	9 1	9

Mines and Quarries	**43**	**57**	**N/A**	**N/A**
Coal and iron ore mining	42	58	N/A	N/A
Metalliferous mines	32	68	N/A	N/A
Slate mines	21	79	N/A	N/A
Stone quarries	68	32	N/A	N/A
Iron and Steel Processing	**87**	**13**	**72**	**28**
Pig Iron Manufacture	87	13	90	10
Iron and Steel	N/ A	N/A	72	28
Tin Plate Manufacture	**32**	**68**	**40**	**60**
Shipbuilding (Iron and Steel)	**75**	**25**	**67**	**33**
Engineering and other Metal trades	**90**	**10**	**67**	**33**
Railway Carriage Building	55	45	32	68
Cycle Making and Repairing	N/A	N/A	47	53
Smiths and Smiths' Strikers	82	18	69	31
Turners	94	6	69	31
Fitters and Erectors	93	7	73	27

Table 3. (Continued)

Industrial Category	**1886**		**1906**	
	Time Work (%)	**Piece Work (%)**	**Time Work (%)**	**Piece Work (%)**
Building and Woodworking	**N/A**	**N/A**	**95**	**5**
Building	N/A	N/A	99	1
Harbour, Dock Construction	N/A	N/A	90	10
Cabinet Making	N/A	N/A	83	17
Saw Mills	94	6	95	5
Carpenters and Joiners	N/A	N/A	92	8
Food, Drink Tobacco	**N/A**	**N/A**	**83**	**17**
Grain Milling	N/A	N/A	99	1
Baking and Confectionary	90	10	98	2
Melting, Brewing, and Distilling	N/A	N/A	96	4
Chocolate, Sugar Confectionary	N/A	N/A	54	46
Drink Bottling	N/A	N/A	97	3
Biscuit Manufacture	N/A	N/A	72	28
Miscellaneous	**N/A**	**N/A**	**81**	**19**
Leather, Tanning	N/A	N/A	58	42
Coach, Carriage Building	90	10	86	14
Brush and Broom Manufacture	N/A	N/A	32	68
Oil Seed Crushing	N/A	N/A	97	3
Rubber	N/A	N/A	69	31
Coopering	60	40	60	40
Bag Manufacture	N/A	N/A	73	27

Source: *Report on Wages of Manual Labour Classes (1886); Enquiry into the Earnings and Hours of Labour (1906-7)*

In theory, payment by the piece motivates a worker to raise their rate of production until the benefit of the last unit of effort expended equals the marginal disutility of that unit. In reality, piece-work in Britain was more a method of *stabilising* effort levels than increasing them. Numerous factors were responsible for this, but one complaint above all compromised piece-work as an effort securing device in British industry: *the belief on the part of workers that if they raised their effort levels and hence their incomes, the employer would cut the piece rate.* How common rate-cutting actually was cannot be definitely stated, though it was considered widespread by observers as well as workmen. 'The history of payment by results,' wrote J.E. Powell, 'is not the happiest,' being damned by shortages of work and rate cutting. Arthur Shadwell encountered the complaint that 'when a man increases his output by working harder, the employer cuts down the price and reaps the benefit; and it cannot be denied that this has often been done.'[1] Sidney Webb believed it an 'habitual practice in the past ... in all sorts of trades.'[2] Engineering was the 'cockpit' of the rate cutting controversy. A 1918 report found price-cutting in the 'old days' prevalent 'to such an extent and without justification, that piece-work was brought into disrepute.'[3] At the Royal Ordnance works, the Gun Factory's Superintendent described how 'from time to time we go into the prices and see if we cannot reduce them, and they are very often reduced.'[4] An average of 80 piece-price revisions, mostly downwards, occurred each week in the Carriage Department.'[5] It was said of the Sheffield metal trades in 1892 that 'the most common cause of disputes and strikes is the demands made by the employers for reductions in prices of work.'[6] The Brass Founders' Union alleged that it was constantly having 'to grant strike pay to a member resisting reduction.'[7] Piece-prices in the cotton trade were cut repeatedly during the 1870s and 1880s, and the *Report on the Position of the Textile Trade* placed foremost amongst the factors making for output restriction the operatives' fear 'that if they turn out the maximum amount of work and earn big wages, the piece-price may be reduced by the employer.'[8]

[1] A. Shadwell, *Industrial Efficiency: A Comparative Study of Industrial Life in England, Germany, and America* (London, Second Edition, 1909), p. 391
[2] H. Atkinson, *Rational Wages System* (London, 1917), p. 7; S. Webb, *The Works Manager Today* (London, 1917), p. 67.
[3] *Report of the Departmental Committee Appointed by the Board of Trade on the Position of the Engineering Trades* (1918), p. 14.
[4] *Manufacturing Departments of the Army*, Q. 535.
[5] *Ibid*., Appendix 31, 'Memorandum on the Piece-Work System', H.J. Butter, Manager.
[6] President of the Sheffield Trades' Council, *R. C. on Labour*, A, Vol. IL, Q. 19,029.
[7] *Ibid*., Vol. III., Q. 24,570.
[8] Burgess, *Industrial Relations*, p. 241; *D. C. on the Position of the Textile Trades*, p. 114.

Rate-cutting was itself a symptom of the wider ignorance of production conditions among employers we referred to above. When setting piece-rates, managers and foremen were making a rough approximation to what they considered a reasonable price for a job. The rate was based largely upon guess-work and custom. Hence, if a worker *did* significantly raise their output and hence their wage, the employer tended to assume that the initial piece-rate had been set too generously and cut it. The general consensus within industry was that a piece worker should earn up to 'time-and-a-half'. There existed, in other words, an implicit day rate, around which wages could vary only within limits. 'The evil in piece-work system,' complained a mason in 1867, is that 'if a man earns a certain amount of money the master considers that the price is too high, and of course he cuts that price down.'[1] For one carpenter:

> The objection to piece-work is this … When it is found that a workman is earning double, say, of his ordinary wages, the employer at once thinks that the man is getting too much money, and he cuts down the price.[2]

An 1861 survey by the A.S.E. found that, of the 218 branches furnishing replies, only seven reported no limit to piece-earnings. Of the workmen covered by other branches, 45 per cent. could make 25 per cent. above day rates before prices were cut; 22 per cent. up to 40 per cent., and 25 per cent. were permitted to raise their incomes by a half.[3] Upper limits to wages were openly acknowledged at the Royal Ordnance factories. According to W. Barlow, Superintendent of the Laboratory, the rule of a maximum to wages of 'time and a third' was 'a very old one at the works and universal.'

> We look upon the limit of piece work to be the earning about a time and a third of a man's day rate. For instance ... say that a man's time rate is 21s., then he might earn, we will say, one third more; he might earn up to about 28s ... If I found that the average were earning more than that I should expect the Manager to reduce the piece-work price.[4]

In the Carriage Department, prices were so regulated that 'the average earnings of the men should be about a time and one-third.' Where this was exceeded 'the rate would be reduced.[5] E. Maitland, Superintendent of the Gun Factory, noted that the ceiling to average wages of time and a half was 'not fixed in any written law, but it naturally follows: it is a sort of boundary that we have tacitly fixed.[6]

To understand how piece-work operated as an incentive to effort, and why employers may have wished to cut the piece-rate, consider **Figure 1**.

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[1] *Ibid*., 4th Report, Q. 7,665.
[2] *R C. on Labour*, C, Vol. II, Q. 18,874.
[3] Jefferys, 'Skilled Engineer', 40.
[4] *Manufacturing Departments of the Army*, Qs. 3,061-064.
[5] Evidence of H. Butter, Manager, *ibid*., Qs. 4,899~900.
[6] *Ibid*., Q. 876.

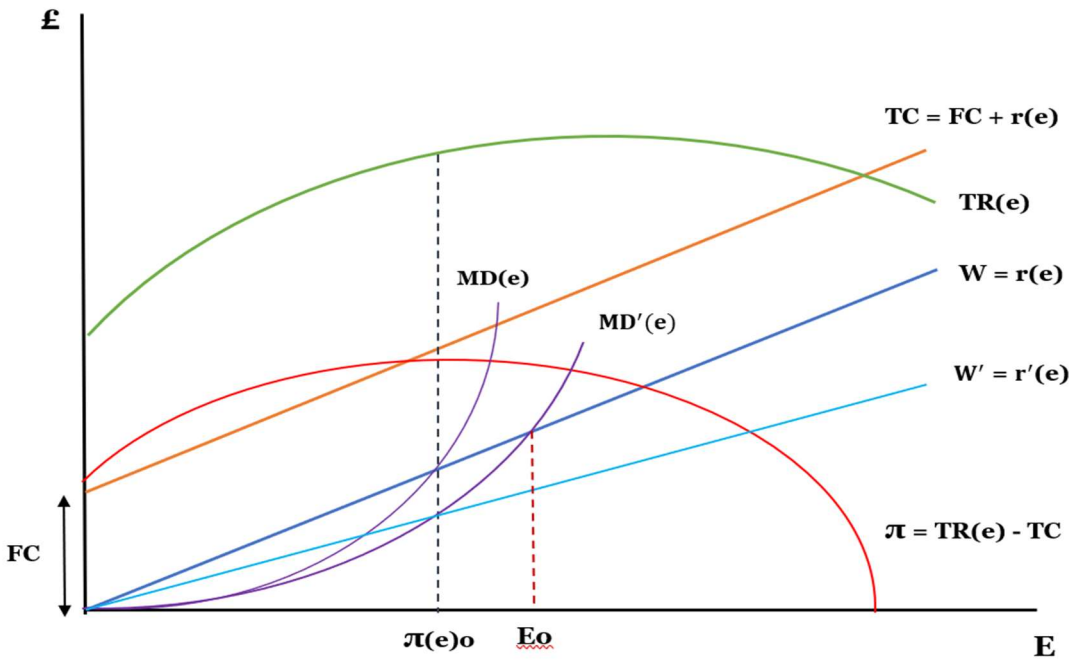

Figure 1. Piece-rates as an Effort Inducement Mechanism

This diagram summarises the position of a firm with respect to the inducement of effort. To simplify, we assume that the total revenue of the firm is a function of the level of output, which in turn is a function of the level of effort, e. So $\mathrm{TR(e)}$. Total Revenue rises as effort rises but at a diminishing rate due to diminishing returns to effort and the falling price of the finished product as output increases. Beyond a certain point increasing effort levels cause Total Revenue to fall. The costs of the firm are assumed to consist of Fixed Costs (FC) and Variable Costs, which we assume to consist only of wage costs. Labour is paid only piece wages. With output a function of effort only, and workers paid at a fixed rate r per unit of effort, total wage costs are $\mathrm{r(e)}$. Hence $\mathrm{W = r(e)}$ and the gradient of the $\mathrm{W = r(e)}$ line is the piece rate per unit of output and hence effort. Thus, the Total Costs of the firm are $\mathrm{FC + r(e)}$. Profits are Total Revenue minus Total Costs, and so the profit function is $\pi = \mathrm{TR(e) - TC}$. As can be seen, Total Profits are maximised at $\pi\mathrm{(e)o}$ and this is the optimal level of effort and output for the firm. This level of output is elicited when the Marginal Disutility of Effort line for the labour is $\mathrm{MD(e)}$. Given the return to effort line of $\mathrm{W = r(e)}$, the rational utility maximising worker will put forward the optimum effort level $\pi\mathrm{(e)o}$, where the Marginal Disutility of effort equals the piece rate $\mathrm{r(e)}$.

If, however, the workers' effort disutility line is $\mathrm{MD'(e)}$, then at the piece rate r the worker will maximise their net benefits from the supply of effort at effort level Eo. At this level of effort the firm is *not* profit-maximising. The firm will wish the worker to work less and to achieve this will

lower the rate of reward to effort to $W' = r'(e)$. The rational worker will now reduce effort levels from Eo to $\pi(e)o$.[1] This adjustment downwards in the piece-rate benefits the firm in the short-run. But it is bad for the worker, who now finds the marginal and average reward to effort reduced. By responding to the piece-rate offered, the worker has been penalised by a rate-cut. While this might suit the firm in the short-run, it is likely to discredit piece-work as an effort inducement mechanism in the long run: workers will in future be wary of increasing effort-levels under piece-work, fearing that the piece-rate will be reduced and they will end up working harder for a given level of remuneration. In retrospect the worker would have been better-off limiting output to $\pi(e)o$ in the first-place, since they would then work at the same level of effort but their rate of pay would have been higher (since $W > W'$).

The effect of such price-cutting was to place a cap upon wages and effort levels, and thus piece-work was, in practice, a method for securing a given amount of work for a given wage, rather than a method for *intensifying* effort.

Trade Unions and the Limitation of Output

Another key factor helping to determine effort levels within British industry was the operation of trade unions. Once they had achieved centralised day-wage employment, unions sought to exert control over employer endeavours to induce greater worker effort since, in their capacity of monopoly suppliers of effort to a firm or industry, unions realised that only by limiting the effort put forth by their members could they raise the Standard Rate paid per unit of effort and maximise the net benefits to their members. The reason why controls on individual effort were necessary was that, with firms operating in markets where demand curves were downward sloping, if workers as a whole increased their effort and hence output levels, the greater volume of production would lead to falling prices and hence a lower value per unit of labour expended. Any given worker might be induced to work harder, assuming (correctly) that if they did so the price of the product and hence the value of their marginal effort, would remain constant or fall only due to diminishing returns. But if most or all workers behaved in this way, the marginal return to effort would decline for *all* workers, with the result that workers as whole in a factory or industry would end up expending higher levels of effort for a lower rate of pay per unit of effort, with each worker finding they were working beyond the point where the marginal cost of working harder is at least compensated for by increased remuneration. It is this collective action problem with regard to the supply of effort that unions

[1] Lowering the rate of payment per unit of output will lower the firms Total Cost Curve and hence change the profit-maximising output, but to keep the diagram manageable this is not shown.

sought to surmount by limiting the effort inputs of all workers. In effect, the union, regarding itself as a monopoly supplier of effort to an industry, would seek to maximise the net benefits to its members by limiting the supply of effort until the Marginal Benefit of effort = Marginal Disutility of Effort.

This can be easily demonstrated. A union would wish to maximise the Net Benefit of effort to its members, where:

Net Benefit = Total Benefit from Effort – Total Disutility of Effort

Assume that, for labour, the Total Disutility of Effort (E) rises at a linear rate according to the function:

$$TC = c + dE$$

where dE is the marginal cost or disutility of Effort. The Total Benefit to Effort is the total remuneration Labour receives from a given level of Effort, which is the quantity of Effort multiplied by the wage payment w per unit of Effort. That is:

$$TB = wE$$

However, since if workers in an industry raise their effort levels E, then the output of the industry will increase and, assuming a downward sloping demand curve for the finished product, then the wage payment per unit of Effort will fall. There is, in other words, in a downward sloping industry demand curve for Effort. Let us assume this downward sloping demand curve is a linear one, such that:

$$w = a - bE$$

Hence, the Total Benefit function for Effort at the level of the industry is:

$$TB = (a - bE)E$$

$$TB = aE - bE^2$$

Thus, the union wishes to maximise:

$$NB = TB - TC$$

$$NB = aE - bE^2 - (c + dE)$$

Net Benefit is maximised when the first differential of NB with respect to E is zero:

$$\frac{d}{dE}[aE - bE^2 - (c + dE)] = 0$$

$$a - 2bE - d = 0$$

Here $(a - 2bE)$ is the Marginal Benefit from an increase in Effort and d is the Marginal Disutility. Hence the condition for the union to be maximising the joint Net Benefits of its members is to limit Effort to that point where:

$$a - 2bE = d$$

That is, where the Marginal Benefit of Effort equals the Marginal Disutility. Since the Marginal Benefit of Effort $(a - 2bE)$ exceeds the wage per unit $(a - bE)$, at the Net Benefit maximising level of Effort the payment per unit of effort (w) will exceed the Marginal Disutility of that level of Effort. The employer is willing to pay more for an extra unit of Effort than the cost in disutility to the worker to exert it, and the individual worker (left to decide their own Effort output) would produce more. But the effect of this extra Effort by all workers would be to drive down the Marginal Return to Effort for workers as a whole. It is for this reason that the union will have to control the Effort levels of individual workers so as to maximise Net Benefits to Labour as a whole, leaving employers frustrated that Effort-levels are below the non-union equilibrium.

As can be seen, the amount of Effort the workforce will supply is positively related to a, which is the Wage per unit of Effort employers will offer when Effort levels are very small, and inversely related to b, which is the gradient of the Effort demand curve, and to c, which is the marginal disutility of effort. When the demand for the finished product was *inelastic* and hence the gradient b was higher, the amount of Effort workers would supply would be less, while the more irksome was Labour and the higher was c, also the workers would be expected to supply less Effort. This is why writers such as Howard Gospel emphasise the importance of inelastic demand for many of the goods UK workers producers as a reason for the limitation of effort levels.[1]

These points are summarised in **Figure 2** below.

[1] H. Gospel, *Markets, Firms, and the Management of Labour in Modern Britain* (Cambridge, 1992).

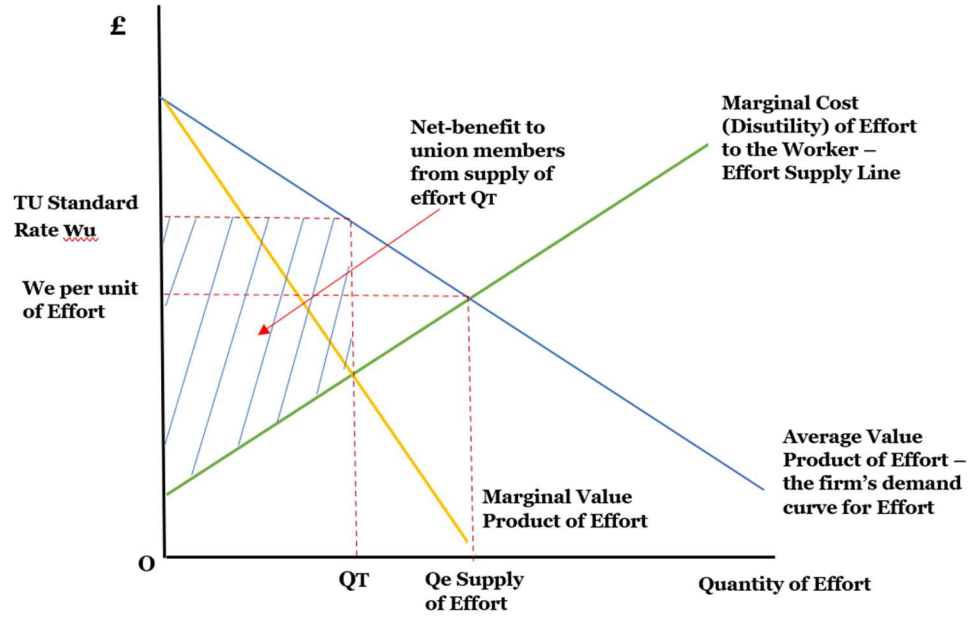

Figure 2. The Trade Union's Effort Supply Decision to an Industry

In this diagram, the Average Value Product of Effort line is the industry demand curve for effort: it tells us how much effort the industry would purchase at any given price of effort (Wage). It declines as more labour effort is expended since, first, there is diminishing returns to labour, so each additional unit of effort adds less to output than the previous one; and second, because, as effort and output increase in an industry, the price of the finished products decline. The supply of effort to the industry is the MC or Marginal Disutility line, which rises since each additional unit of effort expended yields more disutility than the last. In a free market for effort the equilibrium rate of return to effort will be We, where the supply and demand for effort are equal at Qe. At Qe each individual worker is expending effort until the Marginal Disutility of that effort equals its price (Wage). However, the result is an over-supply of effort to the industry since, due to the more steeply sloping Marginal Return to effort curve, at Qe the Marginal Cost of effort significantly exceeds the Marginal Return to effort and workers in the industry as a whole are supplying more than that level of effort where the Net-Benefit from supplying effort is maximised, which is where MC = MR at effort level QT. As a result, the workers in this industry as a whole are *not* maximising their Net-Benefit from the supply of effort. Unorganised workers would never be able to limit their effort supply to QT because, at the then price of effort (namely Standard Rate Wu), the rate of return to effort exceeds the MC of expending effort, so each worker would have an incentive to work beyond the agreed amount, anticipating that the rate of return will remain constant and they will gain. Of course, all workers have such

an incentive at QT and hence total effort supplied increases beyond QT towards Qe and the price of effort declines back towards We.

This is where trade unions come in. Claiming to represent all the workers in an industry, the union can act in the interest of all workers by setting a maximum total effort level of QT, which pushes up the price per unit of effort to Standard Rate Wu, thereby maximising the Net-Benefit to union members of their effort decision, as indicated by the shaded area. Further, the union can act to prevent individual workers from reneging on output limitations by threatening them with a range of sanctions, from social exclusion to fines to physical intimidation to dismissal. A union, then, acting as a monopoly supplier of effort to an industry, could act to limit the effort each worker puts forth in the hope of raising the rate of return to effort and maximising the Net Benefits to workers in the industry. This increase in Net Benefits to workers takes place at the expense of employers, whose profits from the employment of labour decline (since at QT the employers demand for effort is higher than the amount workers would have to be paid to compensate for the disutility of effort), and at the expense of society, since again the value of the output from an extra unit of effort exceeds the marginal disutility of that effort. The social optimum amount of effort is Qe, where the marginal value of effort equals the marginal disutility of effort.

We thus find trade unions in the later nineteenth century taking a variety of steps to control the effort levels of their members. To reduce the temptation to individual workers to speed up working in the hope of increasing their pay, restrictions were placed on the operation of piece-work schemes. Many unions, accounting for about one-third of total union membership in 1894, opposed piece-work entirely. Bonus schemes were generally objected to. In engineering a long battle was waged against the Premium Bonus System. In 1909 a resolution hostile to the system was carried at the Trade Union Congress, and it was resolved to call a conference of the societies concerned with a view to its abolition. Profit-sharing was rarely favoured by unions. Systems of wage differentials were interfered with and unions often sought to control promotion. Unions in the iron trades insisted on promotion by length of service – not by the worker's industriousness or initiative. Cotton spinners likewise sought to control promotion from piecer to minder according to seniority within the mill. When, in the flint-glass trade, a place fell vacant in the hierarchy of workers constituting a 'chair', the employer was prevented from promoting a worker from a subordinate position but instead had to apply to the National Flint Glass Makers' Society from a replacement worker from a list of unemployed members.

Two developments had, in short, occurred by the early twentieth century. First, the principal-agent problem was brought home to employers in a way not previously experienced. Second, employers who were inexperienced and uneducated in its solution, found the techniques available to them for its resolution seriously circumscribed by trade unions. Rigidity of approach to the problem now characterised British industry and we find the difficulty of inducing work effort from wage earners and frequently aired complaint of employers in the late nineteenth and early twentieth centuries, and one recognised by unions, academics, journalists, social reformers, and politicians. It was, indeed, a prominent theme in the Edwardian social malaise.[1]

These developments I have broadly sketched were well exhibited in the British shoe trade over this period.

The Work Effort Problem in UK Shoe-making

Organisation of the Industry in the 1850s: the Prevalence of Outwork

The greater part of the wholesale boot and shoe trade in the 1850s was organised by merchant-capitalists, who purchased leather, cut it up in central warehouses, put it out to small producers – who worked in their own homes or small workshops – to make-up into shoes, and then marketed the finished product. Boot making was divided up into a number of distinct operations, each performed by separate groups of workers. *Closers*, who were generally women, sewed together the upper leather of the shoe; *lasters* shaped the sewn leather to a wooden last; *sewers* or *rivetters* attached the upper to the sole; while *finishers* inked and polished the shoe. Little work was carried out on the undertaker's premises under central supervision. The chief exception was the cutting of the upper leather by *clickers*: leather was the most important cost item and to prevent embezzlement its cutting took place under the foreman's watchful eye. Technology at the beginning of the 1850s was simple and, with hand-processes dominant, technical economies from centralising production were minimal. This is not to say there were no economies to be had from centralising production. Much time and effort were involved in transporting shoes from one stage of production to the next. Theft of materials was a problem, and the flow of work could be irregular. But while there were benefits from centralising production, there were also costs, such as the construction and maintenance of factory premises, rent, the provision of light and heating, and so forth. Above all: by putting

[1] For a classic statement of the case against unions as organisations limiting output, see E.A. Pratt, *Trade Unionism and British Industry* (London, 1904).

work out, the problem of work-effort, as it appeared to the merchant-capitalist, was effectively solved. The difficulty of supervising workers and inducing effort, and the costs and uncertainty thereby arising, did not exist. As an Inspector of Factories in London pointed out to a parliamentary Select Committee, with domestic work 'the master escapes the necessity of supervision'; he 'gives the work out and it is brought back to him; he prefers this domestic labour.'[1] The cautious mentality of the employers was well expressed by a Secretary of the Boot Manufacturers' Association:

> In connexion with the trade that I represent, and from a manufacturers' point of view, at least, it has rather to be considered whether the workman can be trusted to do a fair day's work for a fair day's pay.[2]

As subsequent events demonstrated, this caution was well founded.

The worker, then, worked typically in their own home or in a small workshop under a garret-master. In the latter case the worker was engaged in a principal-agent relation with its attendant characteristics. A garret-master would contract to supply given quantities of work at a set price from a putting-out merchant and then employ up to ten men, paying them either day-wages or a share of the total revenue. Clearly, he had incentive to secure as much effort from his employees as possible, since under both payment systems this would increase his earnings. How was effort enforced within the workshop? Where the workers were paid a share of the total revenue a monetary incentive to the workers to increase output existed. Another incentive for the journeyman was the prospect of upward mobility – of becoming a master himself. But the 'stick' of supervision was also present. Having only a small staff employed in a limited area, the master was ideally placed to monitor employee performance, and, by intimate knowledge of his hands, to know the capacities of each. A plentiful supply of labour eager to enter the trade gave the master a strong bargaining position in enforcing the greatest amount of effort for a given wage. Indeed, given the ease of entry into the trade, the garret-master was himself subject to competition, having to bid for each contract of work, and could not afford to let the rate of pay per unit of effort to drift up. For the putter-outer this outcome was ideal: his principal-agent problem was solved and at a low price. D.F. Schloss found that, amongst sub-contractors in the London shoe trade of the 1880s, many appeared to earn little more than their employees. The net earnings of a typical 'master-finisher', employing three workers, were, in a busy week, 60 shillings. Of this, about 39 shillings represented his earnings from manual work and 5 shillings the labour of his wife, so that his remuneration for seeking the work, transporting it, and organising and overseeing its

[1] *Select Committee on Sweating*, Second Report, Q. 16,696.
[2] *Ibid*., First Report, Q. 9,923.

production, was 16 shillings a week – less than two-thirds the journeyman's average wage of 26 shillings.[1]

The chief advantage of outwork for the domestic worker on their own account was independence. Being self-employed, the worker could monitor their own effort levels, balancing the price they received for the extra output they produced against the marginal disutility of labour. There is plenty of evidence to suggest that this is what they did. Before the *Select Committee on Sweating*, Mr. Moses, boot manufacturer, stated:

> My workmen being ordinary Englishmen … they are every Monday worshipping Holy St. Crispin. Monday, Tuesday, and Wednesdays sometimes they will never attempt to work, and they will start Thursday morning at home, and perhaps they will not leave off till Friday night. Of course, over that I have no control.[2]

In itself, the manner of work of the outworker did not concern the employer. He wasn't interested in the effort expended per worker per day or week, or even in the effort per unit of output. His concern was merely with the price he had to pay per unit of product and its date of delivery. Here outwork possessed a further advantage: competition for work kept piece-prices down. What was true for the garret-master held even more strongly for domestic workers. With most of the processes of shoe-making involving only moderate skill, and with tools being cheap, entry into the trade was easy. The home-worker's bargaining position was further undermined by his isolation and lack of resources.

Thus, the system of outwork prevailing in the shoe industry in the 1850s was a highly effective way of solving the problem of labour effort. For the merchant-capitalists, outwork constituted a means by which the difficulty of inducing work effort was avoided – by contracting it out to others and by purchasing the output of self-employed contractors. And the structure of the industry, and the competitive conditions prevailing within it, ensured that the value per unit of effort was, in fact, low.

The Move to Indoor Working

However, from the 1850s change came over the shoe-industry. Commencing with the introduction of the sewing-machine for closing uppers in 1856, mechanisation steadily encroached on all processes of the shoe manufacture. By 1900 machine production was the rule. Associated with mechanisation was a move to centralised factory employment. But the process was a slow one. Many of the early machines – such as the sewing machine – could

[1] D.F. Schloss, 'Bootmaking', in C. Booth (ed), *Life and Labour of the People in London* (1889), IV., pp. 89, 108-09.
[2] St Crispin was the patron saint of shoemakers.

be used in workers own homes, and the distinct processes of shoe production ensured that, whilst one process might be mechanised and moved indoors, others could continue unchanged. So by 1890 the structure of the industry was highly variegated, with out-work still conducted on a substantial scale. In Leeds in 1891, half of the finishing work was 'done in the homes of the people.'[1] In the villages of Northampton in the late 1880s it was said that 'nearly the whole of the work is done in the people's homes.' At Raunds in 1889, for instance, the production of army boots occurred at 260 places, of which less than 100 were workshops as defined by the Factory and Workshops Acts.[2] Only in 1889 was the first factory built in Northampton in which all production took place indoors.[3] Even in Leicester, where mechanisation was most advanced, the majority of boot operatives worked out of doors in 1891.[4] Employers were reluctant to move to indoor working – and this reluctance was shared by the workforce, which valued the independence and flexibility of home-working. But a new factor now entered the scene.

With the emergence of machine processes there emerged a trade union representing those engaged upon them. The National Union of Boot and Shoe Operatives was formed in 1873 amongst factory rivetters and finishers. Its initial growth was slow. In 1889 the membership stood at 13,760, about one-third of its target group of rivetters and finishers and less than ten per cent of the wholesale trades labour force. It was apparent to the union that, so long as production remained scattered throughout homes and villages, the union's strength would ever be minimal. And the slow pace of centralisation gave few grounds for optimism. W. Inskip, the union's general secretary, observed in 1891 that 'the use of machinery was not rapidly on the increase in Leicester, and could not be relied upon to bring about indoor labour in any general degree.'[5] The evolution of the industry towards factory methods would have to be forced, and from the mid-1880s the union commenced a campaign to undermine the hitherto dominant practice of sub-contracting for the supply of labour services. As Inskip explained to the *Royal Commission on Labour*:

> We decided to spend all our funds in an attempt to compel employers to find room for their workpeople to work on the premises, thus sweeping away the middleman or sweater.[6]

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[1] Evidence of J. Judge to *R.C. on Labour*, C, Vol. II., Q. 11,984.
[2] J.H. Clapham, *An Economic History of Modern Britain*, II. (Cambridge University Press, Cambridge, 1932), p. 182.
[3] *Record*, 7 September 1889, p. 286.
[4] P. Head, 'Boots and Shoes', in D.H. Aldcroft ed., *Development of British Industry and Foreign Competition* (London, 1968), p, 168.
[5] *Record*, 2 January 1891, p. 28.
[6] *R.C. on Labour*, C, Vol. III., Q. 16,003.

Although commencing in London with a strike against outworking in 1890, the campaign's decisive stages took place in Leicester. Being the centre of factory production, Leicester was the stronghold of the union. Equally significant, it meant there were a number of large and powerful employers. Together these two groups forced through indoor-working against the opposition of numerous outdoor workers and small employers. Factory employers were keen to see smaller producers eliminated, regarding their competition 'illegitimate': they were not subject to the Factory Acts or union pressure on wages and conditions. The *Boot and Shoe Trades Journal* expressed their interests in 1891:

> Indoor labour was necessary in Leicester for competition in that town has been exceedingly keen, and much of it has been due to the system of home work.[1]

'Uprooting' domestic workshops, it continued, 'will largely benefit legitimate manufacturers.' Thanks were therefore due to the union for insisting on factory work, especially since opposition from the operatives to such a move would otherwise have been anticipated.[2]

The union began by stopping a number of firms from sending work into the country by the threat of strike action. At the beginning of 1891 the union submitted a demand for complete indoor working in Leicester. The largest manufacturers were quick to agree to the proposal – to the annoyance of John Day, the vociferous editor of the *Shoe and Leather Record*:

> We quite fail to see why one section of the boot manufacturers, even though they may be the majority, should compel another section to go to the expense of providing factory accommodation for men, who do not really wish to work in a factory.[3]

The *Record*'s Leicester correspondent claimed that 'ninety per cent of manufacturers are utterly opposed to the union's arbitrary demand' and 'a very large percentage … of those already working in their own shops at home would prefer to continue under those conditions.'[4] But the combined forces against these disorganised groups proved too strong. In March 1891 the Leicester Boot Manufacturers' Association agreed to provide workshops for all employees. By March the next year the union was able to declare that in every instance in which it had withdrawn men in Leicester to enforce indoor working 'we have succeeded in causing the employers to adopt this beneficent system of working.'[5] According to the union, less than five per cent of the Leicester labour force was working out of doors in 1892, compared to more than fifty per cent in 1891.[6]

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[1] *Boot and Shoe Trades Journal*, 4 July 1891, p. 2.
[2] *Ibid*.
[3] *Shoe and Leather Record*, 16 January 1891, p. 127.
[4] *Ibid*., 23 January 1891, p. 212.
[5] National Union of Boot and Shoe Operatives, *Monthly Report*, March 1892, p. 1.
[6] P. Head, 'Industrial Organisation in Leicester 1844-1914: A Study in Changing Technology, Innovation, and Conditions of Employment', Leicester University PhD. Thesis (1960), p. 148.

Notices from the union to provide workshops were served on employers in Northampton, Bristol, and Leeds in 1893, and in Stafford in 1896 – in each case with the broadly desired results. In smaller county centres, where the union was weaker and attachment to home working stronger, outwork survived longer. Nevertheless, a decisive change in the organisation of the industry occurred in the 1890s: by 1895, factory production was dominant in all the major centres of the industry – excepting London and Norwich. This was a victory, not just for the union, but for the emerging corporatism within the industry, for without the cooperation of leading employers in the Manufacturers' Association, the transformation would have been nowhere near so rapid or complete.

Determination of Effort Levels with the Factory

Once inside the factory bargaining centred around the level and remuneration of effort commenced in earnest. The story is confused and reflects little to the credit of either side. Here we endeavour to supply only a brief outline.

Remuneration by the piece-rate was a natural continuation from the payment systems within domestic production and soon became entrenched in the early shoe factories. Piece-prices were embodied in long and complicated statements which had to accommodate a wide diversity of materials, styles, qualities, and trimmings. Under such a cumbersome system, adjustments to piece-rates were infrequent, being usually a response to significant changes in material conditions – such as the introduction of a new style or machine. Even then controversy often followed, and disputes over piece-prices were frequent. Piece-rate statements of this nature were not suited to stimulating effort and there is little to suggest they were used for such a purpose. For one thing, it was a goal of the union and local employers' associations to establish uniform statements covering all firms in an area. Leeds gained such a statement in 1873; Leicester in 1878. With all firms having to pay a standard piece-rate, the scope for flexible and detailed adjustment of rates at firm-level was minimal. Employers looked to piece-work, not as a means to increase effort levels, but rather to secure from workers new to factory labour a certain minimum amount of effort per week.

This early compromise was undermined by technical change, which steadily gathered pace and acted to bring the labour effort problem to the fore. Employers installing new machinery took advantage of the disturbance to introduce new effort enforcement mechanisms. Instead of re-negotiating piece-rates, firms opted for day-work, attempting to enforce effort through increased supervision and the threat of dismissal. Why was this? Rapid technical change always renders piece-work problematic. Ascertaining what a 'normal' worker can be 'expected'

to produce on a new machine is hard and to set appropriate piece-rates would be time-consuming and expensive – especially as, once set, they would be hard to revise. Encouraging employers to shift away from piece-work were fears that that the union would not permit piece-rates to fall sufficiently to render machinery profitable. It is possible, too, that employers sought to take advantage of the disruption of mechanisation to seek to reduce payment per unit of effort. There was some scope for this. Labour would seem to have enjoyed a degree of economic rent at existing wage levels, in the sense that the available supply of labour was sufficiently great (as witnessed by frequent union complaints about unemployment) to ensure that if, for a given wage, effort levels were increased, the decline in net advantages of shoe work would not have been sufficient to render labour recruitment a significant problem. The difficulty was that:

1. Employers failed to go through rigorously with their scheme.
2. By the early 1890s the union had become an important force in the major centres of the trade.

Union Attempts to Control Effort Levels

The attitude of the union is crucial to understanding the events of the period. There is no doubt that, from the beginning of the 1890s, the union engaged in a surreptitious campaign to limit worker effort levels. From across the country employer complaints of output limitation mounted in frequency and intensity. The spirit of employer grievances is well captured in a editorial by John Day in the *Shoe and Leather Record* in 1892:

> There exists among workmen what amounts to a tacit understanding that only so much work shall be done within a certain time, and, no matter what machines are introduced, the men conspire to prevent any saving being affected by their aid … The unions are engaged in our gigantic conspiracy to hinder and retard the development of labour-saving appliances in this country … In America the men WORK, they run the machines to their utmost capacity, and vie with each other in the endeavour to get through as much work as possible. But in an English factory they seem to loaf away their time in a manner which is perfectly exasperating. If they run a machine for 15 minutes at full speed, they seem to think it necessary to stop it and see that no breakage has occurred. Then they walk about the shop, and borrow an oil-can or a spanner, wherewith to do some totally unnecessary thing. This occupies anywhere from 5 minutes to an hour, and then the machine is run on again for a few minutes; and if the operator is questioned, he says 'machines are no good; we could do the work quicker and better by hand.'[1]

[1] *Shoe and Leather Record*, 19 February 1892, p. 441.

But the union did not merely restrict output on machine processes: the output of hand-workers was limited also. In this policy the union seems to have been chiefly motivated by two considerations.

First, the union was conscious that the employer demand curve for labour effort was quite steeply downward sloping, a fact which in turn reflected the low price-elasticity of demand for shoes. Around 95 per cent of UK shoe output was sold on the domestic market, and people's demand for shoes was inelastic – few people could afford to buy more than two or three pairs. By limiting the supply of effort to the trade, by restricting the entrance of new workers and controlling the effort of those already employed, the union hoped to move its members up the industry demand curve for effort, with the ultimate aim of maximising the net benefits to union members from supplying effort to the industry. In this way the conduct of the union approximated to that described in **Figure 2** above.

The second factor favouring a policy of output limitation was the wish to maximise employment. Mechanisation was associated with the beginning of a long-run decline of employment in the shoe trade. Operating the new machines, an increase in worker productivity would, given the inelastic demand for shoes, only accelerate this process, increasing the probability of unemployment in the industry and reducing the odds that a worker laid-off would gain a new position. In 1902 the Leicester branch of the union debated a resolution to limit output on the grounds that: 'owing to the large number of men kept walking about whilst others are more fully employed, this Branch hereby declares that all members of the No. 1 Branch working in any one department will make the same time as each other.'[1]

Limiting output to maintain or even increase the rate of pay per unit of effort and to preserve employment were traditional union objectives. What made the policy so controversial within the industry was the union's tendency to link the performance of a certain amount of effort with the production of a certain amount of output. Such a conflation was problematic when new machinery was being introduced with the avowed intention of increasing output from a given amount of effort. To achieve its objectives, the union sought to apply the old statements of prices for hand-work to the work produced under the new machines – thereby maintaining the labour-cost per unit of output and ensuring the bulk of the productivity gains from investing in machinery would go to labour. This policy culminated in the Unofficial Leicester piece-work statement drawn up in 1893. Starting from the old piecework statements for hand lasting and finishing, an amount was deducted from each price to secure to the employer a return equal to the prevailing interest rate on his machine investment. When, in April 1893, a Leicester

[1] *Ibid.*, 7 November 1902, p. 840.

operative was dismissed for insufficient output, he protested that 'he shouldn't do any more than he had done, as the officials had given instructions that they were not to earn the manufacturers more than five per cent. upon the cost of the machines.'[1] Since the employer was only to recoup his investment cost, he would make no net profit from introducing machinery. And since the cost per unit was to remain the same, the consumer would gain nothing either. The sole beneficiary from the introduction of machinery was to be the shoe-worker, who would receive more money per unit of effort expended.

Unsurprisingly, relations between employers and the union deteriorated during the early 1890s and in 1895 employers declared a lock-out, the aim of which was to end union interference in the management of factories and the setting of effort levels and piece-rates. Nominally, the employers were victorious as, after a six-week stand-off, union members were forced to return on the employers' terms, in particular, the concession that employers could choose to adopt either the piece or day wage systems, and that any future piece-work statement be based on the 'actual capacity of an average workman' – not on the cost of production under hand-work.[2]. But a real success for the employers proved more elusive. Complaints of output restriction soon resurfaced and by the late 1890s reached a pitch comparable to that of the earlier part of the decade. In 1900 John Day began a campaign to have the union taken to court for inducing workers to break their contractual commitment to do their best for a given wage.

> For every £1,000 paid in wages in certain departments it could be shown that not more than £500 worth of honest work was done … an enormous sum would thus pass from the custody of the union to the employers, who have been systematically robbed by the deliberate slackness of their workmen instigated by union agents.[3]

In 1904 a Leicester firm commenced proceedings on these very grounds, alleging that its day-workers on edge-setting machines, who had previously produced at a rate of 3.5 pence per dozen, were instructed by the local Union to restrict output and bring their rate of payment up to the town average of 4.5 pence.

By the turn of the century, employers were coming to admit their failure to maintain adequate effort-levels on day wages and the need for a piece-work statement on machinery was increasingly canvassed. Ironically, the union, which initially advocated piece-work, now favoured day-wages. There was logic in this position, in that the union could more easily control effort if the individual worker was denied the direct temptation to cheat on effort restraints that existed under piece-work. Interestingly, Inskip had, shortly before the 1895 dispute, spoken of his personal support for day-work on the grounds of 'the great number that

[1] *Record,* 14 April 1893, p. 903.
[2] W.B. Hoffman, 'The Late Boot War', *The Economic Journal*, V. (1895), p. 268.
[3] *Shoe and Leather Record*, 21 September 1900, p. 560.

piece-work would displace.' By 1896 this had become, according to the union's President, the majority view on the Executive Council.[1]

The system that emerged out of these opposing principles was a compromise. Each area was to draw up a Quantity Statement, under which a basic day-wage was agreed to which there corresponded a minimum output. Dividing the former by the latter yielded a standard payment per piece. If the worker produced *less* than this minimum, a deduction from their basic wage would be made according to the piece price; but if they produced more they would be paid for each additional unit. So the Statement could be regarded either as a day-work system with a fixed output, or as a piece-work system with varying output. It all depended upon how you looked at it. At Leicester they looked and saw a piece-rate scheme; Northampton, on the other hand, regarded it as a fixed-output scheme. As a local union member explained:

> In Northampton … we don't want to go the pace, and are not desirous of killing ourselves. We have been opposed to piece-work rates, and we know full well what it will mean to our men when it is universally adopted ... We should have had numbers unemployed, whilst others would have received more than under the old system.[2]

Employers, not unnaturally, were hostile to the union's propensity to regard the Quantities Statement as an output-limiting device. The *Record*'s Northampton correspondent voiced their exasperation in 1913:

> Northampton manufacturers have long suffered under the restriction of output … One would have thought after the principle of full pay for extra output had been so fully affirmed, there would have been some improvement, but apparently there has been none.[3]

Profound differences therefore persisted between employers and workers over the question of labour effort right up to the First World War.

[1] A. Fox, *A History of the National Union of Boot and Shoe Operatives 1874-1957* (Oxford, 1958), p. 266.
[2] *Ibid*., p. 269.
[3] *Shoe and Leather Record*, 21 November 1913, p. 6.

The Effectiveness of Labour Effort Policy in the Shoe Industry

Considered by itself, the problem of worker effort was not effectively solved in the factory shoe trade in the years prior to 1920. A comparison with the US shoe industry is suggestive. In 1905 an estimated 242 million pairs of boots, shoes, and slippers were produced in America by approximately 160,000 workers; in Britain in 1907 the comparable figures were just under 98 million pairs produced by 126,564 workers. Physical output per head in Britain, at 772, was only 51 per cent. of the U.S. figure of 1,512.[1] This differential appears to have continued. In 1919 output per worker in the U.S. was 1,600, whereas in Britain in 1924 it was 793 – again, 50 per cent. of the United States figure.[2] Numerous factors contributed to this productivity differential. American shoe factories were equipped with more and better machinery, and the organisation and flow of work was superior. But the effort levels of shoe workers were very probably one factor in the equation. A foreman who had worked in both British and American shoe factories remarked that the British worker, upon arriving in the US:

> Soon becomes a quicker worker, because he finds greater speed in general about him, and he soon finds he can keep up with it by an extra effort, and this becomes his natural speed because he is not held back by fear of being regarded as a scab for driving a machine at its utmost capacity.

The union's general secretary, on a visit to America in 1899, declared that:

> Under no circumstances should we, as a union, nor would the men as individuals, I think, tolerate the rush and white slavery of American conditions.

The reasons for this failure to induce effort which are specific to the shoe industry may be traced to its history and organisational development in the second half of the nineteenth century and the attitudes characterising capital and labour. Let us consider the techniques used by employers to induce effort and their practical effectiveness.

The Carrot: Financial Incentives to Exertion

Promotion Systems and Wage Hierarchies

Wage-hierarchies within the typical shoe factory were little developed and exhibited slight evidence of having been drawn up with their incentive aspects in view. For instance, as the Desborough Shoe Company in 1912, we find that in each department the highest paid worker was the foreman, and his wage was typically about 30% above the average weekly wage.[3] All other workers, therefore, could not hope to gain am increase in wages of even this much no

[1] *Manufacturers' Monthly*, August 1907; *Final Report of the First Census of Production* (1907).
[2] *Final Report of the Third Census of Production* (1924), pp. 272-75; *Manufacturers' Monthly*, June 1921, p. 35.
[3] Desborough Shoe Company, *Wage Book*, 1912.

matter how hard they worked. Further, what differential payments there were tended to be linked to length of service rather than effort levels. The only effective means of advancement open to a worker was to become a foreman. Each department had one (occasionally two) foremen and their place was usually filled by internal promotion. Comparing the Desborough workforce in 1920 with that of 1912, we find that four new foremen had been appointed, three of which from within the firm. Merit was undoubtedly an important factor in promotion, and hard work an aspect of merit, but the incentive to exertion from this source must have been limited. First, the average ratio of foremen to operatives was one to thirty, so the probability of advancement was not high. Second, the wage-differential paid to foremen was insubstantial, and since a worker could expect to wait 10 or 20 years to become a foreman, the discounted value of a one-in-thirty chance of gaining this differential must have been of little account to the average worker.

In one area firms could be expected to exert an incentive to exertion: given the seasonal nature of demand for shoes and hence shoe-makers, a firm could promise to retain throughout the year its most hard-working or reliable employees. There is some evidence that this occurred. The union's *Monthly Report* for April 1904 complained that 'none but the strongest and most expert men stand a chance of getting a job in the slack season.'[1] The threat of unemployment for a number of months each year would have been expected to stimulate workers to higher effort-levels.

Some attempts by employers to adjust wages according to effort levels were blocked by the union. When Rivetters at the firm of Burrows in Leeds failed to produce in weekly wages the amount considered acceptable by their employer, the firm cut their wages by 3-4 shillings per week. The union responded by calling a strike. Similarly, when the output of Lasters on day-wages at a firm in Leicester fell in 1898 (allegedly at the instigation of the union), the firm reduced the men's wages. A dispute ensued and the Leicester arbitration board ruled that the employers had acted wrongly.

Yet it would be unfair to imply that a flexible wage-policy tied to effort levels was frustrated merely by union opposition. In theory, observes Pencavel, the 'appropriate incentive for *habitual* work effort under time-rates involves a greater probability of being promoted to a higher wage-rate class in the future.' Indeed, he likens hard work under time-wages to an investment that will yield higher returns in the future.[2] Employers did, indeed, convey the impression that they were only too willing to reward a hard-working day worker; but the

[1] *Monthly Report*., April 1904, pp. 113-14.
[2] Pencavel, 'Work Effort', p. 233.

genuineness of these claims must be doubted. It is questionable whether a worker would have been wise to increase their effort levels on the chance that this would be recognised by their employer and rewarded proportionately. Wage differentials within departments were, as we have noted, narrow and the prospective benefits from increased exertion limited. Besides, few firms possessed the institutional machinery to closely monitor each worker's performance and adjust their reward accordingly. With one foreman overseeing all aspects of production in a department employing 20, 30, or more workers, and often working themselves, the likelihood that extra exertion would have gone unrewarded was probably sufficient to dissuade even the most eager of workers. The expected rate of return to effort on day-wages was simply too low to engender significant motive for sacrificing leisure for work on the job.

Profit-Sharing

Profit-sharing was little used in the boot industry during this period. The *Third Report on Profit Sharing* lists only three schemes as having existed by 1920, two of which had been abandoned.[1] Indeed, the effectiveness of profit-sharing as an effort-inducing device in the boot industry seems doubtful. Most shoe firms were small and their long-term viability insecure, so that profits could just as easily become losses and a worker would not have been sensible to raise their application in the hope of extra returns. Out of the 117 boot and shoe manufacturers in Leicester in 1870, 40 had ceased to trade within seven years.[2] Similarly, of the 110 firms listed in the 1885 Northampton Town Directory, only 12 survived in 1939.[3] At an 1892 conference, a unionist stated that 'Some firms in Leicester are like mushrooms, they spring up every morning,' to which Griffin Ward added: 'And like mushrooms they die every evening.'[4] When asked by the Labour Commission whether profit sharing would be feasible in the shoe business, a leading unionist replied: 'I do not think it would be possible, owing to the manufacturers, or a large number of them, being merely men of straw, being so small.'[5] Schloss described in 1894 how the only profit sharing scheme in the shoe trade, commenced in 1887, ended with the firm's failure in 1891, without ever having paid a bonus.[6]

[1] *Third Report on Profit Sharing*, pp. 162, 170, 182.
[2] Head, 'Industrial Organisation in Leicester', p. 199.
[3] H.C. Hillman, 'Size of Firms in the Boot and Shoe Industry', *Economic Journal*, XLIX (1939), p. 299.
[4] Cited *Drafts of a History of Leicester Boot Manufacturers' Association*.
[5] *R.C. on Labour*, C, Vol. II., Q. 12,098.
[6] D.F. Schloss, *Report on Profit Sharing*, 1894 [C. 7458] LXXX.

Profit-sharing was not an important issue for the union, though it was opposed to the idea. The industry's most developed profit-sharing scheme was ended at the request of the employees when they joined the National Union.

Bonus Schemes

There was some experimentation with bonus schemes in the years leading up to World War One, but they never attained the vogue they enjoyed in engineering. The union was hostile, declaring in 1912 that 'we are opposed to bonus'.[1] Any attempt by a firm to introduce such a scheme was generally met with opposition and strikes. This was the fate of G. Palmer of Anstey's Selective Bonus Scheme in 1910, according to which a certain number of men producing more than a set quantity were to receive a bonus.[2]

Piece-Work

This was the essential effort-securing device in the shoe trade and the one to which the trade would logically seem to tend. Time-wages typically tend to be used when it is difficult and costly to measure the individual output of a worker. This was not usually the case in shoe-making, where workers performed discreet tasks on a particular pair of shoes and the physical output they produced in leather cut, or soles affixed, or uppers sewn, was relatively transparent. In the USA in 1946, for example, 69 per cent of workers in the shoe trade were on some form of piece-work, compared to a manufacturing average of 30 per cent. In Britain in 1886, 52 per cent of shoe workers were paid by the piece and 48 per cent on time wages. In 1961, the share of British shoe workers paid piece-wages was 56 per cent, compared to a manufacturing average of 42 per cent.[3]

That piece-work was capable of motivating increased output was occasionally demonstrated. 'The men, when working to a price,' declared the *Shoe Manufacturers' Monthly* in 1909, 'always do fully 20 per cent more than when working by the day.' Introducing the Quantities Statement in 1904, a Leicester firm reported a 22 per cent. increase in output.[4] A Northampton firm, establishing a piece-wage scheme for army work in 1915, claimed to have increased output by 50 per cent.[5] A Report of the Boot and Allied Trades Research Association after

[1] *Monthly Report*, June 1912, p. 302.
[2] *Ibid*., December 1910, p. 570.
[3] Pencavel, 'Work Effort', pp. 228, 230.
[4] *Shoe and Leather Record*, 1 July, p. 6.
[5] *Ibid*., 19 February 1915, p. 21.

World War Two, analysing the output of 12 shoe factories, concluded that 'the productivity of day-workers is almost invariably lower than that of piece-workers and sometimes the difference is startling,' although this was mainly attributed to better organisation of piece-work production.[1]

Yet the story of the period prior to 1914 was that of the failure to develop the potentialities of piece-work. Much of the ineffectiveness of piece-work can be traced to the attitudes of the union. First, the union's desire for a uniform statement through which a standard rate of reward could be fixed per unit of output precluded flexibility in piece-rates and the possibility of adjusting them to the idiosyncrasies of particular firms. When an Ipswich employer in 1905 sought to place his workers on his own piece-work scheme, the union threatened strike action and the firm backed down. The following year a Norwich firm attempted the same thing; a strike resulted. Second, the union was unwilling to see piece-rates on machinery fall sufficiently to take account of increased productivity. Third, the collectivist ideology of the union was antithetical to the full play of piece-work. In 1921 the mover of a successful resolution before the union conference argued that piece-work is 'contrary to the best interests of the operatives' and complained that, whilst some men earned £6 to £8 per week, others were unable to do this, and this was promoting 'selfishness;' faster workers should agree to limit their output.[2]

Also frustrated by the union were attempts to run day and piece-work systems in parallel. This practice had proved effective in other industries. J. Zeitlin, for instance, has shown that in the printing trade it divided workers and stimulated piece-workers to extra exertion whenever work was provided.[3] Aware of this, the union fought against this development consistently and successfully. In 1883 the Leicester firm of Simpson put a number of men on day-work and, according to the union, having thus provided against emergencies he 'could manipulate his other workmen as he chose.' A strike was called and the firm forced to return all workers to piece-work.[4] That year union delegates met to consider the problem. Working dual systems, it was said, 'caused serious friction amongst our members as very often when work ran short, those on day-work would be fully employed, while those on piece-work had very little to do.'[5] Only one system, therefore, was to be permitted in each department. Action was taken to enforce this ruling. When Bostock & Sons employed rivetters on a mixed day and piece-work

[1] Anglo-American Council, *Report on Footwear*, pp. 11-12.
[2] *Manufacturers' Monthly*, June 1921, p. 35.
[3] J. Zeitlin, 'Compositors and Engineers: A Comparison', in R. Harrison and J. Zeitlin (eds), *Divisions of Labour* (Sussex, 1985).
[4] *Monthly Report*, December 1883, pp. 4-5.
[5] *Ibid*., January 1889.

system a strike took place.[1] A dispute occurred in 1891 when a Stafford firm sought to employ finishers on both systems. This veto against dual systems was incorporated in the 1895 Terms of Settlement. An employer had to put all his workers on one system or the other.[2]

A last point to note about piece-work is that although some foremen received output-related bonuses, the majority were on fixed time-wages. Although the prospect of stable earnings may have acted as a spur to promotion, day-wages reduced the incentive for foremen to supervise effectively.

The Stick: Supervision and Dismissal

It is curious that, whilst the shoe-industry was ideally suited to piece-work as a technique for intensifying effort as demonstrated by the United States, and whilst the structure of the industry was little-suited to intensive supervision and few attempts were made to render it so, employers had an implicit faith in the method of discipline to solve their effort problem. This faith was not well-justified.

More intensive supervision, coupled with the threat of dismissal, is often referred to as the method used to increase effort levels in the shoe trade – especially after 1895. Many firms did indeed embark on the policy of dismissing workers who failed to meet output targets on day-work. However, the prevalence of this technique and its effectiveness are difficult to assess. Three factors should be considered:

1. The localisation of the shoe-trade meant that a worker dismissed from one firm could hope to gain employment at another. Failing that, redundant workers frequently moved from one shoe-centre to another. Such possibilities naturally reduced the potency of dismissal as an inducement to effort.
2. Concrete evidence that the level of supervision within the industry increased is lacking. Conventionally, there was a ratio of one foreman to oversee the production of each department, which averages to a ratio of one foreman to every 30-50 operatives. There is little to suggest that this ratio changed significantly over the period. Figures from the 1921 Census of Population yield a ratio of 53 operatives per foreman, which conforms to what we would expect if the one foreman to each department rule held. An American manufacturer, visiting several English shoe factories in 1909, remarked: ‘What struck me very forcibly is the lack of efficient superintendents and foremen in

[1] *Boot Trades Chronicle*, 29 January 1887, p. 64.
[2] Fox, *Shoe Operatives*, p. 231.

English factories.'[1] Indeed, the growth in the size of factories made for a diminution in the intensity of supervision. Employers tended to think in terms of the ratio of foremen to departments, so as factories grew and the number of operatives increased per department, so the number of workers to each foreman increased. Thus, in the clicking-room of Stead and Simpson's Leicester factory, 150 hands were employed in 1879, 110 of whom were on day-wages; yet there was still only one foreman. When workers were paid by the piece, the foreman's prime role would be to ensure a steady supply of materials and to check the quality of the finished product. Levels of supervision seem sufficient for this. What they were not sufficient for was to monitor effort performance on day wages – a role they were not created or resourced to perform.

Employer priorities were reflected in the poor reward foremen received. The American quoted above continued by saying:

> If there were more of your foremen earning 30, 40, or 50 dollars a week [and this at a time when most foremen were earning between $7.50 and $10 dollars a week], their employers would be relieved of a large proportion of the responsibility they now carry and would not have to give their personal attention to detail which they now deem necessary.[2]

But as John Day added: 'The British employer, as a rule, has a very strong objection to a change which entails the enlargement of his wages list.'

3. The policy of dismissal as a spur to effort was undermined by the union. Dismissal of workers for inadequate effort frequently resulted in costly strikes, rendering the policy risky and uneconomic. More broadly, the workers and union increasingly resisted measures to enforce effort through discipline in the years prior to the First World War. Disputes alleging 'high handedness' and 'tyrannical' behaviour on the part of foremen became frequent after 1906 to the point of routine. Eighty Leicester finishers went on strike in July 1906, alleging that their foreman had been too exacting in his demands. A strike of two weeks at a Northampton firm in 1908 ended with the resignation of the foreman after 12 years' service. As a trade journal commented:

[1] *Shoe and Leather Record*, 1 October 1909, p. 595.
[2] *Ibid*., p. 595. At this time the average foreman earned around £2 per week, equivalent to 9-10 dollars.

> In other words, a man whose only fault seems to have been too great a zeal in his employer's interests, has again had to be sacrificed to the clamour of a few discontented operatives.[1]

Operatives at a Leicester factory were more ambitious when they left work to demand the dismissal of the general manager. Women at the Advanced Shoe Company went on strike in 1910 against the appointment of a new forewoman.

In January 1913 the Boot Manufacturers' Federation addressed an open letter to the union, protesting at output limitation and union interference in factory discipline, citing in evidence of the latter:

> … the cases which have recently occurred at Northampton, Kettering, and Leicester, where many of the strikes … were entered into with the object of removing or intimidating foremen and managers.[2]

While the spate of accusations of excessive discipline may have reflected attempts by firms to intensify supervision, it is likely that a more important influence was that the sensitivity of workers to a given level of supervision was increasing, a product of rising incomes, improved education, and enhanced political awareness. The conduct of foremen had surely changed less than the preparedness of operatives to tolerate it. Even the older, tested, forms of effort enforcement were breaking down before World War One.

Conclusion

In summary, the problem of inducing worker-effort was not effectively tackled in the shoe trade prior to 1920. Partly this represented a failure of management. Of the array of effort-inducing techniques available, only a few were employed and those half-heartedly. Employers, torn between the carrot and the stick, failed to deploy either rigorously. By dispensing with piece-work in the 1890s, the employers ensured that no significant incentive to worker-effort existed. There was no obvious reason why a worker, pursuing his own self-interest, should have sought to work harder. Having elected to rely upon supervision to enforce effort, employers failed to organise their factories in a way necessary for its success. The level of supervision and management was generally considered inadequate, and the absence of incentives for

[1] *Manufacturers' Monthly*, February 1908, p. 335.
[2] *Shoe and Leather Record*, 31 January 1913.

foremen was itself a serious weakness. The reward most foremen received showed little appreciation of the importance of the role they fulfilled.

Shoe-trade employers were inexperienced in factory management and exhibited little consciousness of the need to cooperate with their workers in enhancing effort levels for their mutual benefit. A 'them-and-us' atmosphere prevailed in the factory, hardly conducive to initiative or hard work. But in this shoe manufacturers were not untypical. Prior to World War One, British firms were generally characterised by poorly developed managerial systems, a lack of detailed knowledge regarding production methods, and a failure to use economic incentives to motivate higher levels of efforts, a failure in turn attributable to a lack of confidence in their ability to price jobs accurately (itself a symptom of their poor understanding of the technical elements of production) and to a class-bias, which caused them to reject the idea of workers earning significantly higher wages. As we noted, time-and-a-half was the informal limit to worker earnings on incentives and this ceiling to earnings and effort characterised shoe making as well.

Yet, in fairness to the employers, two considerations ought to be noted.

First, overhead costs in the shoe-industry were comparatively low, reducing the incentive to increase effort – at least with constant labour-costs per unit, as would have been the case under the Quantity Statement prevailing within the industry. With average costs falling slowly with increased output, while the price of the finished product fell quite quickly due to inelastic demand, the benefits from increased output could appear limited.

Second, the chief factor shaping the problem of labour effort, and the possible responses of employers to it, was the National Union of Boot and Shoe Operatives. It was the union which, by forcing work indoors, brought the problem to the fore in the first place. It was the union that pursued a policy of maintaining hand piece-prices on machinery. It was the union that fixed quotas on day-work and punished workers who wished to exceed them. It was the union which sought to trade-off output for enhanced employment. It was the union that opposed the dismissal of slower or inadequate workers. And it was the union that played an important part in undermining the position of the foreman. The union, without doubt, was at the heart of the effort problem in the British shoe industry and the ineffectiveness of what attempts were made to overcome it.