

**Labour Contracts in UK and US Bus Companies
with particular emphasis on the use of part time operators**

1. Costs and ridership are two of the major preoccupations of public transport agencies. The most dominant factors in their operating cost structures are the wages and benefits paid to the labour force. Hence when agencies have sought to cut costs of operation they have looked first at potential reductions in labour costs — even a small unit reduction in these can make a more significant reduction in total cost than a larger unit reduction in other elements. However cutting labour costs whilst also continuing to provide the services which their passengers desire has caused the agencies to look further than simple reductions in the real hourly wage rate, since often the existing work rules place limitations on the real cost reductions which can be achieved in this way. Using part time workers seemed to offer a cost effective mechanism to provide bus service in the peaks, whilst avoiding the extra costs of spread payments for full time workers. To this end, part time operators were first employed in the United States in the early 1980s. Since then the great majority of agencies have introduced some part timers. However many of the initial flexibilities which allowed these agencies to reap cost and service benefits, by scheduling part timers effectively, have been eroded, through initial and subsequent contract settlements as well as through legislative intervention.
2. UK urban bus operating companies have also sought to cut costs — in this case with the stimulus of competition under the deregulated system and for contracts awarded by government entities. However there has been little use of part time operators in the UK. Cost savings have come instead through relaxed constraints on the scheduling of full time work, lower hourly wage payments, through reductions in service provided outside core hours, and through reductions in the peak/base ratio.
3. In effect the UK and US labour arrangements provide an opportunity to contrast the decisions which bus operating agencies have taken under different organizational structures. This paper looks in more detail at some of these trends and seeks to consider the possible implications for public transport (both the authorities and the workforce) in America.

CURRENT EMPLOYMENT IN UK AND US BUS OPERATIONS

4. Though the American agencies have stressed the importance of part timers in reducing costs since the early 1980s (with Seattle Metro the first agency to gain the right to employ part time operators in 1977), British firms have not placed such a high priority on this aspect of their employment structure. Data from a recent small survey carried out at MIT (which was sent to a group of 58 British operators, and with responses from 37 or 64%) show clearly the different levels of part time and full time operator employment in the two countries. Those part time operators who are employed in the UK tend to be taken on on a slightly different premise from those in the US. Under US agreements the typical work week for a full time operator is 40 hours whilst part timers are typically restricted to a maximum of 30 hours per week. In Britain on the other hand part time operators are often required to be available to work on certain days of the week (which are agreed in advance between the company and the employee) rather than for a fixed number of hours. The average number of hours worked by the part timers in British firms recently surveyed by MIT was around 19 hours a week. Anecdotally it appears that there was initially a great deal of resistance to the introduction of part-time operators by some union negotiators, although over time the practice has become more accepted, such that some of the

more senior operators nearing retirement are electing to work part time. Full time workers in the UK work a basic week of between 37 and 45 hours. The UK variations, in full time weekly hours, often depend on the type of bus being driven, with minibus drivers working a longer week, at lower hourly pay rates, than those who drive a full size bus. Though UK firms do generally employ fewer part time workers the small independent firms have always used part time labour — in part because of the importance of the school bus market for these companies. Table 1, below, illustrates the lower use of part timers in the UK clearly.

TABLE 4: US AND UK PART TIME OPERATORS*
(As a percentage of total operators)

	US	UK
Average	16%	3%
Standard Deviation	17%	5%

5. Rather than employ part timers to bring costs down, British firms have reduced "extra" payments for operating staff i.e., under 60% of the companies surveyed, reported paying a spreadover allowance and two companies paid wheel turning time only. Straight shifts varied in length, with the majority around six to nine hours long. (This compares to a typical straight shift in the US of eight hours.) Spreadover payments are made in order to compensate employees for antisocial shifts, and long hours of work. Some have anticipated that these changes may cause recruitment problems for UK companies in the future.
6. In the US fixed route urban bus systems the great majority of firms were privately owned until after 1964, when the federal Urban Mass Transportation Act, was passed. This authorized federal capital subsidies for public transport services, and ten years later, operating subsidies were also authorized. These private firms had been bound by the 1939 law on private operation which stipulated that the labour force must be represented by a recognized union and bargaining must be collective. Since the 1964 law preserved workers rights, this union representation and collective bargaining structure was carried through into the publicly owned firms. This is a simplification as can be seen from Barnum's description of these changes.[†] In some cases unions were reintroduced, the firm having been taken into public ownership before the 1964 act, but not so much earlier as to make the 13(c) rulings inapplicable. In others, states had to devise mechanisms which would by-pass their own legislation (which aimed to prevent public agencies from direct negotiation with unions), in order that they should secure the federal funds which were available.
7. However it is clear that private firms had not employed part time operators to any great extent before this transition to the public sector. It is not clear whether this was a result of the union representation or of the lower peak/base ratios and the greater flexibility in work rules than exists in urban bus operations today. Many of those who have written about the introduction of part time operators have claimed that flexibility in work rules was gradually eroded through the 1970s (e.g., Chornitz and Lave 1981) and in fact have shown that a large proportion of the deficit increases in this period resulted from labour agreement negotiations which had produced settlements with stricter work rules. Pickerel (1983) has shown for example that there

* UK data from recent MIT survey and US data from APTA 1993 statistics

[†] Donald T Barnum, From Private to Public: Labor Relations in Urban Mass Transit, 1977

was an average increase in inflation adjusted operating loss of 43% in this period, with 18% a result of declining labour productivity as a result of the stricter work rules.

8. Part time labour therefore grew more attractive to transit management who saw various trends affecting their costs and revenues. These included the more restrictive work rules combined with higher peaking of demand and service provision. The increased peaking of services was a result of a number of factors including:
 - increasing residential suburbanization,
 - increasing female participation in the workforce, so that a proportion of those who had previously traveled in the off peak were not now available to do so,
 - increasing car ownership, and
 - increasing suburbanization of shopping and recreational facilities, such that the off peak attractors were dispersed and more difficult to serve competitively.
9. The first major transit agency to negotiate part time labour agreements in the US industry was Seattle Metro in 1977. The restrictions placed on the use of these workers were not extensive, in contrast to the agreements reached in many other transit properties since then. By 1989 three-quarters of all systems permitted the use of part time workers and one in twenty operators nationwide was a part timer.^{*} By 1993, 83% of systems were able to employ part time operators and approximately one in seven operators was working part time.[†] Generally however there are upper limits on the ratio of part time to full time operators, and on the number of hours in the week which the part timers can work. In some instances there are further restrictions such as allowing a part time operator only one piece of work in the day. Part time operators tend to be those with less seniority, and often only the new recruits, and are usually awarded fewer benefits than full time workers. In fact in 1993 only 30% of those firms employing part timers in the US provided any health benefits and only 36% retirement plans.
10. Over time some of the initial scheduling freedoms which were achieved with the right to use part timers have been eroded as either legislative intervention has required these agencies to provide other benefits, or as collective bargaining or arbitration awards have taken a middle line between union demands and management desires. Hence the picture for the unions has been one of success — in maintaining the number of full time employees, increasing their pay level, and allowing a small number of part time employees to be taken on.
11. Table 2 summarizes the current agreements in more detail. It shows that though the great majority of firms use part timers in the US, there are also many different agreements about the type of work which the part timers can perform, and illustrates clearly that there are financial benefits from using the part timers, who tend to receive fewer days of paid leave and lower levels of health and other benefits.

TABLE 2: 1993 RULES FOR PART TIME OPERATORS ON THE US
(information from 154 firms allowing part timers; APTA Labour Statistics 1993)

^{*} UMTA, Office of Budget and Policy, report prepared by Mundle and Assoc., Impact of Labour Contract Provisions on Transit Productivity and Cost, April 1989

[†] APTA Labour Summary 1993

% of firms with no limit on the # of PTOs	40%
Av. limit on number of PTOs in the workforce	23%
% of firms with no limit on the length of the PTO working week	22%
Av. limit on PTOs weekly hours	29 hours
% of firms employing PTOs in peaks	97%
% of firms employing PTOs on Saturdays	87%
% of firms employing PTOs on Sundays	57%
% of firms providing PTOs with health insurance benefits	31%
% of firms providing PTOs with retirement plans	37%
% of firms granting PTOs any sick leave	25%
% of firms granting PTOs any paid leave	36%

12. Much of the academic interest in the use of part time labour has focused on the introduction of the new operators, for example, the concessions granted by management in order to secure the greater flexibility (often a higher base wage rate), and the effects of employing part time operators on accident and absenteeism rates.
13. However a decade after part time labour was first introduced, the patterns are beginning to change. Some authorities have never been able to achieve, or looked for, the introduction of part time labour — for example in New York city no part time operators are employed by the New York Metropolitan Transportation Authority. In other areas there has been significant change in the achievable benefit of using part time operators. The Massachusetts state legislature for example passed a law in 1994 which stipulated that part time operators at the Massachusetts Bay Transportation Authority must receive the same benefits package as full time operators. This increased the cost of employing part-timers at the MBTA considerably, and led the authority to consider new options for scheduling and employment. These changes are discussed in detail in the following section.
14. Before investigating the evaluation of part timer operators, it should of course be recognized that the use of part time operators is not the only way in which agencies have sought to reduce the cost of bus operation in the US. Other practices such as improved run-cutting, with interlining for example, and introducing four day weeks for some staff, have also been used to lower costs and to increase flexibility and reliability of service in some cases. These other options are discussed later in this paper.

PART TIME OPERATORS AT THE MBTA

15. Part time operators were introduced at the MBTA in the Spring 1982 timetable, following a series of unsuccessful challenges by the Carncns union to the Management Rights Act passed in 1980. (The management rights legislation was passed by the state legislature to restore to MBTA management some of the powers which it had previously negotiated away to the unions, following a financial crisis in

which the MBTA funds were exhausted before the end of the fiscal year and services were halted.*)

16. The MBTA has fairly tight work rules and punitive pay provisions, such that the coverage of peaks is considerably more expensive than at some other agencies. For example, spread pay after 10 hours is one and a half times the basic rate, and after 11 hours is twice the basic rate of pay. Hence part time operators were introduced in order to reduce the cost burden of these rules, particularly, as in most agencies, to reduce the cost of providing weekday peak period services.
17. Part time operators were later also employed at the weekends -- on Sundays beginning with the Fall 1985 schedule and Saturdays beginning with the Fall 1989 schedule. The principal benefit of this was to allow more full time operators to select weekend and holiday days off, a privilege which they had lost through the introduction of large numbers of part timers on weekdays only. This helped to improve employee morale and reduced total costs, through the lower cost benefit package for part time employees, though without significantly reducing the total transportation wage bill. In addition, new employees have been taken on exclusively on a part time basis initially and then when there are full time openings, promotions are made from the part time ranks.
18. Since the MBTA had been given the right to hire any number of part time operators, through the Management Rights Act, they did not have to make any wage or work rule concessions to employ part timers. (The annual wage savings from using part time operators was estimated at around four million dollars by 1990.*) This contrasted with the negotiating techniques of some agencies, where management had focused so heavily on the desire to achieve the right to schedule part timers that the pay increases provided to union members in return, outweighed the benefits from employing part time operators.†
19. Historically part time operators have been paid at the same basic rate per hour as full time workers, but have not received similar fringe benefits, which also vary with the number of hours worked. For example the MBTA made no contribution to health care costs before March 1986 or to life insurance costs before March 1989, for part time workers. In addition part timers did not receive contributions to their dental or sickness and accident insurance premiums.

These differences in MBTA contributions meant that in March 1993 the total hourly cost of a part time worker was \$23.90 (assuming a 30 hour working week — the maximum allowed for part timers at the MBTA) as against a full timer (40 hour working week) whose wages and benefits amounted to an hourly cost for the authority of \$26.22. For part time operators who worked for fewer hours in the week the costs were lower still, since no life insurance contribution was made. For example employing a part time worker for 23 hours per week cost the MBTA \$22.15 per hour

* The history of this legislation is well described by Marc G. Warner in 'Transit Management Rights: A Critical Appraisal and Assessment of Prospects', Transportation Quarterly, Jan. 1988

† Alan H. Castaline, Work Rule Flexibility: Method to Reduce PTO Requirements, Paper presented to the fifth workshop on Computer-aided scheduling of public transport, Montreal, Canada, August 1990.

‡ Chomitz and Lave showed that "in the majority of cases, a seemingly important reduction in total pay hours during the first year is eventually wiped out, and ultimately the labour force makes even more money than it did before the new contract." Kenneth M. Chomitz and Charles A. Lave, UMTA DOT Report, Part-time Labour, Work Rules, and Transit Costs, January 1981

and for 15 hours a week, \$22.37. (The historical development of these costs is shown in Table 3 below.)

TABLE 3: MBTA TOTAL OPERATOR COST / PLATFORM HOUR
(in current \$)

	1983	1988	1993	% Inc. (83-88)	% Inc. (88-93)
Full-time	15.51	20.41	26.22	32%	28%
Part-time (30 hrs/wk)	13.87	18.64	23.90	34%	28%
Part-time (23 hrs/wk)	13.90	18.73	22.15	35%	18%
Part-time (15 hrs/wk)	13.95	18.76	22.37	34%	19%

21. Hence though the cost of employing full time and 30 hour a week part time workers has continued to increase rapidly the increase in cost of employing all part timers was gradually slowing, until last year. The cost of employing part timers rose faster in the early to mid-eighties as a result of negotiations in 1985, when the MBTA agreed to provide a low level of individual health benefits for part timers, and an arbitration award in 1989, which granted those part timers working more than 24 hours a week full health insurance benefits (pro-rated) and life insurance benefits.
22. MBTA employees are offered a choice of health plan and 85% of the cost of their chosen plan is paid by the MBTA. Six plans are currently offered, each costing a different amount. There is some clustering in the more expensive plan but between the other five, a good distribution. Family coverage is offered for full time operators, although until recently part timers have not had access to this benefit.

RECENT CHANGES

23. A Governor's veto of a bill granting MBTA part time workers the identical health coverage as provided to full time employees was overridden by the Massachusetts state legislature in 1994. This meant, of course, an increase in the hourly cost of employing part time operators.
24. For example, a part time operator working 30 hours a week before the legislation was passed (in March 1993) cost the MBTA approximately \$6.30 in fringe benefits per platform hour. A full time operator in 1993 cost the MBTA \$8.70 in fringe benefits per platform hour. Hence the change in the legislation would have increased part time labour costs by at least \$5.20 per platform hour (on a thirty hour week). This would therefore have meant that the costs of a scheduled hour of part time work were actually greater than a basic full timer (i.e., non-spread, non-overtime) hour of work.
25. This fundamental change in the relative costs of full time and part time operators forced the MBTA to look at other scheduling and assignment practices to reduce costs. Particularly important in these calculations was the determination of the marginal point between the cost of part time labour and the cost of full time labour with some amount of spread premium pay.
26. The first step taken by the MBTA was to eliminate, virtually, part time weekend work, replacing their hours at a ratio of approximately three full time workers for every four part-timers. This was a direct result of the absence of spread penalties on weekend work, meaning that part timers were now more expensive than full timers

for such work. This was done within three timetable changes, reducing the number of part time runs as is shown below, in Table 4.

TABLE 4: REDUCTION IN MBTA WEEKEND PART TIME RUNS

	Saturday	Sunday
Winter 1994 (status at time of legislative intervention)	358	272
Spring 1994	66	199
Summer 1994	25	50
Fall 1994	5	5

27. Given the much greater peaking of weekday services the break-even point between full time and part time assignments was more critical in scheduling weekday duties. Hence the reduction in use of part time operators determined for the weekday timetable was less significant and took slightly longer to accomplish. The reduction was scheduled to take place over a year, from 501 part time runs scheduled per weekday in the winter 1994 timetable, to 360 such runs in the following year's winter timetable.
28. However at the same time as introducing these new benefits for part time employees, the MBTA opened a new enrollment period, in which employees were able to select an appropriate health care plan. This altered the cost distribution somewhat, since distribution between plans also, of course, affects costs of health care provision, as does selection of individual or family coverage. Part time employees remain ineligible for dental benefits and receive lower life insurance benefits, and do not receive sickness and accident benefits. Hence though the average cost of the part time worker could in theory have increased to a level higher than that of the average for full time workers, given the choices which each group made for health benefits, it did not. The MBTA has frequent open enrollment periods for health care plans, and has, given the sensitivity of labour cost differences to plan selection, made the decision to review the use of part time operators frequently.
29. As noted earlier, another central concern of the MBTA during these assessments of full and part time operator costs was the cost of spread time. Clearly the critical point is the marginal difference between paying further enhanced spread time to full time operators and employing more part time operators. In 1994 the MBTA assessed that were the part time operators to be removed from its scheduling then the timetabled wage bill would increase by four million dollars because of the spread penalties which it would be required to pay to full time operators. (Without part time operators and under existing schedules and work rules it was estimated that the spread payments made would be up to \$46.50 per day for a 13-hour spread. It can of course be suggested however that were work rules to change, then the scheduling would be optimized for the new rules more efficiently, and the increase in costs would be less significant as a result. This figure should therefore be treated as an upper bound.)
30. The significance of all these developments is of course the gradual loss of flexibility and a reduction in the cost savings which the authority can achieve through the use of part time operators. At the same time the life of the full time worker is made increasingly less attractive as hours get longer, and fewer weekends are available as days off.
31. In another interesting development however, flexibility in scheduling practices may be brought back, at least to some extent and on some routes. The MBTA is in the process of taking proposals for subcontracting the operation and maintenance of

eleven bus routes within its operational area. Some of these routes provide only peak express service between the Central Business District and one set of suburbs. The agency is using a two stage bidding process (known colloquially as pre-qualify, low bid) — a qualification stage followed by the submittal of best and final offers. Selection at this stage will be on the basis of cost. At the bid submittal stage, labour organizations will be given the opportunity to submit proposed amendments to the labour agreement which would come into effect if necessary to reduce the in-house cost estimate below outside offers. Various union proposals have been assessed by the authority in an attempt to assist the union to make a reasonable bid. There is every indication at this stage (the second stage cost bids are to be submitted by July 7th 1995) that the union is seeking to make a serious proposal. The key work rules of interest at present appear to be those concerning trippers (currently full time drivers do not drive these pieces of work, which limits their assignment to part timers) and the spread time agreement. If a new labour agreement is accepted for these eleven routes, and if by placing a new proposal on the table, the union accepts that there are some constraints in the current contract which they can envisage being changed, without significant hardship to their operators, then there may well be further opportunity for the authority to reduce costs and increase flexibility through negotiation in other operating divisions.

OTHER US EXPERIENCES

32. In general the experience in the rest of the United States has been somewhat similar to that of the MBTA. There was initially great interest in the use of part time operators, particularly, of course, to allow agencies to provide weekday peak period service more efficiently. Part timers have also been used to increase scheduling flexibility, providing a more reliable service on the street with more regular scheduled headways. The recent experiences of a few US agencies are described below.
33. By 1988 Greater Cleveland Regional Transit Authority (GCRTA), had a labour agreement which allowed at most 12% of the total number of drivers employed at the authority to be part time operators. These drivers could work on any day of the week for up to 30 hours in the week. The maximum level had increased to 15% by 1993. Though there were no differences in pay for the two groups of drivers, part-timers were not entitled to sick pay, holidays, health insurance, or retirement benefits. In 1993 the authority was employing the 15% maximum and began to negotiate new conditions with its union representatives, in large part in an attempt to reduce costs and to improve the quality of service. One of the major constraints on scheduling in the past had been the 10% layover requirement on straight pieces of work operated by full timers, combined with a 20 minute paid meal break (between the second and the sixth hour of work.) This had created scheduling difficulties with missed relief connections, and varying headways which could be difficult for customers to use. Hence a major desire of management in these recent negotiations was to remove these rules. The two sides agreed a change — introducing 15% (as a percentage of the total running time) layover time requirements on straight shifts. The time previously allowed for the meal break has therefore been tied into the higher layover time.
34. Another major constraint had been that the extraboard was constrained to 10% and hence much overtime was being worked. Additionally part timers were being used to cover the extraboard requirements. The recent contract also agreed to a larger extra board all employed on a full time basis. This allowed part timers to work trippers rather than the extraboard -- hence guaranteeing them a steadier level of work. This was also crucial for the authority since there had been recruitment problems with part

timers having to work on average about 20 hours a week, but with no prior knowledge of their shifts.

35. The last major change in the contract agreed at this latest round of negotiations (which were concluded without arbitration) was the introduction of a four day, 10 hours a day, work week. This was capped at 25% of the total workforce and was used as the carrot to the union members for a number of the other changes. Four day work weeks were preferred by many, particularly the senior operators who could then benefit from three days off per week.
36. Management assessed that the overall agreement had cost in the region of \$1.5 million, but also assessed that the extra flexibility gained would lead to savings in the long term. Past work on the introduction of part time operators has shown that management in some authorities was too willing to increase the base rate of pay fairly substantially in order to gain the right to use part time workers. However the work rules governing the use of these part time operators tended to be very strict and the trade off between up front costs and later returns was shown to be poor, from a management perspective. However the more recent negotiations, such as this one at GCRTA, has shown management learning from past actions, with higher upfront payments only made in return for greater flexibility throughout the contract. Unions too have learnt — achieving the higher up-front pay increases whilst at the same time also achieving some new types of work and increasing the range of shift choices available to their members.
37. Another clear example of the changing philosophy of management at public transport agencies, as they consider the benefits of part time operators, are the changes which have taken place at Washington Metropolitan Area Transportation Authority (WMATA) recently. Though part timers were employed at WMATA from 1978, when the authority won the right to employ up to 10% of its operating staff as part timers through an arbitration decision, the last labour contract (1992) eliminated part timers. The existing employees were grandfathered in, and for the summer 1995 timetable the authority will use 18 part time and 2064 full time operators. Part time operators had been restricted to peak and weekend work only, could only work 25 hours a week, could not work relief runs, extraboard, or one piece runs. On average part time workers had been working around five and a half hours a day. The change allowed management instead to schedule "special class operators" who work only in the peaks, and are guaranteed eight hours of work a day, but are not eligible for spread or swing pay.
38. Despite the introduction of this new class of operators, there are clearly still scheduling constraints under the new arrangement. However the authority viewed the constraints on part time employment and the payment of benefits as too onerous to be truly cost effective. Hence it is currently considering returning to the union in order to secure the re-introduction of part timers. The desired outcome for WMATA management would include part timers being available to work 30 hours a week, with no restriction on their assignments. The authority would also hope for reduced health and vacation benefits, whilst offering the opportunity for retirees to return to work as part timers.
39. There have also been interesting changes at Metropolitan Atlanta Rapid Transit Authority (MARTA) recently. When part time operators were first allowed under the MARTA contract they worked on weekdays only and up to 25 hours per week. By 1993 these practices had been changed to allow part timers to be scheduled on weekends, and at all times other than the evening (where straight shift full time work

was guaranteed.) Part timers receive no health or retirement benefits nor do they receive sick leave or other days off. These restrictions, coupled with the low rate of basic pay, have made it increasingly difficult for the authority to hire sufficient part timers, of the quality which they require.

40. The major change for MARTA under the latest contract agreement was the unrestricted use of part timers. This removes what management had regarded as a significant scheduling constraint, but in return the maximum percentage of part timers in the workforce was reduced from a third of the total to about 29%. Some other clauses of the contract were also changed and the benefits for all employees improved. In this instance therefore it appears that management has again traded flexibility in scheduling for higher upfront costs. However enabling the agency to retain high quality staff, in what may be viewed as a particularly crucial operating period (with the Olympic Games in Atlanta in 1996), may be sufficient benefit to offset these costs.
41. The difficulty of finding part time operators is something which a number of agencies around the country have been facing — Tri-County Metropolitan Transportation District (Tri-Met, in Portland, Oregon) provides another example of this difficulty. At Tri-Met the difficulties have resulted in part from the lower starting wages for part time workers. (Part time workers here do however receive pro-rated medical benefits after being employed at Tri-Met for one year.) The average number of hours worked at present is far smaller than the 30 hour weekly maximum for part timers and this makes finding suitable recruits hard.
42. The union has recently requested that an increase in the hours worked by part timers be considered. Tri-Met are assessing this possibility though a limited rostering scheme (something which has not been used at Tri-Met in the past.) Rostering is not favoured by the unions and hence it seems likely that the two sides will not come to an agreement.
43. One agency which had never won the right to employ part timers is the Southeastern Pennsylvania Transportation Authority (SEPTA, in Philadelphia). Though the authority has sought the right from time to time, most recently in the latest round of negotiations, the unions have remained hostile to the idea. The latest negotiations were concluded with a strike, though the part timer issue had been dropped from the table at an early stage. The strike centred around the date of increase in salaries, and the compromise was to begin increases from six months after the contract was signed. (The unions had hoped for immediate increases whilst the agency had wished to delay any increase for a year.)
44. The agency in fact spent more negotiating energy on issues other than the introduction of part timers. For example one major constraint on scheduling at SEPTA, is the designation of some old rail lines, now operated with buses, as rail services. This designation means that trolley operators only can be assigned to these routes, a severe limitation on workforce flexibility. Negotiations are continuing with one suburban depot currently and though the agency has costed different work rules and potential changes these were not available now, given the current sensitivity of both unions and management to these issues.
45. Private sector bus operators in America, who tend to work under contract either to the public transport authority or to major employers, also make use of some part timers. However whilst the contract agreements in this sector do provide health and retirement benefits, they also acknowledge the management rights in ways which the

public sector does not, and place many fewer restrictions on scheduling than do the contracts in place at the larger public authorities. In part this may be the result of union recognition that the type of work for which these companies are bidding will only result in relatively sociable work hours (since in general these contracts do not cover night time operation) and in part from the fact that the companies themselves are required to be in a position to compete on costs — since lowest cost bid is generally the basis for contract award.

THE UK PRACTICES

46. In the late 1970s and early 1980s at the time when American operating agencies were turning to part time operators in order to reduce operating costs (and particular peaking costs), the British public transport industry was also endeavouring to find ways in which to reduce its costs. However in the bus industry this was given added pressure prior to, and in the years after, deregulation in 1985. The sweeping change in the operating environment which this represented, produced strong competitive pressures, reduced government subsidy to public transport, and reduced operating cost per kilometer by 39% in real terms (excluding depreciation) outside London from 1985 to 1992. In London the fall in operating costs was 29% over the same period, as a result of the more stable London real wages. Real costs per passenger fell by 16% in London, whilst remaining stable elsewhere reflecting the larger fall in passenger trips outside the capital.*
47. All this is of course well documented and discussed elsewhere.† These figures are merely provided here to illustrate some of the operating cost savings which were achieved by British bus companies. What is of interest is the manner in which the companies set about achieving the cost reduction and the comparatively small use of part time operators (as opposed to their central importance in the drive to reduce costs in the American industry, as was noted at the beginning of this paper.)
48. In the UK industry a major source of savings was the wage bill, through increasing flexibility in contract arrangements. The recent MIT survey gave clear indication of the extent to which these companies had reduced the "extra" payments for operating staff i.e., under 60% of the companies reported paying a spreadover allowance and two companies paid wheel turning time only. Straight shifts varied greatly in length, though where spreadover allowances are paid, shifts were closer to the eight hours typical of the US industry.
49. The limited use of part timers in the UK was described at the beginning of this paper. Other reasons for the reduced need to employ part timers include of course a less severe peaking of service in the UK. The importance of the peaks has been further reduced after deregulation since now there are fewer evening services and the evening peak tends to come at about 4pm. The typical commercially run route is one with most buses in operation from 8am to 6pm, with lower off peak and Sunday service frequencies. Heseltine and Silcock (1989) have found a reduced need for split shifts

* These figures are taken from "Whither the Clapham Omnibus: the future for buses in London", Chartered Institute of Transport, London 1994

† See for example Heseltine and Silcock, Changes in rates of pay and working practices in the bus industry in Metropolitan areas since deregulation, TRRL, 1989 and a number of articles in a Special Edition of Transportation Planning and Technology, 1991 including M. E. Beesley, Bus Deregulation: Lessons from the UK ; Peter J. Hills, Early findings on the effects of deregulation of bus services in Scotland

with changed operating practices (e.g., shorter turn in and report times, longer straight shifts) and fewer evening services. The evening peak is also reported to have moved earlier, to coincide with the end of the school day at 4pm. Many of the conventional fixed route operators also operate contracted school bus service, and these routes are driven in some instances by part time workers. Another method which is used in the UK is for peak only drivers to cover meal breaks for other drivers in the off peak, allowing peak services to be covered with straight shift work.

50. The UK employers do not incur similar health care costs as those in America, though there are the additional costs of employing a larger workforce which derive from the cost of national insurance contributions. Recent legislative changes aim to make the employment of part time operators more cost effective in the UK and may well cause some operators to think again as they make their staffing and scheduling decisions.
51. Another difference between the two groups of operators is the manner in which operators progress through their career. At present the typical route of progression in the American industry is from part timer to full timer. Operators can be working part time for some years before the chance for promotion becomes available. In the UK, operators tend to be employed first as full time operators, but train through driving a mini or midi bus, which require a more basic driving license. Gradually, as their seniority within the workforce grows these employees are able to work their way up to drive the larger buses, and to receive the higher remuneration, and shorter hours, which goes with this work.
52. It is clear therefore that perhaps the major reasons for the limited part time employment in the British bus industry are the flexibility of the current work rules and the lower peak/basic ratio than in America. However at the same time it is also evident that operators are working long hours, often without the benefit of significant overtime payments as compensation. The most recent legislative intervention in the UK has worked in the opposite direction to that in the US, seeking to encourage the use of part timers rather than making it less cost effective for public transport providers. The effects of this change on management decisions in the UK are not yet known.

OTHER OPTIONS

53. Of course the fact that employing part time workers is only one method for reducing costs, is well known to US schedulers, as was noted earlier, particularly in reference to some of specific negotiating approaches which public transport management has adopted, when entering contract negotiations with union representatives. The MBTA for example has also been considering a number of other options with which to reduce costs, since it became evident that the cost savings which were currently accruing from the use of part time labour would be diminishing. This was also necessary in order to structure an agreement between the authority and the union, for the new operating arrangements.
54. Various approaches have been considered including the relaxation of spread premiums, as mentioned earlier, increased scheduled overtime limits, an increase in the number of biddable tripper pieces available (one of the approaches which it is thought that the union may propose in an attempt to keep the eleven routes, under the current privatization proposal, within the public domain), modifying the straight shift (to include a short unpaid break, rather than the currently paid meal breaks),

introducing ten or twelve hour full time spread days (another of the techniques reportedly favoured by the union.)

55. Increasing scheduled overtime limits would allow the MBTA to reduce the number of operators employed and hence reduce benefits expenditure, at the expense of the additional overtime payments. Similarly as the length of the average work day increased, the make-up time payments (payments for that portion of the guaranteed day not actually worked) would be reduced. At the end of 1994 the MBTA work day included a maximum of 15 minutes of overtime in a 8_ hours work day. The timetable included 500 hours of make up time each week (from a total scheduled number of hours of 75,000.) Overtime is paid at one and a half times the basic rate of pay, whilst make up time is paid, of course, at the basic rate. However since no work is performed in make up time this represents a deadweight loss to the authority of the total wage payment. One particular benefit in terms of bus operators might be derived from the ability to schedule school days work to nine hours and no school days, to the basic eight. There are about 14-18 no school days each year. (Using overtime rather than part timers is a closer trade off since the extra overheads and benefits to be paid when employing another worker approximately equate to the additional cost of the extra pay for overtime work.)
56. Currently no trippers are employed at the MBTA. However at other agencies trippers are paid at overtime rates and currently work shifts between about one and three hours in length. Were the MBTA and the unions to agree to the introduction of trippers, the savings would accrue from a reduction in part time operator requirements and more efficient timetable construction. However the savings would also depend very heavily on the nature of the tripper work created, given the overtime rate of pay.
57. The long standing contract agreement is that 75% of Sunday, 25% of Saturday, and all weekday full time runs starting at or before 5am must be straight shifts. These straight shifts include 20 minutes of paid meal time, though the typical length is 25-30 minutes under the current schedule. Approximately 700 hours per week are being paid in meal time. The suggestion of a modified straight day would seek to eliminate some (or most) of this cost. (As noted in the British case, some of those working straight shifts are used as "trippers" for the peak period and then to relieve other operators on their meal breaks during the off peak. This option has not however been considered at the MBTA, the nature of the route structure and the size of the driver pool would perhaps make this a difficult optimization problem.)
58. The notion of a 12 hour full time spread day was proposed by the union in negotiations in exchange for allowing the authority to reduce the number of part time employees. The authority considered various options for a one to one swap of 12 hour full timers for part timers. However this review produced a view that the threat of future overtime payments to these full time operators, was sufficient to offset the savings from the reduction in the part time workforce. By contrast the 10 hour day, 4 day week has been viewed as more constructive since it would be sufficient to allow full time operators to work in both peaks and to reduce slightly the number of part timers required (hence reducing the number of benefits packages being provided.)
59. It is not clear from this brief discussion whether any of these options would provide the authority with a solution which could reduce costs significantly, without further organizational reform. At the same time it is not clear whether any of the possibilities would be preferred by union and management alike.

CONCLUSION

60. The initial benefits of employing part time workers in the US were generally small in most cases. Savings only amounted to between two and three percent of most agencies budgets, and these initial savings have been further eroded over the years through collective bargaining and legislative intervention. It seems therefore that the US public transport industry requires a new approach to cost reduction.
61. Whilst the US industry has concentrated fairly heavily on the introduction of part time labour in the negotiations of the last few years, there have been sweeping changes in the public transport organizational structure in the UK. These have produced significant cost reductions though they have also led to significantly lower levels of operator remuneration and a reduction in the quality of the working environment. (The length of the working day is considered here to represent a significant element in the quality of any working environment.) It is clear that the small independent US operators are able to achieve similarly low costs through flexible labour contracts and as a result of the different route structure which they operate. Though the British system does have some important different characteristics from those of the US industry, some interesting insights can be gained from the approach which has been taken there. Not least is the question mark which the British experience raises over the importance of the part timer in reducing operations costs, which has, at least for the last ten years, been viewed as an undeniable truth in the US.
62. At the same time before the conclusion is drawn that only a radical restructuring to include the private sector can achieve such large costs savings (in effect through lower levels of employment and reduced wage payments) it is important to reiterate that these private companies have tended to sustain less peaked operations, operate for fewer hours in the day, and have lower overheads (including debt servicing charges) than the large transport authorities of North America.
63. Though the US agencies have learnt from their early negotiating errors when trying to gain greater scheduling flexibility, it seems that in order to achieve real cost savings, some new organizational form may be required.

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