

# Measuring productivity in the England and Wales prison system 1979 and 2009

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*Abstract:* Productivity analysis provides political scientists with a useful way of assessing performance in public sector organizations. When applied to prisons, a simple calculation of outputs as a ratio to inputs helps to cut through the fog of strongly held normative beliefs and perceptions, and give a bottom-line account of efficiency over time. Outputs of prisons must be calibrated around what we expect our prisons to accomplish on security, decency, and doing things to reduce reoffending. Inputs to prisons encounter strongly held perceptions around resistant staff cultures, strong and entrenched political interests, ‘relative price effects’ associated with labour intensity, and built-in scepticism about the effectiveness of prison as value-adding institution *per se*. This paper assesses cost and labour productivity of the prison system in England and Wales over thirty years. It finds that basic unadjusted productivity is underwhelming and shows signs of being no more improved in 2009 than in 1979. After factoring in improvement in quality however, productivity shows considerable improvement on the baseline year. However, in setting up the system to achieve these improvements, it is paradoxically the case that the system is undermining its own ability to deliver outputs which are geared towards supporting reduction in reoffending. Highly centralized command and control management, archaic processes, reliance on non-automated systems, and deficits in technological innovation further undermine the system’s ability to refocus outputs around reducing reoffending objectives.

## Introduction

In recent years productivity analysis has provided political scientists with a kind of ruthless bottom-line approach for assessing the performance of the public sector organizations over time (Carrera et al., 2009). Cutting through the fog of politics, policy change, public sector professional and cultural orientations, and general hype associated with large-scale government modernization, productivity analysis helps to reduce performance down to a basic ratio of outputs over inputs for a system. By inputs, we refer to total financial and human resources that go into making the system operate. By outputs, we refer to products or services that are generated as a result. This paper examines trends in productivity in the prison system in England and Wales over the last thirty years.<sup>1</sup>

The subject of productivity in prisons commonly elicits feelings of concern or distaste for a whole range of reasons. Unlike production of widgets or processing of applications, processing of humans quite rightly raises normative issues around putative dangers of applying what are seen as overly ‘narrow’ tools of economic analysis to what are inherently complex and fragile environments. Prisons have the ‘impossible job’ of processing humans who, by and large, have no desire to be processed in the first place and have considerable scope to manipulate any processing that takes place. Staff working with prisoners also have considerable scope to influence and shape the way that prisoners are processed. Hence the production or processing activity is itself determined by a complex social equilibrium based on a level of symbiosis between prisoners and staff (Goffman, 1961).

Normative arguments and conventional wisdoms about the role of prison in society tend also to distract from any straightforward bottom line analysis. Over many decades, liberal reformers have consistently argued for reduction in the size of the prison population (Coyle, 2004; Hedderman, 2008; Blom-Cooper, 2009), and hence tend to see productivity analysis as an approach which by implication seeks to increase outputs and send more people to prison. Alternatively, in seeking to economize on inputs, productivity analysis runs the risk of implying that it is a good thing to cut down on the amount that is spent on prisoners per capita. The distinction between cuts and efficiencies is a thin one. So we should at least be

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<sup>1</sup> This paper draws heavily on doctoral research on the England and Wales prison system being carried out by the author since September 2008 as part of the LSE Government department PhD programme. More than 100 interviews were conducted with prison officials, politicians, judiciary, probation, third and private sector officials, during 2009 and 2010. In May 2009 this doctoral research received approval from the National Offender Management Service and this has greatly facilitated the research process. The author has been a Senior Research Fellow in the LSE Public Policy Group since 2004.

sceptical about the idea that a productive prison system should necessarily be one which achieves desirable ends for society.

At the heart of the issue of productivity in prisons lie two basic questions. What should the role of prison be in society? And given some agreement on the role of prison, how should the system be set up to fulfill that role? The first of these questions underpins decisions about the nature (and the volume) of the outputs that the system is producing. The second question relates directly to the necessary or sufficient inputs required to generate these outputs. The productivity assessment implies some kind of acceptable and sustainable level of equilibrium between the two.

Underpinning the broader discussion about outputs of the prison system are questions about what it is exactly we expect prisons to do. Over the thirty years covered by this research, it is possible to identify variations of standard themes in what should be expected from prisons, including concepts such as ‘humane containment’ and ‘positive custody’ in the 1980s (King and Morgan, 1980) to concepts of ‘offender management’ in the 2000s (Hedderman, 2005). For the purpose of this paper, it is possible to identify two broad objectives which have been relatively consistent throughout, one consists of

*[a] holding prisoners securely and decently in custody, and the other consists of*

*[b] doing as much as possible with prisoners while in custody to reduce the chance that they will reoffend when they leave.*

There is clearly a trade off between these objectives given a finite amount of resources available in the system. Although they are not be mutually exclusive objectives, the extent to which they are emphasized and prioritized in the system will undoubtedly impact on the nature and quality of outputs. If the system is able to accommodate prisoners securely and relatively decently, but do very little with them in terms of influencing them to reduce the risk that they will reoffend, then this should be reflected in the overall analysis of outputs.

With every marginal increase in prisoners processed through the system without equivalent increase in inputs, the costs of extra output must be absorbed. Costs of marginally higher outputs may be absorbed by staff working in the system, who effectively work proportionally harder to absorb the extra pressure and move increased numbers of prisoners

while maintaining broadly equivalent levels of quality. On the other hand, costs may be incurred by ‘consumers’ of the system. Prisoners may incur costs as a result of staff having proportionately less time or capacity to deal with them, and systematically having to ‘quality shade’ in ways which can be internally justified operationally and politically. The public at large may incur costs, although more indirectly, as prisoners leave the system no less inclined to offend as when they went in.

Like many other public sector systems, the volume of outputs of the prison system is determined by factors far beyond the gift of the system itself. The volume of prisoners entering the system is clearly subject to much bigger processes relating to the level of crime in society, legislative provisions, sentencing behavior, and the viability of non-custodial alternatives to prison. To what extent however the size of the prison population is *actually* beyond the control of the prison system is a moot point. Although the demand-led argumentation is a strong one, and one which, as some would argue, provides a convenient excuse for persistent fatalism and sub-optimal performance in the system over time, it seems faintly absurd to suggest that the quality of outputs of the system has *no* impact at all on the prison population. If the quality of outputs of the system is such that prisoners do not reoffend, the performance of the prison system in this case has a direct impact on the size of the prison population. It is here that the quality of outputs becomes linked to the question of how we understand the role of the prison system in the first place, and how we set up the system to generate outputs which focus on the trade off between security and decency on the one hand, and reducing reoffending on the other.

The inputs side of the prison productivity ratio is no less complex. Given the limitations on the prison system to influence the *volume* of outputs (if not the quality), there is much more potential to use the inputs side as a means of influencing productivity in desirable ways. Traditionally, prisons have been labour intensive organizations, absorbing around 75 to 80 per cent of total operating expenditure in staff costs. Over the last twenty years or so, this proportion has decreased to under 70 per cent as central headquarters and regional administrative structures have grown. Finding ways of cutting into labour intensity in a cost-efficient way is key to the challenge on the inputs side.

Labour intensity in prisons comes with both advantages and disadvantages. Governors generally argue that having marginally more staff on duty on a prison wing increases feelings of security amongst staff and prisoners. It is intuitive that having more

staff available would result in higher quality of interaction and oversight of prisoners. The disadvantage however is that labour intensive systems tend to perpetuate their own labour intensity, both through political action on behalf of dependent labour groups in the system, and through a tendency for the system to stabilize at particular equilibrium levels, and for these levels to be normalized (and defended as ‘normal’) by those in the system. Governors and prison staff interviewed for this research commonly argued that prison staffing levels had been paired down over recent years to critical or even ‘dangerous’ levels. Such statements appear to be based partly on perception of what is ‘normal’, partly on the politics of scarce resources, and partly on actual truth in reality.

The role of ‘relative price effects’ in explaining why service sectors often struggle to achieve productivity increases equivalent to goods and production sectors was identified in the 1960s by William Baumol (Mueller, 2003). The ‘Baumol effect’ explained this productivity differential as the result of a tendency for the price of services to increase over time largely because they tend to be more directly reliant on labour intensive inputs, which themselves tend to increase in marginal price over time. Production processes for goods on the other hand tend to decrease as a result of technological innovation and reduction in the price of materials. Clearly Baumol was writing long before the digital and Internet age, and the idea that technology does not have potential to transform service sectors, even government service sectors, seems far-fetched in the 2000s. Nevertheless, such reasoning does appear to have particular resonance for the prison system both in terms of the influence of prison unions over the years, and the abject lack of digital era technology.

It is widely perceived that the historical strength of the Prison Officers Association (POA) over the decades has played a considerable part in determining the nature and the price of inputs (Black, 1995). It is difficult to separate the myth from the reality in many cases, and actually since the early 1990s the average deflated price of one staff member has remained roughly constant at around £30,000 (at 2008 prices). This suggests that the inflationary pressures from political action by staff in the prison system have not been as high as many would like to believe. Interviews have strongly supported the argument that the POA has been resistant to the development to private sector prison markets however, even if, somewhat ironically, this development has greatly enhanced the performance and productivity of the public sector over time.

This strand of argument is developed in public policy literatures on the tendency for organizations to exist and survive in permanent states of failure or sub-optimal performance (Meyer and Zucker, 1989; Moe, 1990; Moe, 1995). The fact that prisons are often labeled as ‘failing organizations’ is perhaps as much to do with the politics and rhetoric of prisons as it is to do with the reality. However, the idea that ‘dependent’ groups in the system, management as well as staff, may have incentive to act ‘defensively’ in response to even basic attempts at modernization is potentially a strong one when seen in the context of prisons. In terms of explaining stalled development of modern technologies aimed at improving efficiency in the prison system over the years, internal resistance may be one important consideration.

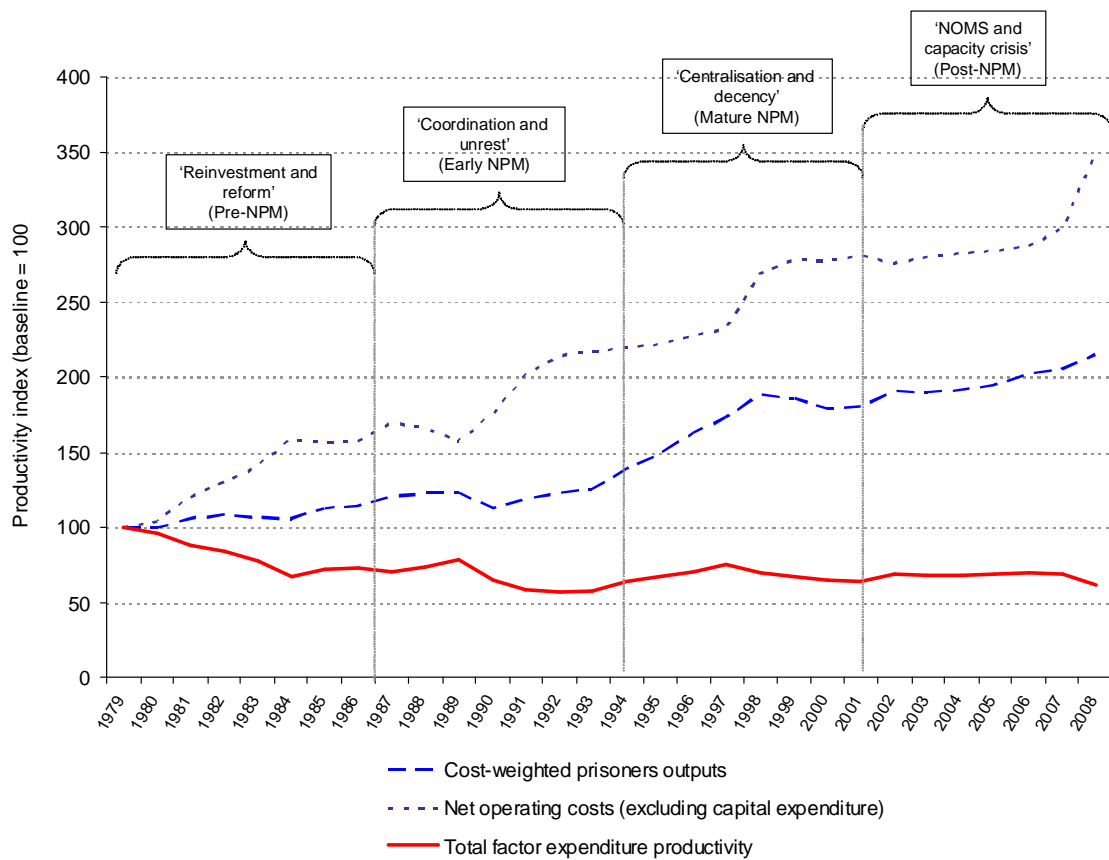
All in all, it is difficult to assess where the optimal equilibrium levels of input and output lie in the modern prison system. There are complex issues on both the input and the output sides, making any judgments about productivity potentially ambiguous even if ruthlessly sighted on the bottom line. The tendency for human systems to absorb pressures and costs, resist change, rationalise status quo positions, normalise deviance, both on input and output sides, presents the researcher with frustratingly complex counterfactuals to handle. A simple question like how many staff do you need to operate a prison wing becomes quite complex quite quickly. The next section provides a first attempt to cut through to the bottom line in presenting basic trends over the years for total factor expenditure and labour productivity.

### **Thirty years of productivity in the prison system**

There are very few academic or practitioner studies of productivity in the England and Wales prison system over a thirty year time series. The Office of National Statistics has led the way in government and was responsible for some groundbreaking research papers in the early 2000s (Pritchard, 2002), and these have since been developed more comprehensively (ONS, 2009). The 2005 Atkinson Review provides general guidance about how one might construct cost-weighted outputs for prisons, using data on the cost of different security categories of prisoners to generate cost-weighted prisoner outputs (Atkinson, 2005). This general approach is used here to construct prisoner outputs. A further refinement is used by multiplying cost-weighted outputs by 0.9 and total receptions into prison by 0.1, and adding the resulting totals. This recognizes that prison productivity is as much a function of the number of

prisoners being processed in and out of the system as it is a function of the number of prisoners in the system at any one time. For inputs, data for net operating costs of the prison system were collected from Prison Service and NOMS annual reports, and deflated at 2008 prices. The productivity index is the ratio of cost-weighted outputs to deflated inputs for each year.

**Figure 1: Productivity change in the prison system since 1979, not yet ‘quality weighted’ and excluding capital expenditure**



Source: Prison Service and NOMS annual reports

This preliminary picture of productivity change in Figure 1 is underwhelming. Productivity falls from the baseline year 1979 by just under 50 per cent in total, showing two major periods of decline, throughout the early 1980s and then from 1990 to around 1993. It retains a comparatively steady state throughout the rest of the 1990s and 2000s. Observers of the prison system over the years may look at this preliminary curve and ask how it can be that the prison system in 1979 can be more productive and cost-efficient than the system in 2009.

At a more fundamental level, one might question whether it is actually meaningful to draw linear comparisons of productivity over time given fundamental qualitative changes in the nature of society, management sophistication, treatments, programmes, and technologies. We return to this scepticism in later sections.

It is useful at this point to put some of the key changes in productivity into some kind of historical and public management context. Superimposed on the trend lines are four general time periods, labeled anecdotally and linked broadly to different stages of New Public Management (NPM) change over the thirty years (Dunleavy et al, 2005).

[i] '*Reinvestment and reform*' from 1979 to 1987 (*Pre NPM*)

By the end of the 1970s the prison system had reached a point of crisis in terms of industrial relations and working conditions, and this led to the commissioning of a major independent review by Lord Justice May in 1979. A strikingly detailed and expansive piece of work, the May Inquiry was seen as an important watershed for prisons in England and Wales (King and Morgan, 1980), identifying considerable failures relating to dysfunctional industrial relations, severe crowding, indecent conditions, and long term under-investment in the estate (May, 1979). The new Conservative Home Secretary Willie Whitelaw wrote extensively in his memoirs of the problems he inherited in the prison system, 'the conditions quite frankly appalled me, and the extent of the modernization required depressed me deeply' (1989, p169). The first half of the 1980s under Whitelaw focused intensively on working through the post-May reformist agenda, both in terms of embarking on a major programme to increase the physical and human resource capacity of the prison estate, to improve the conditions inside existing prisons for staff and prisoners, and to set up inspectorate structures to oversee and monitor the system. Throughout this period, the average prison population remained relatively stable at around 43,000, rising to around 46,000 towards the end of 1987. The effect of new investment combined with a relatively stable prison population was that productivity dropped by 25 per cent. This can be seen as positive consequence of a system catching up with itself after years of under-investment and inadequate management.

[ii] '*Coordination and unrest*' from 1987 to 1994 (*Early NPM*)

By the late 1980s, a pragmatic reformist agenda under the Conservative Home Secretary Douglas Hurd had developed (Faulkner, 2006), and this led to attempts to achieve a more coordinated approach to sentencing and the use of ostensibly more 'liberal' non-custodial

options for punishment in order to take pressure off the prison system. Critics have characterized the period under Hurd as one of 'eclectic pragmatism' (Cavadino and Dignan, 2006), one in which a relatively strong political will was crafted across Ministers and senior officials and judicial representatives for a more balanced and cost-effective penal system. This was crystallized, albeit briefly, in the 1991 White Paper on criminal justice (Home Office, 1991), and the subsequent 1991 Criminal Justice Act. Despite this pragmatic agenda to reduce the size of the prison population, there were still serious issues around the state of conditions in jails, as well signs of unrest between prisoners and staff. A series of prison riots in the late 1980s led up to what would become one of the most seminal events in the history of the modern prison system, the riots at Strangeways prison in April 1990. In the same way that the May Inquiry had led to a considerable injection of funds into the system, the independent inquiry by Lord Woolf and Stephen Tumin after the Strangeways riots triggered another significant injection of funds into the prison system. Despite the marginal reduction in the prison population as a result of the Hurd reforms, productivity suffered another considerable drop as post-Woolf investment flowed into the system.

*[iii] 'Centralization and decency' from 1994 to 2002 (Mature NPM)*

From 1994 to 1997, the prison population increased significantly under the policies of the Conservative government and the Home Secretary Michael Howard. This increase in numbers of prisoners by far outstripped any increase in the level of expenditure in the system, a fact which seemed to be confirmed by the general approach under Howard that prison should be an 'austere' experience. The consequence for the productivity track is that it increases in absolute terms, but nowhere near enough to compensate for the two major decreases discussed above. This period covers what might be seen as a deepening of NPM reforms with the development of the Prison Service as an Executive Agency from 1993, the growth in private sector prisons under the Private Finance Initiative (PFI), and an ever-increasing culture of 'key performance targets'. Two specific changes are important to mention here. First, this period saw the intensification of line management structures in the prison system, the growth of the headquarters administrative functions, and a much more controlling influence by the centre over the national management of the prison population. As many interviewees have suggested, for better or for worse, this period saw the strengthening of command and control ways of working into the Prison Service. The

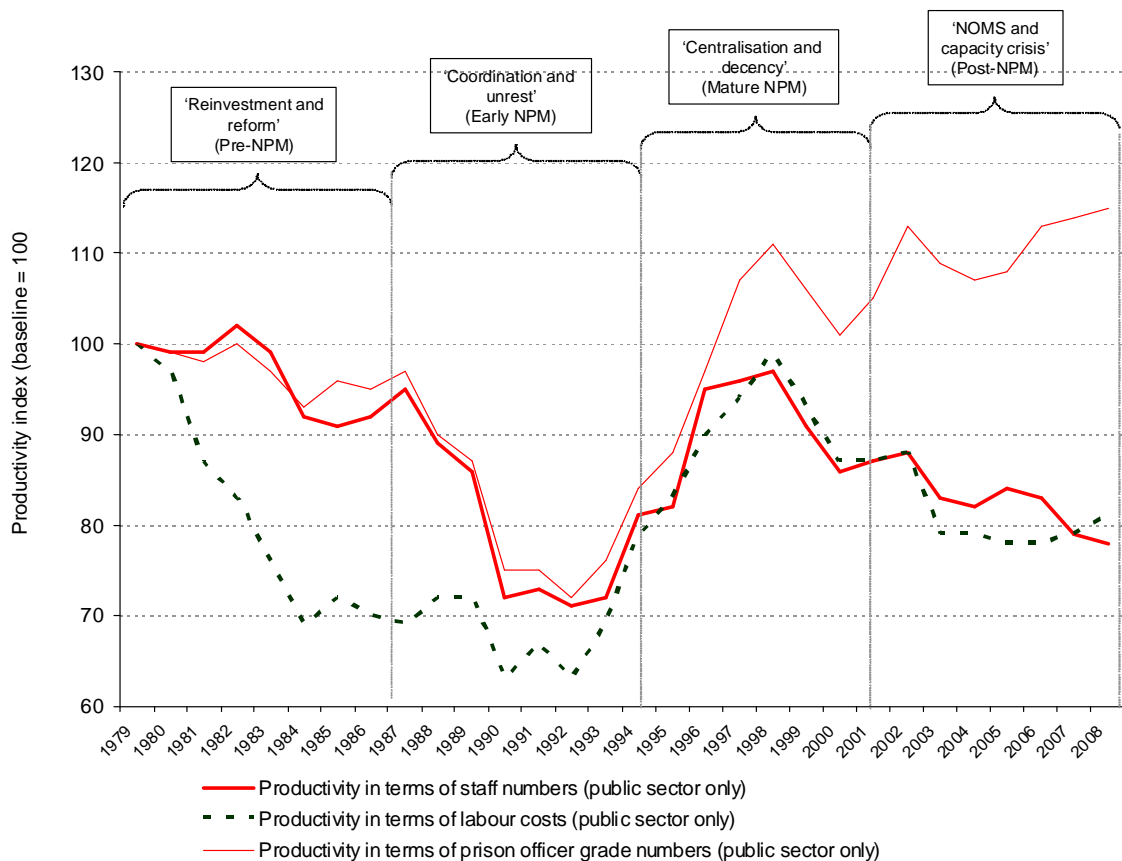
emphasis on centralized control over the population was increased following a cluster of high security escapes from Whitemoor and Parkhurst prisons, which led to the sacking of the Prison Service Chief Executive by the Home Secretary (Lewis, 1997). Second, with the change of government in 1997, and largely under the influence of the Director General, Martin Narey, the emphasis shifted onto the issue of decency in the prison system, and growth in investment on drug and education programmes that were likely to feed into rehabilitative aspirations. There was considerable increase in funding from the Treasury for preventative programmes, and this expansion largely explains the growth in expenditure after 1997 (and consequently the dip in productivity).

*[iv] 'NOMS and capacity crisis' from 2002 onwards (Post NPM)*

The continued increase in the size and the cost of the prison population from 2002 onwards re-engaged arguments for a much more effective coordinated strategy across the criminal justice system to reduce the numbers in prison. This reflects similar re-integrative strategies in other major policy sectors to deal with some of the difficulties of organizational fragmentation and disaggregation associated with NPM. Labeled 'post-NPM' this period show clear hallmarks of 'digital era government' changes involving efforts to reintegrate, join up, and put the offender at the centre of the delivery chain (Dunleavy et al., 2005). The review by Lord Carter in 2003 underlined this general objective, accentuating the role of non-custodial alternatives to prison, growth of competitive markets for penal services, and strengthening the administrative structures for coordinating sentencing guidelines. The report also outlined a major machinery of government change to integrate probation and prison into the National Offender Management Service (NOMS). The evolution of NOMS since 2003 has been subject to extensive criticism across the prison system despite generally being seen as a 'good idea in theory'. Early iterations of NOMS encountered problems with buy-in from prison and probation agencies, and effectively resulted in a large and expensive bureaucracy being superimposed on top of existing and largely unchanged organizations. This shows clearly in the increase in expenditure from 2006 onwards. More recent iterations of NOMS have had somewhat more success integrating constituent parts, despite widespread perceptions of domination of the prison system over probation, and a lack of clarity about line management relationships in a system based on commissioning.

Looking at trends in labour productivity over the thirty year period reveals broadly similar patterns to that of total factor expenditure productivity. Cost-weighted output measures for public sector prisons *only* were used, and were compared as a ratio against the number of public sector prison staff and deflated public sector staff costs for each year. The number of staff working in private sector prisons is not publicly available, and hence cost-weighted outputs had to be adjusted to discount prisoners in private sector jails. The similarities are not surprising given that the majority of expenditure on the prison system has traditionally been absorbed by labour costs. During the first fifteen years or so, labour cost productivity dropped by around 40 per cent, but then goes on to recover to some extent in the second

**Figure 2: Trends in labour productivity in the prison system**



Source: Prison Service and NOMS annual reports. Also Hansard publications of written questions and answers in the House of Commons

fifteen as the number of the prisoners in the system begins to rise. Figure 2 shows the relationship between different aspects of labour productivity. A number of interesting trends

stand out. First, looking at the relationship between productivity tracks in terms of staff numbers (thick bold line) and in terms of staff costs (thick broken line), there is considerable distance between these two throughout the 1980s, but very little distance between them from then on. The difference here is between labour productivity in terms of staff costs and labour productivity in terms of staff numbers.

It is likely that this disparity can be explained by the effect of staff overtime. The ‘overtime culture’ in the prison service during the late 1970s and 1980s was widely seen as ‘normalized’ across the system. Extensive interviews with prison officials confirm the prevalence of this culture and its associated Spanish practices. Governors frequently reflected on the ‘bad old days’ of overtime and the negative effects it had on staff and prisoners. One governor explained the MO in terms of doing court escorts in the early 1980s.

You would go out for the day, prolong the day as long as possible, so you get over 5, 10 or 12 hours. Often the courts would finish, and principal officers would sit on the coach, the shutters of the vehicle were shut. And you would sit and sit and wait for the time to pass. Prisoners handcuffed. Then *[pause]* OK driver, thank you. Shutters would go up and driver could drive out because you had gone over the 10 or 12 hours.

Systematic payment of overtime is likely to explain how productivity in terms of staff costs can be so much lower than productivity in terms of staff numbers throughout the 1980s. The incentive for the POA was to keep staff numbers relatively low so that existing staff could maximize their earning potential. The cost and accountability implications of overtime were a major preoccupation for the Prison Department during this period, and this led to the decision to abolish overtime as part of the Fresh Start reforms in 1988. This abolition is described by officials involved as a ‘straightforward buy-out of overtime’, a replacement of overtime with improved salaries *plus* a statutory 38-hour week. The impact of the abolition of overtime is illustrated in Figure 2 by the significant drop of productivity in terms of staff numbers as more staff had to be employed to cover the surplus of overtime that had previously been worked in the system. Over the next five years or so, the productivity tracks converge and have remained broadly the same until present day.

Figure 2 shows interesting divergence in the relationship between productivity in terms of all staff (thick bold line) and productivity in terms of prison officer grades (thin

dashed line). Throughout the 1980s these two tracks follow almost exactly the same trajectory, reflecting the fact that prison officer grades made up a large proportion of staff in the system. From the mid 1990s, however, the lines diverge quite significantly, as productivity in terms of prison officer grades increases above the original baseline level. This can be explained by two separate yet related factors. First, the number of headquarters and regional administrative staff increased rapidly from the mid-1990s as the Prison Service grew as an Executive Agency and subsequently as NOMS. Hence, the number of prison officer grades has reduced comparatively to other staff in the system. Second, the cost of prison officer grades has always been relatively expensive to the Prison Service, once pensions and benefits have been factored in, and over the years, the Prison Service has sought to reduce these costs by introducing new lower cost grades into the system. Operational Support Grades (OSG) are less expensive and generally carry out lower status work in the prison. NOMS is now considering further staff cost reduction by introducing so-called 'Prison Officer 2' grades, paid considerably lower salaries and without equivalent pension entitlements.

### **Reviewing the quality of outputs in the prison system**

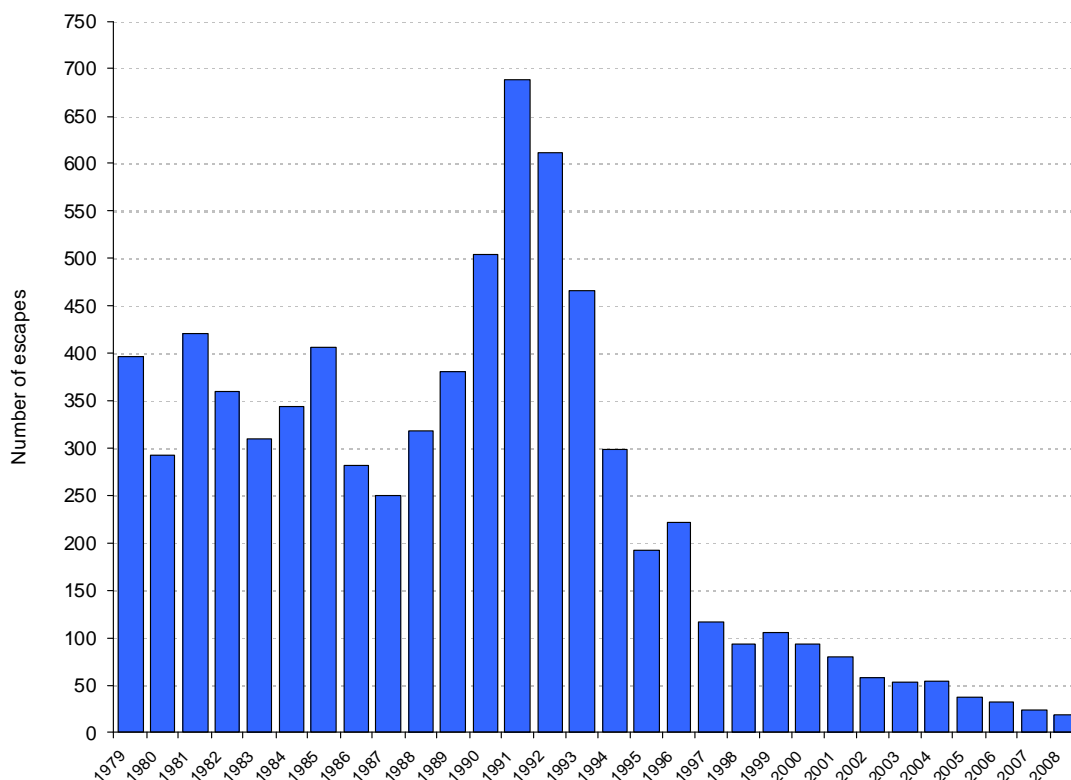
Thirty years encompasses a wide range of policy and public management change in the prison system, not to mention some transformational changes in society and technology. Society's expectations also change about what constitutes acceptable standards of living (inside and outside prisons). New challenges and costs for the prison system emerge as a result. For example, the rise of mobile phone technology since the late 1990s has transformed security challenges in prisons, and intensification of drug cultures means that prisons have had to develop ways of dealing with the stunningly high proportions of offenders entering custody with drug addiction problems. Shifts in societal norms have also changed the game dramatically for prisons during thirty years, particular in relation to attitudes towards racism and diversity. For example, it is absurd now to think that up to the mid-1960s attitudes on homosexuality were such that it was operational policy to triple prisoners in single cells simply in order to avoid doubling them and risking the possibility of homosexual activity (Weiler, 1992).

The analysis in the previous section presented an underwhelming preliminary picture of productivity over thirty years. Deflated expenditure on the system has considerably

outstripped the increase in prisoner numbers, and although admittedly this may have been partly the product of chronic under-investment in previous decades, one may expect that thirty years would be enough to recover from this deficit. Such pessimism, however, runs counter to an almost universal view amongst officials interviewed that the prison system has improved its performance and conditions considerably during this period. Certainly, any over optimism would have to be deflated against considerable changes in expectations as society itself has changed. Nevertheless, these more optimistic views do present fundamental questions about how changes in quality and performance over the years should be factored into the overall productivity assessment. As one former senior official put it, ‘in thirty years of it, the Prison Service I joined was an idle shambles, but it has improved enormously. It has got better every year. It is infinitely better managed than it was. People who say differently are just talking nonsense’.

In this section, three different quality adjustment factors are assessed – security, decency and crowding, and general management of the system. Looking first at the quality of security in the system, it is undoubtedly the case that the system has shown considerable improvement. Perhaps the most striking illustration of this is seen in the reduction in the number of escapes from prison establishments and prisoner escorts (Figure 3). One might argue that a sustained average of one escape per day during the 1980s was not bad given an average population of somewhere between forty and fifty thousand. Data on recapture rates suggests that a large majority of prisoners are re-apprehended soon after the escape (often the result of grievously inept plans of action after the escape itself), and the fact that the prison system was able to sustain this apparently high rate of escapes for such a long period suggests that the overall costs to government and society were tolerable – implying an ‘acceptable level of escapes’ in the same way that there were ‘acceptable

**Figure 3: The number of escapes from prisons and prisoner escorts since 1979**



Source: Prison Service annual reports and Hansard written questions and answers

levels of violence’ in Northern Ireland throughout the 1970s and 1980s. If we interpret the escape rate in the 1980s as acceptable, then we might conclude that the subsequent ‘lock down’ on prison security has been a costly over-reaction, and one which has diverted considerable funds from other more expansive goals around rehabilitation. If, on the other hand, one escape per year is viewed as a reflection of chronic management weaknesses in the system, then it seems appropriate that this reduction should be viewed as a considerable improvement in output quality.

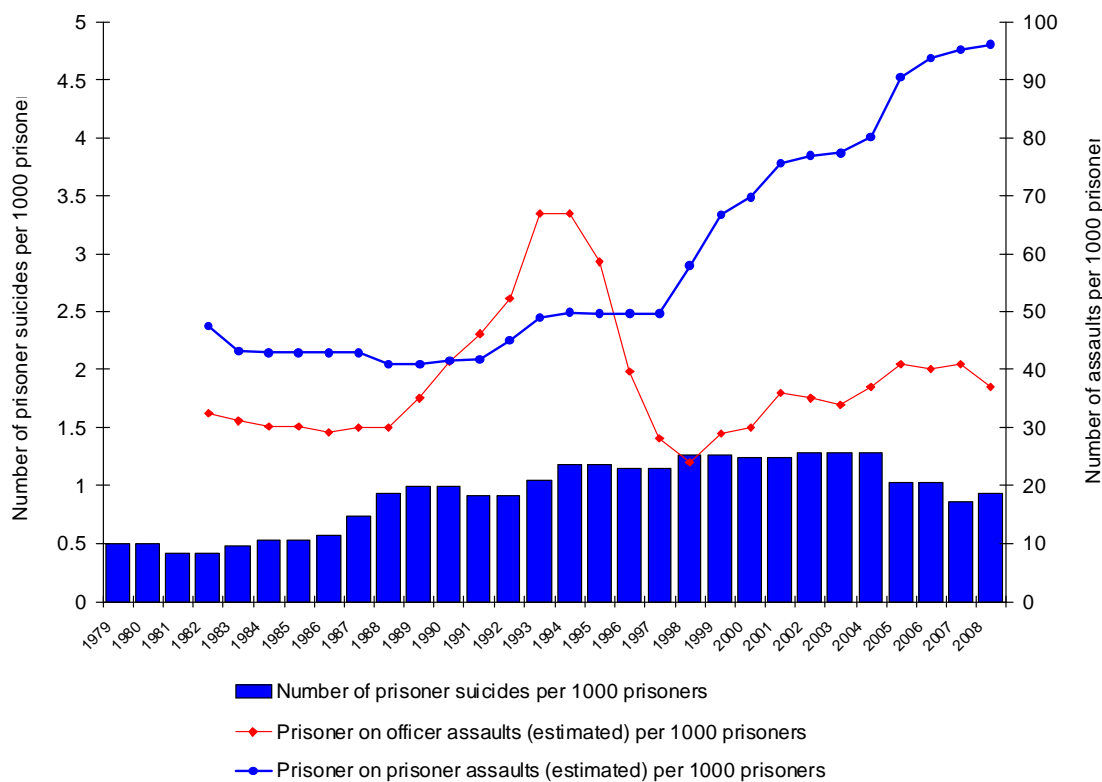
It is undoubtedly the case that levels of crowding in prisons have improved over this thirty year period, and some recognition of this must be factored into the productivity track over time. Throughout the 1980s and early 1990s, between 10 and 15 per cent of prisoners in the system were ‘tripled’ in cells designed for one, while a further 25 per cent were doubled in single cells. This accounted for most of the local prison population. A high proportion of prisoners had no access to integral sanitation in their cells, and so not only were they

consistently locked in their cells for long periods but were so in close proximity to an open 'slop' bucket. The end of tripling and slopping out by the early 1990s is considered by many in the system as a qualitative improvement in the conditions which prisoners were expected to endure.

From 1994 onwards, the prevalence of prisoners doubling in single cells has sustained itself at somewhere between 20 and 25 per cent of prisoners. Doubling is now seen as largely commonplace and the norm in most local prisons. From the late 1990s onwards, largely at the instigation of former Director General Martin Narey, the Prison Service has placed important emphasis on maintaining standards around decency. Practically all governors interviewed confirmed the importance of the 'decency agenda', and placed high premium on their role as guardians of 'what is decent' in their own prisons. Innovations in the last five or six years with qualitative tools to measure the quality of prison life (Liebling, 2004), as well as continued scrutiny by the Chief Inspector and Independent Monitoring Boards, have strengthened greatly importance and reality of minimum standards of decency across the system.

Despite undeniable improvements in the quality of prison life since 1979 (at least relative to life inside prisons if not wider societal expectations of living standards) and the striking reduction in the number of serious riots in prisons since the mid-1990s, there are still residual signs of increased stress and risk which seem to be linked to much tighter management of the system. One might expect the prisoner suicide rate to have decreased significantly in a prison system which is more tightly managed. Certainly, the growth in the culture of risk assessment over the last decade reflects much greater awareness of the potential for disaster and the need to have processes in place to mitigate risk. Nevertheless, Figure 4 below shows that the rate of suicides per 1000 prisoners rose from 1 in 2000 prisoners to around 1 in 900 (national suicide equivalent to 1 in 5000). This has decreased in more recent years, largely as the result of much greater operational emphasis on deaths in custody and risk assessment processes, in the aftermath of the murder of Zahid Mubarek by his cellmate in Feltham YOI in 2003. A similarly worrying trend in the number of prisoner on prisoner assaults is also visible in recent years as the system has been more tightly managed. The data in Figure 4 has been adjusted to compensate for a change in the way assaults were recorded, and should therefore be treated with some caution.

**Figure 4: Prisoner suicides, prisoner-on-officer assaults, and prisoner-on-prisoner assaults (per 1000 prisoners)**

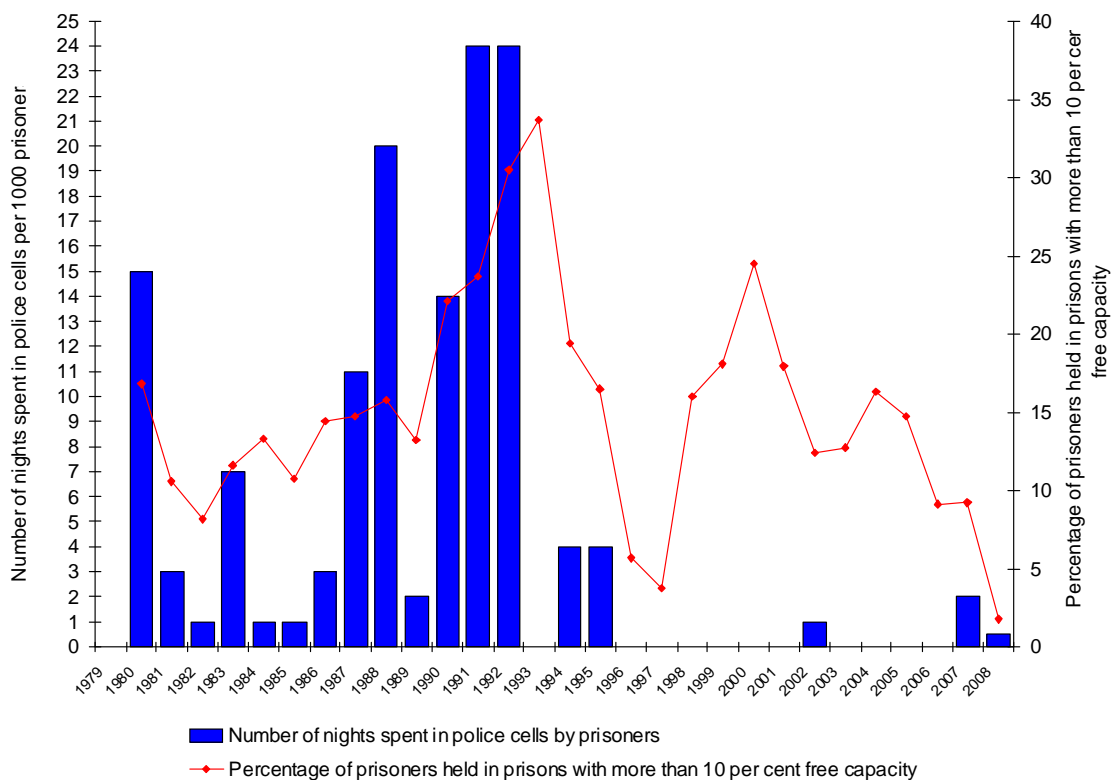


Source: Hansard written questions and answers

Looking at proxies for general management of the prison system nationally, there appear to be significant improvements. The number of times the Prison Service has had to use police cells to accommodate prisoners as a result of insufficient capacity in the system is one fairly decent proxy. This indicates the extent to which the system is being managed efficiently and best use made of available capacity (Figure 5). Signs of mismanagement in the demand for and supply of capacity are clearest throughout the first half of the thirty year period, although the incidence of police cell usage tends to be less consistently bad when compared to escapes. The effects of the considerable decommissioning of capacity as a result of the Strangeways riots contributed to the high numbers from 1990 to 1992. The impact of more centralized and nationally coordinated approach to population management from the mid-1990s onwards led to a major reduction in the use of police cells. This is confirmed by

senior prison officials in interviews, and is widely characterized as part of a senior management priority to ‘get a grip’ on the prison population nationally. The reduction in the use of police cells from 1996 onwards illustrates this prioritization. Only in recent years, when population pressures have been high, have police cells been used, but nowhere near on the scale of pre-1996.

**Figure 5: Two indicators of effective capacity management in the prison system, use of police cells and rate of inefficient spare capacity across the prison estate**



Source: Hansard written questions and answers

The intensification of the role of centralized population management throughout the late 1990s and late 2000s is shown by the reduction in the percentage of prisoners in prisons with more than 10 per cent free capacity (see the linear track in Figure 5). One might reasonably argue here that this indicator serves as a decent proxy for inefficient use of available capacity in the system, where any prisons with more than 10 per cent free capacity might be said to be running at a level which is sub-optimal. It is interesting here that the amount of free capacity

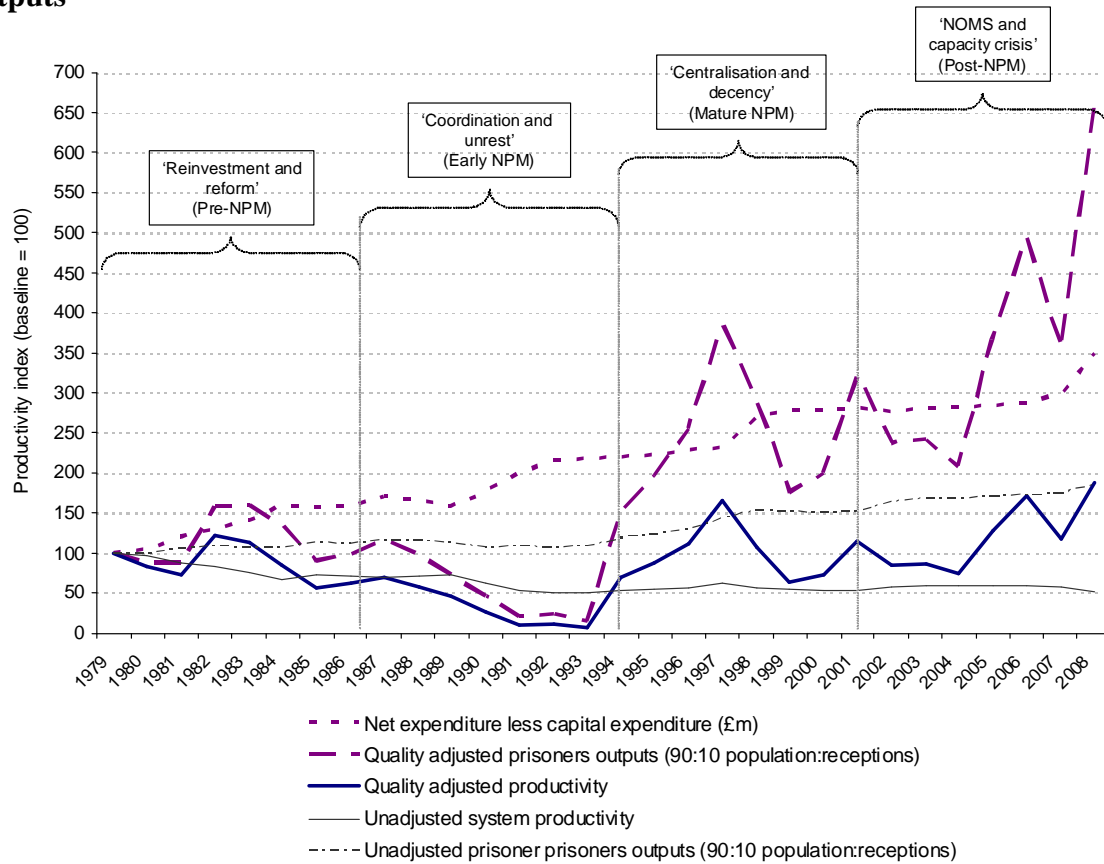
in the system is highest during the years in which police cells are most frequently. This suggests that the use of police cells tends to be determined by isolated deficits in capacity at specific points in the system, and may not necessarily bear relation to capacity deficits at a national level. The main point to notice here is that throughout the 2000s the average proportion of spare capacity above 10 per cent was managed down to very close to zero. On one level, this may be interpreted as a system operating at high capacity and hence high value for money. On another level, it may indicate a system running to dangerously high levels of capacity.

### **Adjusting productivity for quality aspects**

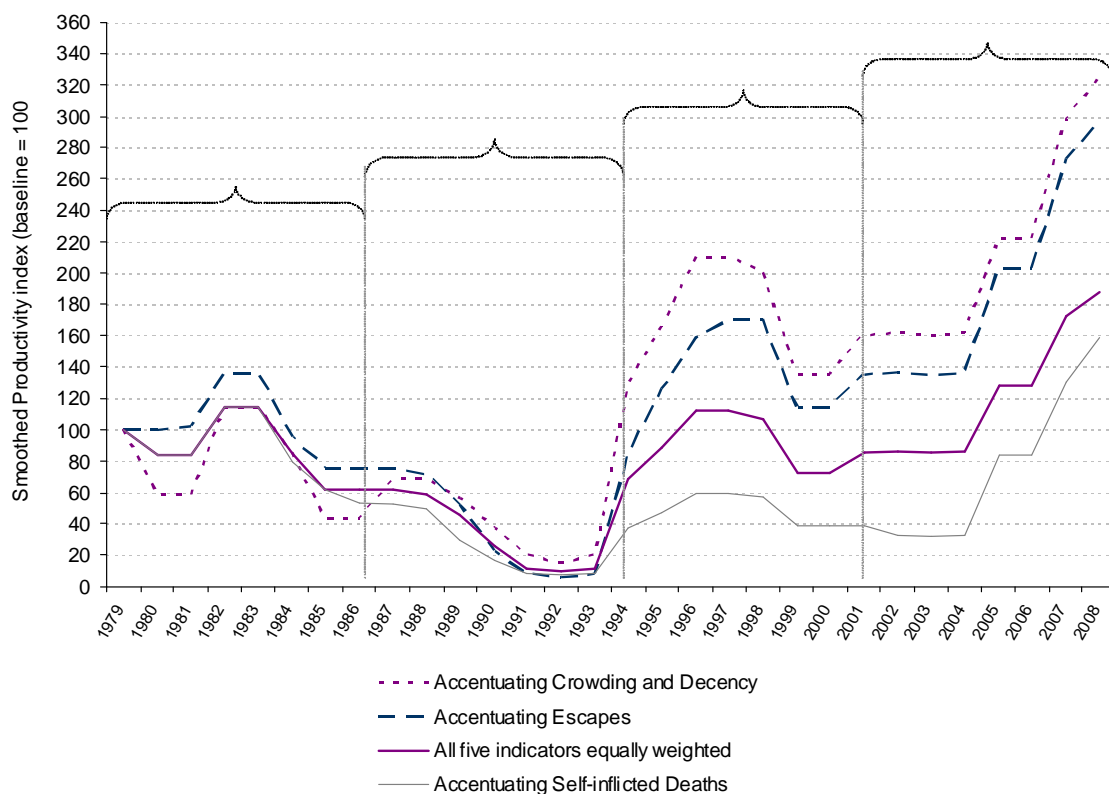
Looking across the quality indicators reviewed above, it seems highly likely that factoring them into the overall assessment of prisoner outputs would lead to considerable changes in the shape of the productivity track. In areas of security and decency, the prison system is shown to have made striking improvements, and these should be reflected in the way that cost-weighted outputs are measured. Clearly, there are a myriad of different ways to set up a weighting system to compensate for these quality improvements, and there is no one right way to proceed. The basic approach offered here allows a composite adjustment for cost-weighted outputs based on five of the seven factors discussed in the previous section (data on assaults has been discounted because of the difficulties in establishing continuity over time in the way they have been measured).

For each of the five quality indicators, the full distribution from zero to the highest score was calibrated into ten decile parts, and each year allocated into a respective decile (from 0.1 = lowest performing year, 0.2, 0.3...up to 1 = highest performing year). If, for example, escapes were at their highest in Year X, then we would allocate the lowest decile score of 0.1 for that year. In order to compensate for extreme effects of low scores, the square root of each decile value was used (i.e. value of 0.1 is adjusted up to 0.316 and so on). This had the effect of raising very low scores to moderately low scores. Top scores of 1 remained at 1. A full table of the decile values allocated for each year for each of the five indicators is included in Appendix 1. Adjusted productivity was calculated by multiplying cost-weighted prisoner outputs for each year by the product of all square-rooted decile scores (Figure 6a).

**Figure 6a: Revised cost-weighted outputs and productivity, adjusted for quality of outputs**



**Figure 6b: Revised productivity tracks with specific weightings (and smoothed)**



Recognizing that different people will hold different quality factors as more important than others, we have calculated different weighted quality adjustments to accentuate different aspects of quality (Figure 6b). Square roots of multipliers were re-squared for the accentuated factors, thus returning them to their original 'extreme' values, and increasing their deflating effect in the composite calculation. More liberally minded observers might be more inclined to accentuate the importance of decency and safety for prisoners, and so will be inclined to look at excessive crowding or rates of self-inflicted deaths. Others may be less inclined to worry about prisoner conditions and focus on the role of the prison in holding prisoners securely in custody, and so may be inclined to boost up the importance of minimizing escapes.

The impact of this composite quality adjustment on outputs is striking. In the original unadjusted state, prisoner outputs ran from baseline year 100 to around 180 in 2008 (see faint grey tracks in Figure 6a). This increased to more than 600 after the basic quality adjustments were applied. Cost-weighted outputs rose radically from 1993 onwards, during the last four years of the Conservative government and Home Secretary Michael Howard. There was a period of decrease in productivity under the first term of the new Labour government, but the prisoner outputs have never returned to anywhere near the baseline level from the early 1980s. Since the establishment of NOMS, despite the considerable costs and the organizational confusion, continued improvements in these five basic quality indicators have boosted prisoner outputs continually upwards. The standard productivity track ends up almost twice the level as the original baseline in 1979. Productivity tracks weighted for security and decency provide an even more optimistic picture in Figure 6b.

The final part of this paper turns to look at the prospects for the second purpose of prisons outlined in the opening section, namely the extent to which outputs of the prison system are adequately geared towards achieving reduction in reoffending. The data above confirms that on security and decency issues, the prison system has performed impressively over recent decades. But what of its ability to generate outputs which feed into the reduction of reoffending? To what extent has this trade-off between one and the other purpose been effectively recognized in terms of the quality of prisoner outputs? Many prison officials interviewed for this research argued that since the mid-1990s the prison system has focused too heavily on security and population management. As one current governor put it,

‘It is an organization which has hitherto been allowed to define what success is. That is a problem. You can tell how good the Prison Service is because we tell you how good we are. We have had three escapes and so on. But we have chosen to define success very narrowly. Only in terms of security. Security is everything. Security, security, security...’

The factors determining propensity to reoffend are complicated and stretch far wider than simple provision of some outcome-relevant outputs to prisoners while inside. Looking at the rate of reoffending for adult males over the age of 21 years shows surprisingly little fluctuation over the years from around the 50 per cent average. In fact, prisoners discharged in 2008 appear no less likely to reoffend within two years as those who were discharged in 1979 (both rates are just over 50 per cent). However, the rate of reoffending in this group has dropped from around 57 per cent since the early 2000s, and so at least during this short term period, one can attribute at least some impact on reducing reoffending to NOMS.

There are built-in difficulties in getting to any reliable form of comparable data on prison regime outputs as they tend to vary in nature over the years and counting them in the same way one counts escapes or suicides is not really possible. Even standard performance measures on ‘hours of purposeful activity’ and ‘time out of cell’ are subject to considerable variations from the official figures reported to parliament, a point confirmed by prison officers in focus groups carried out for this research. It is however almost definitely the case that the scale and intensity of prisoner regimes have increased since the early 1990s. There are important caveats which resist too optimistic an interpretation of this increase. For a start, governors have frequently pointed out that prisoners will often register for programmes and treatments ‘strategically’ to ensure that they stay in particular jails or meet release criteria. Furthermore, in past years, knowledge of this amongst staff leads to a tendency for programmes to be delivered without the commitment and application by staff that one might otherwise expect. Also, prisons are generally tasked with delivering regime sufficient to meet Key Performance Targets (KPT), and will therefore tend do enough to ‘get over the line’ and then defocus on those particular aspects of service delivery. So assessing increase in reported programmes and treatments is inevitably distorted by goals to achieve targets. Designing reliable and consistent measures of outputs to assess the quality of regime outputs is an obvious next step for this research.

One of the main characteristics of the productivity improvements shown since the early 1990s is the extent to which the national prison population has been centrally managed. Although this may have positive consequences in terms of value for money, and in terms of ensuring that the national system ‘resolves’ each night, to what extent does this centralized, command and control management of population impact on the ability of prisons to deliver

**Table 1: Overcrowding from region to region, Jul 2008 to Jul 2009**

Most common prisoner movements from region to region		Number of prisoners sent	Number sent in reverse	Percentage of all prisoners sent by the sender
Sent from	To			
WEST MID	NORTH WEST	3,900	200	90
LONDON	WEST MID	2,110	80	66
SOUTH EAST	LONDON	920	350	32
SOUTH EAST	WEST MID	480	60	17
LONDON	EAST	450	160	14
EAST	EAST MID	450	100	32
LONDON	SOUTH EAST	350	920	11
NORTH WEST	YORKS NE	300	190	36
SOUTH EAST	EAST	230	120	8
SOUTH EAST	EAST MID	210	100	7
SOUTH WEST	WEST MID	210	100	26
EAST MID	YORKS NE	190	180	28

Notes: Data is provided by NOMS population management unit. In total 16,320 prisoners were moved on overcrowding drafts during 2008 to 2009. This is equivalent to 16 per cent of all sentenced prisoners received into local prisons during this period. It is equivalent to 30 per cent of all sentenced received into local prison on sentences of 12 months or less.

outputs which feed into the reducing reoffending objective? For many years it has been London which has caused instability in the national system, in that London is by far the largest generator of prisoners but also one of the regions with the lowest prison capacity. Inevitably, national population is required to move prisoners out of London prisons up and around the country in order to make room for new prisoners entering the system. Table 1 illustrates the systematic movements of prisoners out of London and around the system on ‘overcrowding drafts’ in order to keep the system functioning at continually high levels of capacity.

Although it is easy to see how national population management has become a vital and necessary component over the years in the daily imperative of ‘resolving’ the prison population against available capacity, it is also widely seen as a significant barrier to increasing the impact that prisons are able to have on reducing reoffending particularly with short term offenders. Data suggests that around one third of offenders sentenced to less than 12 months are moved on ‘overcrowding drafts’, and it is widely acknowledged by governors and other prison officials that this seriously disrupts the ability of prisons to work with local authorities and local services to reduce the chances that these short term prisoners will reoffend. In this respect, many prison officials have argued that the prison system has *by necessity* been excessively focused on managing the population in the system. As one former top executive in the system put it,

‘The pressure of numbers means that everybody in the organization has to focus on management of the population. Some of the most talented civil servants I have worked with have been in the prison service, but they were constantly being asked to spend their time thinking about how to manage the population rather than applying their talent to thinking about things like rehabilitation’.

Many prison officials argue that the concept of ‘prisoner churn’ has become institutionalized as part of the policy jargon and it is difficult to tell to what extent moving prisoners out of region actually impacts on reoffending. Difficulties in evidencing this link arguably exacerbates the problem itself. Nevertheless, it seems entirely intuitive that the less that short term prisoners are moved around the system, the easier it is for prisons to work with local authorities and if necessary probation to increase the chances that they will not reoffend on discharge. The consequence is that the system systematically moves exactly the prisoners who would benefit from being kept in one place. This may come down to simple factors such as finding suitable housing, keeping a job open, dealing with the after-effects of drug detox, and a range of other relatively straightforward considerations. Interviews with local authorities, chief probation officers, and prisoner charities all agreed that there was a direct link between the extent to which short term prisoners were moved and the extent to which they were able to establish strong links with them both in prison and on discharge. The factor

of physical proximity becomes a key component of designing prisoner outputs – processing prisoners in the right place. As one current governor put it,

I had the regional Chief Officer for drugs and alcohol intervention in here last week. I said we are going to keep these prisoners. He said, ‘What...you’re not going to send them anywhere? So I can send my workers to you?’ That becomes a serious conversation then. Two years ago I would have said yes but I can’t guarantee that I’ll be able to keep them here. What with the population pressures...

If, as the quotation above suggests, keeping prisoners in one place does greatly improve the quality of outputs of a prison in that it is able more easily to coordinate its services with other agencies, and innovate with new types of services which enhance the quality of prisoner outputs, then this might legitimately be taken into account in the quality adjustment process. The paradox is that the more the system is set to run to very high levels of capacity, based largely on national management of the population, the less that the system is able to do in terms of making the necessary links with local authorities and probation services to oversee the behaviour of the offender on leaving custody. Time and time again in interviews, prison officials, probation staff, charity workers have pointed out the *inherent limitations caused by doing exactly those things which are required to run the system at such high levels of cost-efficiency*.

One possible factor in mitigating the negative effects of this constant movement of prisoners relates to the extent to which staff and information systems can be improved to compensate. Still signs remain of archaic labour intensive processes which are sustained because the system had not developed the collective intelligence or will to simplify them. For example, in most London jails, prisoners are processed out to court each morning by reception staff. Due to the possible likelihood that one individual prisoner may not return to the same jail (let alone the same cell) in the evening as a result of the churn of prisoners around the London system, prisoners’ files and possessions are serially bagged up and sent out with the prisoner in the escort van. Generally speaking, prisoners do return to the same jail in the evening. However, the risk that one does not sustains the entire process of bagging up every prisoner’s possessions whenever they leave the jail. This process usually accounts for the work of at least half the reception staff each morning and evening. As reception staff

explained, the difficulties of reuniting prisoners with their possessions were they not to be sent along with the prisoner, were large enough to sustain this whole process.

Linked to this is the inability of jails to see where prisoners go when they leave their own custody. Remarkably it was not until Spring 2010 that the prison system had a fully integrated database of all prisoners, which could be accessed in an integrated way by all prisons, containing single updateable and real-time records for each prisoner in the system. Individual prisons have therefore not been able to view the whole prison population at any one time, and have relied simply on updating their own databases to track prisoners through their own establishments. This has the effect of accentuating horse-trading in prisoners and the risk that intractable or difficult prisoners will be passed from prison to prison with little or no incentive for any one prison to take responsibility.

Lags in integrated prisoner management IT from the centre have been accompanied by almost stifling centralization of other aspects of innovations with web and IT in prisons. At least ten years into the digital era, it seems almost unbelievable that practically no public prisons have their own websites. Many governors interviewed have agreed that there may be many reasons why prisons and prisoners might benefit from a website, yet there is apparently a somewhat fatalistic view that it's just 'not the type of thing which the Prison Service has done'. Extreme centralization of IT facilities has increased, to the point now where many large prisons have no IT staff at all. A current governor of a large local prison summed up the complete lack of IT capability or room for IT innovation. 'I had two IT staff until about a year ago, and they were taken off me because of way the contract is set up. Now I have none. And I even had to give the money back'. These basic and fundamental weaknesses in information systems casts considerable caveat on the extent to which we should interpret the improvements in the quality-adjusted productivity shown in this paper.

## **Conclusions**

The analysis in this paper shows that since the mid-1990s the prison system has achieved significant improvements in the quality of its secure management of prisoners, decency levels, and in terms of efficiency with which the national system is operated. The effect on productivity of these quality improvements is likely to be significant, and the overall prognosis is positive. As one former Director General put it, 'one can argue that the prison system is the most improved public service in the country over your thirty year period'. On

the basis of the limited data presented in this paper, it would be difficult to disagree. In doing so, however, the system has arguably been the victim of its own success in that it has necessarily had to focus on population management issues and relegate more expansive objectives around rehabilitation and reoffending to lower down the hierarchy of needs. As one experienced former governor put it, 'we are too busy to do the thing we should be doing. We put all these resources onto population and crowding. It's relatively easy to manage the numbers. But having the right people in the right place doing the right thing. That's very difficult. But it's what we are there for'.

In this respect we might interpret the system, perhaps somewhat paradoxically, as working extremely productively *despite itself*. What is the rationale for this italicized qualification? As the final section in the paper has argued, there has been much in the system over the years which has pushed it towards an ever-tightening centralized control over management of the population. Considerations of value for money, the effect of high profile escapes, the imperative to accommodate sizeable increases in the prison population, and a 'default setting' in Treasury over the years to avoid releasing new capital for new prisons unless it is absolutely necessary. It is easy to see how intensive centralized management of the population has come about. Yet it is widely agreed that while the system relies on this to 'resolve' itself each and every night, more expansive aspirations around reducing reoffending will remain firmly at the bottom of any hierarchy of priorities. The fundamental lack of integrated information systems over the years has fed into the lack of concerted and coordinated action around setting up the system to reduce reoffending.

During the next few years the impending squeeze on public accounts will most likely lead to significant reduction in the financial resources flowing into the prison system. The prison population is projected to increase to 96,000, an increase of around 12,000 prisoners. There will undoubtedly be increasing pressure on the system to do more with less, and this may push Ministers and senior managers to open up more of the public prison market to private providers and well as to reduce the cost of public sector labour by introducing lower paid grades of prison officer into the system. Rationalization of headquarters expenditure is also likely to considerably reduce staff and programme costs. Senior management may also continue to find ways of downscaling the scale of ambition around the prison regime and programmes – a term currently known semi-euphemistically in the system as 'disinvestment'. By continuing to run the system in a highly centralized manner and at very high rates of

capacity, however, it is likely that prison outputs will continue to have only weak effect on the rate of reoffending.

[9,330 words]

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## Appendix 1: Table showing decile distribution of seven quality adjustment variables

	Total escapes per 1000 prisoners	Deaths in custody per 1000 prisoners	Percentage of prisoners sharing cells designed for less	Total police cells used per 1000 prisoners	Percentage of prisoners in prisons with more than 10 per cent free capacity	Prisoner on prisoner assaults (estimated) per 1000 prisoners	Prisoner on officer assaults (estimated) per 1000 prisoners
1979	0.4	0.7	0.1	0.7	0.6	0.6	0.6
1980	0.6	0.7	0	0.7	0.6	0.6	0.6
1981	0.4	0.8	0.1	0.7	0.7	0.6	0.6
1982	0.5	0.7	0.2	0.9	0.8	0.6	0.6
1983	0.6	0.7	0.1	0.9	0.7	0.7	0.6
1984	0.5	0.6	0.2	0.9	0.7	0.6	0.6
1985	0.5	0.6	0.1	0.7	0.7	0.6	0.6
1986	0.6	0.7	0.1	0.7	0.6	0.6	0.6
1987	0.7	0.3	0.2	0.7	0.6	0.6	0.6
1988	0.6	0.5	0.3	0.3	0.6	0.6	0.6
1989	0.5	0.3	0.3	0.3	0.7	0.6	0.5
1990	0.3	0.2	0.4	0.3	0.4	0.6	0.4
1991	0	0.3	0.5	0	0.4	0.6	0.4
1992	0.2	0.3	0.7	0	0.2	0.6	0.3
1993	0.3	0.2	0.7	0	0.1	0.5	0
1994	0.6	0.1	0.7	0.9	0.5	0.5	0
1995	0.8	0.1	0.7	0.9	0.6	0.5	0.2
1996	0.8	0.2	0.7	0.9	0.9	0.5	0.5
1997	0.9	0.2	0.7	1	0.9	0.5	0.6
1998	1	0.1	0.7	1	0.6	0.5	0.7
1999	0.9	0	0.7	1	0.5	0.4	0.6
2000	1	0.1	0.7	1	0.3	0.3	0.6
2001	1	0.2	0.7	1	0.5	0.3	0.5
2002	1	0.1	0.7	1	0.7	0.3	0.5
2003	1	0.1	0.7	1	0.7	0.3	0.5
2004	1	0.1	0.6	1	0.6	0.2	0.5
2005	1	0.3	0.6	1	0.6	0.1	0.4
2006	1	0.4	0.6	1	0.8	0.1	0.4
2007	1	0.2	0.6	1	0.8	0.1	0.4
2008	1	0.5	0.6	1	1	0	0.5