



Public Health  
England

Protecting and improving the nation's health

# Measuring employee productivity – topic overview

## About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

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Core content provided by **Robertson Cooper Ltd** – a firm of business psychologists that works across the private, public and government sectors. They specialise in helping organisations to achieve bottom-line improvements by enhancing well-being, engagement and resilience across their workforces, established by providing insight into the factors that drive these aspects of working life.

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## Executive summary

This report provides an overview of the literature on productivity and specifically the different ways in which it can be measured. This is important given the limitations of using sickness absence data as a proxy for staff health and wellbeing, which provides only a very partial picture. Particular attention is paid to the evaluation of these different methods and how different measures can be applied across organisations and sectors. The links between wellbeing and productivity are also presented in order to highlight the impact of employees with poor physical and mental wellbeing in the workplace. Following on from this, the issue of presenteeism at work is presented – that is, turning up to work while ill – focusing on its links with productivity and the importance of the issue in the modern day workforce.

### Summary of methodology

This topic overview is one of four commissioned by Public Health England (PHE) exploring certain priority – but generally under-explored – issues around health, work and unemployment. The target audience is a combination of local government, national organisations interested in health and work, and businesses themselves. The core content of this report was developed by RobertsonCooper Ltd using a search of relevant published and grey literature, and unstructured interviews with key informants.

### Key findings

The key finding is that measuring labour productivity is no longer sufficient. In today's workforce this type of measure does not fit with the nature of many jobs – it merely provides a limited view of employees' productivity. An improvement upon this basic measure can be achieved through including multiple input and output factors, including a focus on the quality of the work completed. Overall, many commentators also highlight a need for organisations to identify the factors that may impact the productivity of their workforce and focus upon developing measures that specifically target these different aspects.

The impact of negative wellbeing on productivity is also identified in the literature. Poor wellbeing is found to impact productivity directly but also through staff presenteeism. This is a prevalent and growing concern for organisations and is often the greatest cause of lost output.

Employers are encouraged to note the following advice when it comes to measuring productivity, in order to avoid these pitfalls and to drive improvements:

- use meaningful indicators – indicators of productivity must be meaningful to the organisation's objectives and operations. They should be reliable and practical,

consider all factors that may impact productivity, and take into account quality, rather than just hard outcomes

- use an integrated approach – get a comprehensive picture of organisational performance to analyse the relative contribution of each problem area
- involve employees in decisions that affect them – this gives employees a sense of ownership of the process and a perception of fairness
- review progress – productivity measurement is not an isolated task and should be reviewed regularly
- measure presenteeism – for example, by adding self-reported questions onto existing staff surveys

# 1 Introduction

## What is productivity and why is it important?

In 2013, there were 30.19 million people in employment in the UK,<sup>1</sup> reported to be the highest ever proportion of the nation with a job. The UK economy is said to be growing at its fastest rate since 2007<sup>2</sup> and organisations are beginning to competitively grow, with their employees at the heart of this. Each employee's individual productivity at work contributes to this, and organisations will continue to measure the productivity of their workforce to gauge their performance and growth. But, imagine that each UK employee became 1% more productive at work – what would this constitute? Before it is possible to consider the bearing that such an increase in workforce productivity would have, it is necessary to establish the best way to accurately quantify productivity.

The simple, classic view of productivity is concerned with measuring *inputs* in relation to *outputs*. It can be calculated as the amount of output generated in a given amount of time. A simple productivity equation can be seen below:<sup>3</sup>

$$\text{Productivity} = \frac{\text{Outputs provided by the process}}{\text{Inputs consumed by the process}}$$

Others have defined productivity as *how well a system uses its resources to achieve a goal*.<sup>4</sup> From this stance, other factors are incorporated into the overall picture of how productive an organisation is. For instance, an organisation that uses employee training and development in order to improve the knowledge, skills and abilities of their workforce. This approach focuses less on 'hard' outcomes of productivity and more on the aims an individual is working towards.

For all conceptualisations of productivity, higher productivity is better than lower productivity. Therefore, organisations should identify the ways in which productivity can best be measured. If productivity is not measured accurately, there is increased risk of adverse economic impact at the organisational level and it will be unclear how factors such as poor psychological wellbeing and employee resilience are impacting organisational performance.

The difficulty in conceptualising productivity has, in part, developed with the changing nature of work. A traditional view of improving labour productivity through scientific management was applicable at a time when many jobs involved working on the assembly line. Nowadays, it is service jobs and knowledge work that dominate the economy which in turn forces the development of different approaches to productivity that do not simply look at hard outcomes<sup>5</sup> – more than three quarters of current economic output is from the service sector.<sup>2</sup> Yet, measuring productivity in these sectors is much more complex, which is reflected in organisations resorting to the simple, classic measure of productivity to save time.<sup>6</sup>

Taking such an approach will inevitably leave some questions unanswered, and in doing so, it is argued that only a limited view of the actions of employees is gained.<sup>7</sup> In the literature, many are now rejecting the idea of basic input and output measures. For example, it has been argued that in the health sector that there should be a focus on changes in patient health rather than number of patients treated, and in the education profession the focus should be on student educational achievement and status rather than the number of lessons taught.<sup>8</sup> This argument highlights that in addition to measuring productivity to monitor success and growth, there should also be a move away from the classic measurements of productivity which no longer fit with the nature of a 21st century workforce.

## 2 Methodology

This topic overview is one of four commissioned by Public Health England (PHE) exploring certain priority – but generally under-explored – issues around health, work and unemployment. The target audience is a combination of local government, national organisations interested in health and work, and businesses themselves.

The core content of this report was developed by RobertsonCooper Ltd – a firm of business psychologists that works across the private, public and government sectors.

The content was prepared by conducting a search of peer-reviewed published literature on workplace productivity. The search terms “productivity wellbeing relationship”, “productivity wellbeing links”, “productivity indicators”, “productivity measures”, “productivity measures evaluation”, “productivity measures comparison” were used in the following databases: PsychINFO, Embase, Medline, PubMed, SpringerLink, Science Direct, Wiley Online Library and Google Scholar. A systematic approach was not used due to time constraints.

Beyond the search terms, reference lists were searched to capture further evidence on workplace productivity. A grey literature search was done, to include reports from key organizations working in the field. Strict inclusion and exclusion criteria and a quality assessment tool were not used, but meta-analyses were prioritized for inclusion.

Unstructured key informant interviews were done to capture current practice, case studies and recommendations for further action. Key informants included Human Resource Directors and Occupational Health leads and practitioners with a range of organisations. Key informants were selected using a pragmatic approach, based on based on their availability and willingness to discuss the topic.



## 3 How can productivity be measured?

The first thing to consider when measuring productivity within an organisation is why it is being measured. Depending upon the purpose of measuring productivity, there is an array of different stances from which it can be measured: the economist, accountant and manager approaches.<sup>9</sup>

### The economist

From this perspective, productivity is measured as the ratio of outputs to associated inputs where both are expressed in real, quantifiable units. That is, outputs and inputs can be counted numerically. In this case, productivity is the efficiency with which an organisation turns inputs into outputs. Further distinctions can be made within this approach depending upon the specific inputs and outputs included in the ratio. If all the inputs and outputs of the process are included in the ratio, then total-factor productivity has been calculated (this is also referred to as multi-factor productivity). If the organisation selects particular inputs and outputs to include in the ratio then partial-factor productivity has been calculated. In most cases, the outputs are divided specifically by the amount of labour used to produce them; this is referred to as labour productivity.

### The accountant

This is similar to the economist approach. However, financial ratios of input and output are calculated. Therefore, the focus is on the pound to pound ratio of productivity – how much money is spent on payroll, resources, training (inputs) and how much profit is generated (output) from these. The accountant approach is a type of efficiency measure but focuses specifically on the financial efficiency of the organisation.

### The manager

This is the broadest approach to measuring productivity. It includes all the aspects that can influence productivity such as the quality of output, work disruptions, absenteeism, turnover, and customer satisfaction. Due to the range of factors involved, productivity can be defined and measured differently depending upon the role, organisation or sector. It could be described as representing a board member or shareholder perspective of an organisation.

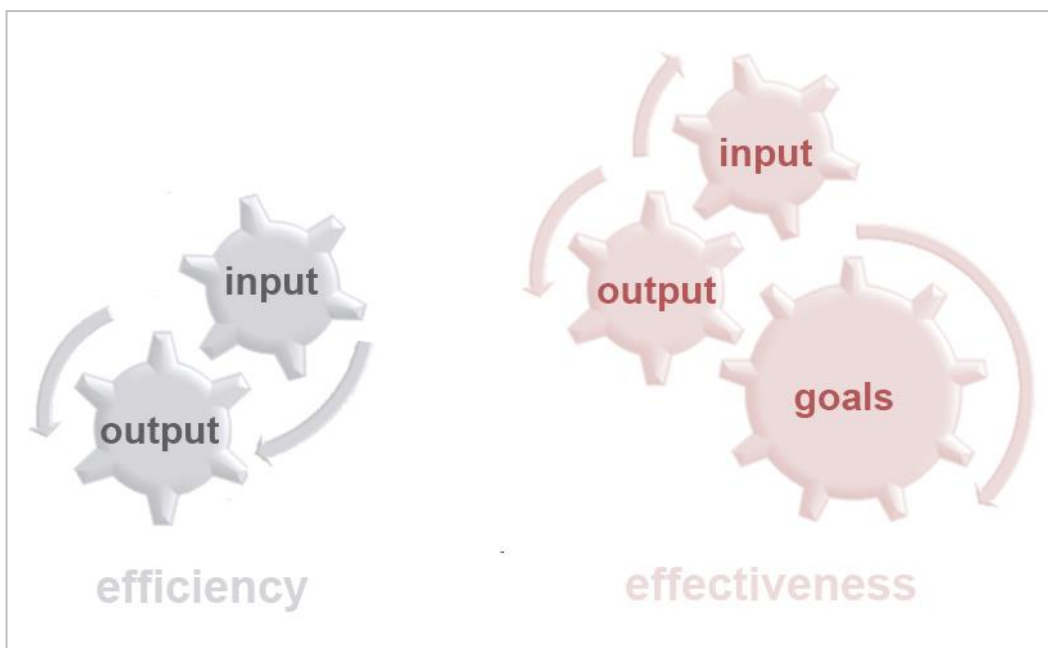
### Efficiency vs. effectiveness

Deciding between efficiency and effectiveness measures of productivity appears a salient issue within the productivity literature.<sup>4</sup> By definition, efficiency measures of productivity are concerned with output relative to input. This would be the classic view of productivity and most similar to the economist and accountant approaches described in the previous section.

As efficiency measures only incorporate quantifiable inputs and outputs, this allows calculating productivity to be relatively straightforward and easily interpretable.<sup>10</sup> In addition, when inputs and outputs are defined in monetary terms, productivity becomes directly reconcilable with profitability – making it a more attractive approach for management and stakeholders.

At the same time, efficiency measures have some obvious disadvantages. Principally, that they tend to take no account of output quality, customer satisfaction, training or resources used – factors which are crucial to an organisations functioning and therefore productivity.<sup>6</sup>

Furthermore, efficiency approaches take no account of the demand for a product or service. An organisation may produce masses of product and therefore appear productive. However, if there is no market demand for these products then the organisation will suffer. Ultimately, efficiency measures as indicators of productivity may provide useful, basic information on the proficiency with which an organisation is operating, but they do not appear comprehensive enough to provide a true picture of either individual-level or organisational-level productivity.



Effectiveness measures of productivity attempt to fill this gap. This type of productivity measure looks at output in relation to goals; these can be individual goals or wider organisational goals. These measures work best when applied to a specific organisational unit, for example the sales department. The difficulty faced in this approach is defining the goals that input is being compared to. Despite organisations as a whole striving to achieve high level goals and objectives, the functions that make up an organisation will each operate to achieve their own relative goals. For instance, the sales unit of an organisation will have different goals to the marketing or IT functions. Therefore, if goals are defined for each organisational unit, it is easier to calculate productivity than if broad organisational goals are used. In adopting this method, smaller changes in productivity across units of the organisation can be identified.

The resources used in attaining these goals are another important consideration. It is evidently counter-productive to achieve goals but exhaust resources in the process. It is often the case that managers judge productivity of employees by whether performance targets are achieved, without looking closely at how they are met.<sup>11</sup> There is no inclusion of the resources used or the quality of work when productivity is measured in this way. This further emphasises the issue of using basic and simplistic measures of productivity.

Overall, while effectiveness measures may give a clearer indication of organisational productivity they still hold limitations. It is recommended that a combination of both efficiency and effectiveness measures be used in order to develop a comprehensive picture of organisational productivity.

### Subjective vs. objective

Considering the subjectivity or objectivity of productivity measures is another consideration for organisations. Objective measures of productivity provide an impartial view that is not biased by the individual's personal views and feelings. In work environments where individual output can be quantified, it makes sense that objective measures are used. For example, the productivity of an estate agent can be measured by the number of properties they sell in a fixed period. However, these objective and quantifiable measures are not available for all jobs. For instance, for knowledge workers (eg, engineers, architects, scientists) who are subject matter experts within their field, finding all-encompassing, objective productivity measures is an arduous task. Due to complications in achieving objective measures, subjective productivity reporting is widely used.<sup>12</sup>

Self-report measures of productivity are the most common subjective measure and these attain an individual-level view of productivity. Although they are widely used, it is difficult to validate self-report questionnaires because no uniform measure of productivity exists.<sup>4</sup> Therefore, it can be hard to conclude whether or not these questionnaires assess what they claim to assess.<sup>13</sup> Similarly, the reliability of these measures can also be questioned. Despite these limitations, research shows that there is a high level of correlation between self-report productivity and more objective ratings of productivity.<sup>14</sup> Furthermore, using self-report questionnaires provides an organisation-wide view of productivity as all employees are providing ratings to the same questions, relative to effectiveness measures where productivity is judged against goals that are not universal across an organisation.

Combining subjective and objective measures may be the most appropriate. If self-report and objective measures of productivity are taken then this will avoid some of the limitations of using each measure alone and provide a more holistic view of productivity.

## 4 Applicability to other organisations and sectors?

It seems clear that many different factors need to be considered in order to identify the most appropriate measure of productivity for a particular organisation. In some cases, it has been suggested that organisations should have multiple measures of productivity for the different units of the organisation. This raises questions around which approaches may be best for different units, sectors and industries to further highlight that productivity is not a 'one-size-fits-all' concept.

In the services industry, organisations are providing services rather than producing tangible goods. Therefore, the intangibility of services makes measuring productivity of service workers and organisations difficult.<sup>10</sup> Further, customer participation is essential to the production of services; therefore, the customer can be considered an input in the productivity ratio.<sup>15</sup> This idea is further supported by the fact that the productivity of the service provider is largely reliant on the quality of the customer. For example, in consulting services, the quality of the client influences the consultant's level of performance. Although performance only focuses on individual or team output, research shows that performance and productivity are linked, albeit indirectly.<sup>4</sup>

The public sector is a major employer and a major provider of services in the economy. In discussing productivity in this sector, some argue that measures should include the customer's view of the quality of services provided.<sup>7</sup> It has been found that labour productivity is most commonly used within this sector, mainly due to its credibility for measuring national growth, but a shift is needed towards multi-factor productivity, especially if the customer's contributions are to be included in the productivity measure.

Some researchers have developed very specific measures of productivity for unique roles. For example, the lack of an appropriate measure of productivity in academics spurred researchers to create a new productivity index. This combined six popular indices of researcher productivity to create a new index that incorporated both quality (measured by article citation count) and outcome quantity (measured by amount of articles published).<sup>16</sup> Although such a unique measure cannot be applied and used in other work settings, it emphasises the need for multiple unique measures of productivity across different roles and organisations. Ultimately, it furthers confirms the notion that no single measure of productivity can be applied across the entire workforce, even within one organisation.

Research into productivity in the computing domain has shed more light on the importance of quality in productivity measurement. It is often that case that the output measurement in software production is lines of code written and the input expressed as the numbers of hours put in by staff.<sup>17</sup> However, this raises questions about the quality, maintainability and reliability

of the code. In some cases, a shorter string of code may yield a far better solution than a longer one.<sup>5</sup> This links back to the efficiency versus effectiveness debate. Efficiency measures would focus solely on high output levels (lines of code) whereas effectiveness measures would focus on reaching goals (finding the best solution in the shortest string of code). In this case, the latter is may be a more appropriate measure of productivity.

Research conducted on health care staff looked at the combination of both efficiency and effectiveness measures of productivity.<sup>18</sup> Efficiency was measured as the number of patients that visited the health care staff and effectiveness was measured through the individual's judgement about the quality of the service they received. Interestingly, great variation was found in the measures, which illustrates that efficiency and effectiveness measures target different aspects of productivity. Therefore, it is important for organisations to consider the different factors within a specific job that may contribute to overall productivity and ensure that they incorporate and combine these to develop an appropriate and comprehensive productivity measure.

What is crucial to sector-specific measures of productivity is that they must be in line with the organisation's mission. The contributions of both efficiency and effectiveness measures will be important to most organisations, at least in part, yet their relative contributions differ. Take the example of two chains within the retail sector, one of which is known for their low cost, and the other for high quality. Measuring efficiency within the low cost chain is more important than measuring efficiency in the other, and vice versa for the high quality chain.

## Cafcass

Cafcass is a non-departmental public body that safeguards and promotes the welfare of children, giving advice to family courts and creating provision for children to be represented. They have been faced with an increasing demand for services coupled with a reducing budget in the same timeframe. In a progressive HR policy, the organisation implemented an integrated HR service, which includes a health and wellbeing plan, an electric case file system and high specification technology.

Accurate measures of productivity were fundamental to measuring their performance through these challenges. With the majority of their workforce made up of social workers, they used three metrics for productivity:

- number of cases closed per month
- allocation time of new cases
- welfare reports filing time

Having these measures in place has allowed them to monitor the impact of their integrated HR service and show that productivity has improved. Cafcass featured in Robertson Cooper's *Good Day at Work 2014* report, which can be downloaded [here](#).<sup>19</sup>

## 5 Presenteeism

As previously highlighted, one of the key issues with the classic labour productivity approach is its solitary focus on hours worked. But how do we know that an individual who is attending work and putting in the hours is actually being productive? This is where the issue of presenteeism comes in. In today's workforce, stress and negative psychological wellbeing can have a strong impact on employees, and in the past, this has resulted in high levels of absenteeism at work. However, in the period following the economic downturn, many companies have resorted to downsizing their workforces in order to survive, leaving employees concerned about the future of their employment and the notion of "more for less" becoming a commonality. As a result, we are seeing an increasing number of employees attending work in order to keep their jobs, irrespective of their physical or psychological wellbeing.<sup>20</sup>

In a general sense, the term presenteeism is defined as "turning up to work while ill".<sup>14</sup> In an article for HRMagazine, Professor Cary Cooper reports four different types of presenteeism:

- fully functioning presenteeism – healthy engaged employees who rarely take sick leave
- sickness presenteeism – employees who turn up to work but their health is suffering. They still attend work due to their low levels of job security, although this inevitably makes them less productive
- job dissatisfied presenteeism – these are generally healthy people but have high levels of absenteeism – possibly due to their poor engagement, low commitment or a mismatch between the worker and their role
- stressed unhealthy – this refers to those who have a combination of health problems unrelated to the job and those who have been damaged by the job

While employee wellbeing will naturally fluctuate, turning up to work unwell will mean employees are generally less engaged in their work and subsequently less productive.<sup>21</sup> Therefore, presenteeism becomes an important factor in the measurement of productivity. The complication arises with the fact that while sickness absence is visible and more easily measured, presenteeism is often not. However, organisations should ensure they do not ignore presenteeism as an issue simply because it is not as easily measured as absenteeism. The Centre for Mental Health note that managers need to be aware that presenteeism could be the more significant cause of lost output.<sup>22</sup>

### Measuring presenteeism

The Centre for Mental Health explains that measuring presenteeism is not easy, particularly on a routine basis.<sup>Error! Bookmark not defined.</sup> They suggest enhancing existing staff surveys to incorporate questions on health and attendance at work. This could be followed by more detailed and focused surveys using specially designed instruments for

measuring presenteeism, such as the WHO Health and Work Performance Questionnaire.

In Sweden, a question targeting presenteeism was appended to the Labour Market Survey.<sup>23</sup> The question asked: “Over the past 12 months how often have you gone to work despite feeling that you really should have taken sick leave because of your state of health?” The response format consisted of “never”, “once”, “2-5 times” or “over 5 times”.

Presenteeism is a prevalent issue within the health care sector. The NHS Staff Survey now includes a measure of presenteeism that aims to identify the percentage of staff turning up to work unwell. This item asks: “In last three months have you ever come to work despite not feeling well enough to perform your duties?”, with responses measured on a yes or no scale. In the 2013 survey, 67% of staff reported coming to work despite feeling unwell.<sup>24</sup> Beyond the prevalence of presenteeism, the survey measures the driving forces behind employee turning up at work while feeling unwell. It was found that to be the individuals pressuring themselves to come to work in most cases, rather than their managers or colleagues. This issue is concerning given the link between staff wellbeing and the quality of patient care – raised in both the Boorman Report,<sup>25</sup> the Francis Review,<sup>26</sup> and examined in more detail by Maben, J. et al.<sup>27</sup>

A benefit of measuring presenteeism as an indicator of productivity is that it can be used as an organisation wide measure. From reviewing the productivity literature it is evident that appropriate and accurate measures of productivity are more job-specific than organisation or sector specific. However, presenteeism is a more universal indicator of productivity as it applies the same measure across all employees. This means that the findings can be aggregated to give an overall picture of how many employees are at work and well and how many are not. Of course, the measures of presenteeism that currently exist focus upon subjective self-reported presenteeism. It may be useful to gain more objective measures through supervisor or manager reports, or during employee performance appraisals.

Office for National Statistics data shows that UK sickness absence has fallen by 40 million days in the past 20 years.<sup>28</sup> There were 131 million days lost to sickness in 2013, down from 178 million in 1993. These figures correlate to increased prolonged illness and stress in the workplace, and raise the risk of long term consequences for individual employees if they are not supported to address long-term health issues. Despite an overall downward trend of sickness absence, sickness absence related to stress, anxiety and depression is rising. Further, job insecurity and a fear of taking genuine sick days means that presenteeism could account for the falling rates of absenteeism. In terms of productivity inputs, inaccuracies are likely to arise.



## 6 Productivity and wellbeing

It is clear at this point that presenteeism and productivity are inevitably connected. Following this, it is important to look at the factors that are causing employees to turn up to work not feeling well enough to do their jobs. A review of the literature indicates the following key factors leading to presenteeism:<sup>29</sup>

- working while ill
- work/life imbalance
- unhealthy lifestyle
- stress
- personal financial difficulties

All of these factors in some way relate to an individual's wellbeing. This means that an indirect link exists between *poor wellbeing* and *productivity* through *presenteeism*. For example, if an employee has poor levels of psychological wellbeing driven by a stressful work situation, and they turn up to work regardless, they will ultimately be less engaged and display lower productivity.

The negative impact of wellbeing on productivity is supported by a recent report looking at employees in the financial sector.<sup>30</sup> In a sample of almost 5,000 UK bank workers, the results highlighted the contribution of non-work hassles, in addition to workplace stressors, to individual productivity. Measured on a self-report scale, bank workers highly troubled by both workplace stressors and non-work hassles displayed the poorest levels of productivity.



## 7 Conclusions

The most significant point identified in the productivity literature is that simply measuring labour productivity is no longer sufficient. In today's workforce this type of measure does not fit with the nature of many jobs – it merely provides a limited view of employees' productivity. An improvement upon this basic measure can be achieved through including multiple input and output factors in the productivity calculation. In this way an organisation can gain a wider view of both individual-level and organisational-level productivity that incorporates key factors such as quality, resources and training, among others. Specifically, the importance of work quality when measuring productivity has been highlighted by numerous researchers, academics and consultants. They remark that quality is often as important, if not more important, than quantity in the workplace. Striking a balance between quantity and quality is a challenge for organisations, particularly given increasing globalisation and a consumer demand for value.

It is suggested that the most comprehensive measures of productivity will focus on both employee efficiency and effectiveness. That is, how well they turn inputs into outputs but also how well they can meet goals. Using both subjective and objective assessments of productivity is also suggested if organisations wish to gain a greater understanding of overall productivity. Overall, many highlight a need for organisations to identify the factors that may impact the productivity of their workforce and focus upon developing measures that specifically target these different aspects.

The impact of negative wellbeing on productivity is identified in the literature. Poor wellbeing is found to impact productivity directly but also through staff presenteeism. This is a prevalent and growing concern for organisations and is often the greatest cause of lost output.

### Advice for employers in measuring productivity

- use meaningful indicators– indicators of productivity must be meaningful to the organisation's objectives and operations. They should be reliable and practical, consider all factors that may impact productivity, and take into account quality, rather than just hard outcomes
- use an integrated approach – get a comprehensive picture of organisational performance in order to analyse the relative contribution of each and diagnose problem areas
- involve employees in decisions that affect them – this gives employees a sense of ownership of the process and a perception of fairness
- review progress – productivity measurement is not an isolated task and should be reviewed regularly
- measure presenteeism – for example, by adding self-reported questions onto existing staff surveys

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<sup>27</sup> Maben, J., Peccei, R., Adams, M., Robert, G., Richardson, A., Murrells, T., & Morrow, E. (2012) Patients' experiences of care and the influence of staff motivation, affect and wellbeing. Final report. *NIHR Service Delivery and Organisation programme*.

<sup>28</sup> UK sickness absence drops 40 million in 20 years – but is it a culture of keeping up appearances? <http://www.robertsoncooper.com/good-daily-health-and-wellbeing-article/839-uk-sickness-absence-drops-40-million-in-20-years-but-is-it-a-culture-of-keeping-up-appearances>

<sup>29</sup> Workforce Productivity: Effects of Presenteeism.  
<https://www.yumpu.com/en/document/view/6487605/workforce-productivity-effects-of-presenteeism-tms-consulting>

<sup>30</sup> Bank on Your People (Robertson Cooper)  
[http://www.bwcharity.org.uk/sites/default/files/BWC\\_Research\\_Report\\_March\\_2013\\_0.PDF](http://www.bwcharity.org.uk/sites/default/files/BWC_Research_Report_March_2013_0.PDF)