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Costing Customer Time Research Paper

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Abstract and acknowledgements

Abstract

A key cost of administering the UK tax and benefit system is the time spent by citizens and businesses gathering and providing information to HM Revenue and Customs (HMRC) to ensure they meet their obligations.

Using principles from HM Treasury's Green Book and data on earnings, employment and time from the Office of National Statistics, this paper estimates the value of an individual's time at £14.20 an hour. This applies to both in-work and non-working individuals, and can be used to better understand the costs of complying across the tax and tax credits system.

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1. **Background**

One of HMRC's strategic objectives is to improve customers' experience. The Total Cost to Serve project, of which this paper is part, aims to help HMRC meet this objective. The project aims to find a way to estimate the cost of interactions a customer may have with HMRC, to provide a consistent way of understanding:

- the split of burden between HMRC and the customer, and
- how actions by one party can affect costs for both.

In estimating these costs, we can also assess whether we have the right balance of work between HMRC and customer. Although we recognise that third parties (e.g. accountants) may also feel this burden, we have focused on the costs to the final customer.

As part of this project, HMRC have already created a tool – the Total Cost to Serve Calculator (the Calculator) – that converts time spent on particular interactions into a cost to HMRC and the customer. This not only identifies which burden-reducing changes will have the best financial benefit to HMRC and the customer, but also helps to embed a customer focused approach across the Department. Doing this provides a consistent way of valuing the burden placed on customers, which we can use across a range of projects, programmes and customer groups.

We have chosen to put a monetary value on customer¹ time. This will help decision makers in HMRC incorporate customer burden (and the impact of changes on customer burden) into cost-benefit analysis and business cases. Showing customer burden in monetary terms makes this process more straightforward, and helps to ensure that we weight customer experience alongside factors like cost and revenue flows.

HMRC's customer base spans the population, so working out a way to value their time is not clear-cut. The aim of this paper, therefore, is to outline our methodology to find the value of customer time that we use in the Calculator.

The paper will:

- define compliance costs, including why it is important to value them
- look at existing approaches to measuring the value of individuals' time
- outline the methodology that we have adopted and why, and
- present the value of customer time that we are using in the Calculator.

2. **Defining compliance costs**

HM Treasury's Green Book (the central point of access to guidance on economic appraisal in the public sector) states that where possible, business cases should aim to place a value on all costs and benefits. For HMRC, the cost of complying with tax obligations is a key part of this.

In this paper, compliance costs refer to, "the costs incurred by taxpayers in meeting

¹ This paper outlines the methodology for costing non-business customer (i.e. individuals) time only.

the requirements laid on them by the tax law and the revenue authorities ... over and above the actual payment of tax and over and above any distortion costs inherent in the nature of the tax; costs which would disappear if the tax was abolished.”² These costs represent an opportunity cost. That is, the time, money and effort customers spend meeting tax and tax credits obligations that they could put to alternative use, which would have some value to them and society as a whole.

As Sandford³ explains, “the compliance costs of a tax may not be entirely detrimental: benefits may arise from compliance which constitutes an offset to the tax”. For example, an individual who completes a tax return by carefully storing relevant information may be encouraged to review their investments which may lead to them managing their financial affairs more efficiently. However, we do not look at these benefits here.

Compliance costs can be broken down into three categories.

1. *Time costs*. The time taken to acquire sufficient knowledge to meet legal requirements, complete personal tax returns, and obtain, file and store the data to enable them to complete their returns, including the acquisition of knowledge.
2. *Direct costs*. Fees paid to an advisor or tax agent, travel costs to visit a tax advisor, or the costs of telephone and postage.
3. *Psychological costs*. Some people may experience anxiety and frustration in dealing with their tax affairs, including finding the money to pay it.

Direct costs, although sometimes difficult to identify and gather information on, are relatively easy to measure as they - by definition - have a monetary value. Therefore, we will not discuss them further in this paper.

Psychological costs are, arguably, the most difficult to measure, and can vary greatly across customers and taxes. Research carried out for New Zealand Inland Revenue by Turner and Oxley (2005) asked employers about the “stress” associated with paying tax. Respondents rated sales taxes as “more stressful” than PAYE and tax on fringe benefits, suggesting that complexity and financial implications determine the burden that tax places on business. Furthermore, psychological costs could also depend on the extent of the customer’s prior knowledge of the tax system, and their treatment by the revenue authorities.

Placing a value on the psychological cost to the customer is undoubtedly useful and important to establish the full compliance costs, however, this paper is solely concerned with valuing the time element of compliance costs.

3. Existing approaches to measurement

3.1 Standard Cost Model

² [The Chartered Institute of Taxation](#)

³ Sandford, C., Godwin, M., Hardwick, P. “*Administrative and Compliance Costs of Taxation*” Fiscal Publications 1989, p13.

HMRC currently uses the Standard Cost Model (SCM)⁴ to estimate the administrative burden placed on businesses to meet particular information obligations. This admin burden relates to the time and cost necessarily incurred by compliant UK businesses in retaining information and/or sending it to HMRC or a third party. In order to track, monitor and estimate the impact of a change on business, HMRC holds data⁵ on:

- the obligations businesses must meet, and
- the costs (wage costs, material costs, agents' fees and overheads) associated with meeting the obligations.

In HMRC, this is business (rather than individual) focussed. However, the Netherlands extended the SCM approach to citizens in 2002, and set targets to achieve a 25% reduction in this burden by 2007.

Admin burdens are only a proportion of compliance costs and do not account for one-off costs, such as, familiarisation with a policy change or costs incurred from HMRC or customer error. In addition, it may be less easy for individuals to assign a value to the time that they spend fulfilling their tax obligations than businesses who can more easily identify the cost associated with 'lost' time. Therefore, we have pursued the SCM approach in this case

3.2 Compliance cost analysis from other fiscal authorities

Other fiscal authorities have also attempted to measure the compliance costs of individual (as opposed to business) taxes. However, they tend to show burden as financial outlay (e.g. on an accountant) or time spent, without attempting to convert time spent into a monetary value⁶.

We aim to find a way of factoring the burden placed on our customers (and the impact of any changes we may make) into decision-making alongside revenue flows and internal administrative costs. Placing a monetary value on individual customer time will help decision makers make relevant comparisons with HMRC's administrative costs.

3.3 The Department for Transport approach

⁴ ['Measuring Administrative Costs: UK Standard Cost Model Manual'](#), Cabinet Office, Better Regulation Executive, September 2005

⁵ Data is from research carried out by KPMG on behalf of HMRC in May 2005. This involved firstly identifying all regulations that impose a burden on business and the underlying activities businesses have to perform to comply, and then measuring the burden by using interviews with businesses from nano (self employed) up to large businesses (with 250+ employees), as well as using experts to place indicative values on those activities. The report, "Administrative Burdens, HMRC Measurement Project" can be found at <http://www.hmrc.gov.uk/better-regulation/kpmg.htm>

⁶ See Guton et al (2003) for an example from the Internal Revenue Service in the USA.

Many transport-related projects aim to reduce time spent travelling (e.g. by reducing congestion), and the Department for Transport (DfT)⁷ has already carried out extensive work on valuing time. They use this in their appraisals of road schemes and other transport analysis. In doing so, DfT have separated travel time into two categories.

1. Travel during working hours (i.e. at the employer's expense).
2. Travel outside working hours (i.e. not at the employer's expense).

Their value for an hour's travel during a working day is the cost of that time to the individual's employer. This assumes that non-productive time spent travelling converts to productive time if travelling time was reduced. Therefore, the value an hour of an employee's time is equal to the value of what they could produce in that hour. In a competitive market, this is equal to the cost, per hour, of employing that employee. To work this out, DfT use data on income and travel from the National Travel Survey (NTS) to estimate wage rates by mode of transport, which they then increase by 21.2%⁸ to capture the employer's other overheads.

DfT base the 'in-working time' estimates on observed behaviour (i.e. wages), and the 'outside working time' estimates on individuals' stated valuation of travel time saved. These estimates were the result of a study carried out by the Institute of Transport Studies (ITS) in 2003⁹, and are summarised by two rates:

- commuting time (£5.04 an hour in 2002 prices), and
- non-working time (£4.46 an hour in 2002 prices).

We explored the idea of using a similar approach within HMRC. In doing so, we encountered the following issues.

I. Inside or outside working hours?

Although our non-working customers tend to contact us during the working day, some obligations don't involve direct contact and, in general, our data on when people deal with HMRC is limited.

If customers deal with HMRC during working hours, we do not know whether they do so at their employer's expense (e.g. the customer may work later to make up the time). This probably depends on the employee's working conditions and the length of time the activity takes. For example, they could squeeze a phone call into a working day, whereas they probably couldn't complete a tax return.

II. Can we compare time spent travelling with time spent dealing with HMRC obligations?

⁷ See '[Integrated Transport Economics and Appraisal](http://www.dft.gov.uk)' found on the DfT website at: <http://www.dft.gov.uk>

⁸ Based on the Labour Force Survey (2000), this includes costs such as national insurance, pensions and other costs which vary with worker hours.

⁹ Value of Travel Time Savings

Given the above, we could assume that individuals deal with HMRC either outside working hours, or inside working hours but not at their employer's expense.

We could base our estimates on the DfT 'outside working hours' rates. However, these rates represent the individual's stated preference for different types of travel (e.g. a quicker train service), and include the individual's utility or disutility (the level of enjoyment they get out of a particular good or activity) associated with travel. We wouldn't expect it to be the same for their dealings with HMRC. The relatively low rates that DfT use – compared with, say, wages – could mean that some customers derive some pleasure from travelling (particularly when travelling for leisure), which offsets the cost associated with lost time.

As the DfT estimates include these additional factors, they are unlikely to be representative of the way that HMRC customers value the time they spend dealing with tax matters.

III. Is it practical and feasible to gather our customers' stated valuation of their time spent dealing with HMRC?

We explored the possibility of carrying out a study – similar to the study the ITS carried out for DfT – to ask customers the value they would put on time spent dealing with HMRC. However, due to the diverse range of activities customers could be doing to meet their HMRC obligations, we decided that it would not be feasible at this stage.

3.4 Alternative approaches

We could not precisely apply DfT's approach, so have explored a number of alternatives.

1. Wages

In basic economic theory, we assume that, when making employment decisions, workers place a value on their time and then work the number of hours that gives them their preferred combination of income and leisure. Deciding to work another hour will depend on whether the wage on offer exceeds the worker's valuation of that hour (given that there are only a finite number of hours in the day). We could therefore assume that the wage received by the employee is broadly representative of the value they place on their time.

This relies on workers: (a) being able to control their hours; and (b) being paid on an hourly basis (rather than receiving an annual salary). In reality, this is probably not the case (or, at least, it is unlikely to meet both conditions simultaneously).

This approach has the advantage that, when asked how they would value their time, most individuals are likely to refer to their wage (or an estimate of their wage based on their salary). However, the main disadvantage is that it does not cover those individuals who are not working.

2. A 'Proxy' Wage

This approach works on the premise that, outside work, individuals may still perform activities that are beneficial to society, such as, looking after children. While qualitatively different from leisure time, it shares the feature of being non-remunerated. A possible way to value this time is to consider the wage rate that individuals could earn if they were paid for the activities they performed.

The main advantage of this approach is that we can apply it to individuals who are not working. However, because non-working individuals are likely to spend more of their time doing these activities than working individuals, their preferences are likely to influence the estimates.

3. Jury Service

UK citizens aged 18 – 65 and on the electoral register are eligible for jury service. The State covers expenses incurred as a direct result of jury service (travel and subsistence) and also recompenses for lost earnings and benefits. Using this approach to estimate the value of an individual's time has practical issues. For example, the amount of compensation varies with the length of service, and there is a daily maximum limit. Furthermore, the opportunities to opt out are limited. We are unable to observe, from people's decisions and behaviour, whether this actually represents an accurate value of their time, or just what they consider a 'fair' rate of compensation for performing a civic duty.

4. Returns to higher education

The premium the labour market places on individuals with higher education indicates the value of the returns from that education. We could interpret this as the value of the time a student invested in their education. The Learning and Skills Council estimates the premium employers place on higher educated graduates (the returns from 3 years higher education) around £4,000¹⁰ a year.

There are two problems with this approach.

- It only focuses on the value of time for students and graduates (who are only a subset of the population).
- It values the time spent on a particular *activity* (further education), and may also capture any underlying pleasure and enjoyment (or otherwise) the student receives whilst studying. This is similar to the DfT non-working rate, which picks up the utility or disutility associated with time spent travelling.

¹⁰ Learning and Skills Council, "Reality TV encouraging 'lottery mentality' in young people". 2007

5. Search Costs

Looking at the time individuals spend searching for the best prices on goods and services might tell us how they value that time. Evidence suggests¹¹, however, that more factors than the physical cost of searching drive search behaviour. Search habits may therefore be idiosyncratic to the type of individual, and how they value their time generally.

6. National Minimum Wage (NMW)

The National Minimum Wage (NMW) – currently £5.80 an hour for workers aged 22 and over – “provides fair standards in the workplace by avoiding potential exploitation of workers by employers”¹². Therefore, we could view it as the State’s minimum valuation of workers’ time.

Using the NMW presents a number of problems.

- As some people are still not working despite the NMW implies that they value their time at a higher rate (although it could relate to the lack suitable employment opportunities).
- It is likely to be an underestimate, as many individuals in work earning higher wages or salaries are likely to value their time at a higher rate.
- The standard economic theory on minimum wages tells us that the key benefits of the NMW are in highly concentrated employment sectors dominated by a small number of employers (who exert more control over wages), where minimum wages help to transfer some of the profit from the employer to the employees. Although we could still infer a wider social value on employees’ time, the issue is confused by the wider aim of correcting this particular market failure.

Given our original objectives (to find a rate that we can use across the population to put customer burden alongside HMRC administrative costs in decision-making), and the advantages and disadvantages set out above, we decided to combine the first two options, using:

- ‘real’ wages to represent individuals currently working, and
- ‘proxy’ wages to represent individuals not currently working.

Next, we will outline in detail the methodology that we adopted, the assumptions we made and the data used.

4. Methodology

4.1 In-Work Individuals

¹¹ Johnson, E., et al “On the depths and dynamics of online search behaviour” Management Science Vol 50, No. 3 2004, pp 299-308

¹² NMW Final Impact Assessment (2009)

For in-work individuals, we have based our estimate on hourly earnings data, taken from the Annual Survey of Hours and Earnings (ASHE) 2008¹³. We chose ASHE rather than the Labour Force Survey because of its large coverage (around 150,000 entries). ASHE is updated annually so it reflects any changes in the population of in-work individuals.

Although ASHE is the most accurate and reliable data source for our purposes, we recognise that it does not cover the self-employed. Statistics from the Survey of Personal Incomes 2006-07¹⁴ suggest that if we included self-employed wage data we would have a downward effect on our value of customer time, albeit by a small amount.

We then use mean¹⁵ gross hourly pay (to include overtime) which produces a gross average wage of £13.90 an hour (in 2008 prices). In doing so, we assume that the tax and tax credits burden is equal for all individuals. Although this is unlikely, our data on the number of interactions (and time spent on them) by income is limited, and so makes this assumption necessary in the short-term.

It is also not clear how this bias would influence our estimate. The additional time we might expect tax credits recipients to deal with HMRC may push down our estimates (as they are likely to be from lower income households). However, we could expect the opposite effect from relatively high-earning filers of Self Assessment tax returns (who may also have to spend more time than the rest of the population dealing with HMRC). This issue is something we can explore or refine in future.

4.2 Non-working Individuals

The previous section outlined our preferred approach for non-working individuals, who are not in formal employment but still do activities that are beneficial to society. However, because they do not receive employment income from these activities, there is no observable wage equivalent to that for in-work individuals.

Instead, we have used estimates on the hourly Effective Return to Labour (ERL) of household activities based on data from the Household Satellite Account (HHSA), which gives us an estimate of the “proxy” wage¹⁶. The HHSA only provides figures for 2000, so we have uplifted them using mean earnings growth data from ASHE. This gives us an estimate “proxy” wage of £6.45 an hour (in 2008 prices).

4.3 Including Overheads

¹³ [Annual Survey of Hours and Earnings \(ASHE\) 2008](#). At present the calculator, and the rates that go into it, are updated annually in June. Therefore the estimates used at June 2009 (presented in this paper) are based on 2008 ASHE data. This rate will be updated in June 2010 to reflect the 2009 ASHE results

¹⁴ http://www.hmrc.gov.uk/stats/income_distribution/3-6tabledec08.xls

¹⁵ We have opted to use the mean rather than the median because, whilst we recognise that the mean can be skewed by one or two high values, we are trying to capture the cost of time for *all* of our customers. Consequently, any ‘higher earners’ are not ‘outliers’ but part of our target population and so should be accounted for.

¹⁶ [Household Satellite Account \(HHSA\) 2000](#)

The DfT estimates the cost of time spent travelling during a working day (outlined in section 3.3 above) based on the cost to an employer of an hour of their employees' time. As this is time displaced from activities which produce output for the business, and value to the wider economy, this represents the cost to the economy of that time. Time spent on leisure travel or commuting, however, estimates the cost using individuals' (stated) preferences for how they spend their time.

It is not completely clear whether individuals are spending time meeting their tax obligations in working time (i.e. at their employer's expense) or in their own time. Assuming all tax-related activity happens in leisure time, if we follow the DfT approach, then we should capture individual preferences regarding time spent dealing with tax matters. As we are using wage data to value this time, we should use wages net of tax. Economic theory tells us that individuals consider this rate when making decisions about their working hours. We can therefore treat this as the value they place on their time. We could also include benefits or credits that employees lose for each additional hour worked.

The advantage of this approach is that it represents individuals' valuation of their own time, and is consistent with the traditional approach to cost-benefit analysis. The disadvantage is that it creates an inconsistency between the way we measure burden on customers and HMRC of administering the tax system (where we include not just the wages, but also other overheads).

Most public sector cost-benefit analysis estimates preferences for a good, service or environment to establish the 'social value' of a particular change. However, we are attempting to estimate the value of our customers' time in order to understand how the cost of administering the tax system is split between HMRC and our customers. In that sense, customers can view the burden of dealing with HMRC obligations as 'unpaid' work, which HMRC would otherwise do if the legislation and processes were different.

We could treat time spent as paid work that produces a wider economic benefit (as DfT do for those who travel during working hours). This would represent the value to wider society of that time, rather than the cost to the individual. If we see the cost to the employer of an hour of their staff's time as a measure of the minimum value the employer puts on that time (presumably they would not employ that individual if they did not get out more than they put in), then that cost must be the (minimum) economic value that the employee can produce in an hour.

Using gross wages as the basis for our estimates (see sections 4.1 and 4.2), we can estimate the cost to the employer by adjusting estimates of the average gross wage to account for other employment overheads (estate costs, superannuation etc.). We have chosen this approach as it represents a better value of the time that individuals spend meeting their tax obligations.

The SCM Manual put together by the Better Regulation Executive, Cabinet Office, 2005¹⁷, states there is no central statistical source that identifies the size of overheads

¹⁷ [Measuring Administrative Costs: UK Standard Cost Model Manual](#), Cabinet Office, Better Regulation Executive, September 2005

for all sizes of business. DfT use a mark-up of 21.2% taken from the Labour Cost Survey 2000 to estimate the value of time. However, we apply a 30% overhead¹⁸ mark-up in accordance with the SCM Manual¹⁹ to ensure consistency between estimates of customer burden for individuals and businesses (where the SCM approach is used).

4.4 Developing One Estimate

In cost-benefit analysis, we aim to estimate the impact on the group of individuals affected. In this case, we are developing an estimate that others will use to work out basic cost benefit analysis themselves. A wide range of projects could benefit from using these estimates, so it would be impossible to provide a set of rates that accurately represent the cost of time for the population affected in each individual case.

We therefore explored having a standard set of rates split out by, for example, customer group or head of duty. However, we encountered a number of problems doing this.

1. We struggled to find a population split that produced a mutually exclusive set of groups. In many cases, customers could be in more than one group, meaning that users of the Calculator could potentially find themselves with the option of using two different estimates.
2. The Calculator is being used in different ways, so there is no single split that is relevant to all users of the tool. For example, a head of duty split may be relevant for a project looking at Self Assessment, but irrelevant for a project looking to improve pensioners' general experience.
3. The approach could create different rates, which potentially results in higher benefits or costs for particular projects. Although, economically speaking, we would wish to capture this difference in cost to our customers, it makes it difficult for decision makers to know whether a difference in costs and benefits between two business cases is caused by a difference in the options under consideration, or a difference in the underlying cost of time used.

For these reasons, we have decided to use one estimate for the cost of time for individuals. As use of this estimate – and the Calculator – grows, we will revisit this decision and establish whether it is still appropriate.

¹⁸ The overhead is described in Annex 3 on page A33 of the 'Measuring Administrative Costs: UK Standard Cost Model Manual' and encompasses the range of indirect costs that are associated with the undertaking of administrative activities. This includes: payroll overheads such as employer pension contributions and NI contributions; human resource costs such as training and development; IT costs such as hardware, software and telephone and communications; and personal and general indirect costs such as office articles and subscriptions, and insurance and rent costs, respectively.

¹⁹ The 30% overhead percentage is also broadly in line with other parts of Europe using the SCM. Denmark, Norway and Sweden have calculated the overhead percentage to be 25 %. The Netherlands started out with an overhead percentage of 25 %, but now sometimes also uses higher percentages. ['Measuring Administrative Costs: UK Standard Cost Model Manual'](#), Cabinet Office, Better Regulation Executive, September 2005

To arrive at this rate we took an average of the in-work and non-working values of time, weighted according to the working and not working individuals, which the Labour Force Survey (LFS)²⁰ currently estimates at 60% and 40% respectively.

5. Results

The table below presents the figures for each stage of the methodology outlined in Section 4, as well as the final cost of customer time figure.

	In-work Individuals	Non-working Individuals
Wage rate/proxy wage rate (an hour) <i>Sections 4.1 and 4.2</i>	£13.90	£6.45
Converting the wage rate to a wage cost <i>Section 4.3</i>	£18.07	£8.39
Weighted Average across all individuals <i>Section 4.4</i>	£14.20	

We consider the estimate of £14.20 an hour to be the best way for HMRC to value the cost of customer time, given both the data available and for our objectives; the need for a consistent approach across HMRC and for the value to apply to a number of different programmes.

6. Conclusion

This paper outlines the methodology we have developed to value an individual's time, and the reasons for adopting this approach. We developed this estimate to support HMRC's cost-benefit Calculator, designed to ensure that customer burden plays a central role in planning and decision-making. This is a departure from the traditional approach to cost benefit analysis in HMRC, where we develop underlying estimates on a case-by-case basis.

By *valuing* of the work that individuals carry out to help HMRC administer the tax system, our methodology looks beyond an individual "willingness to pay" for a reduction in an hour spent dealing with tax matters. Because the key objective of this

²⁰ For the financial year 2008-09.

work is to provide a measure of customer burden that we can use alongside other cost-based measures in HMRC, we felt that this was a more appropriate approach in these circumstances.

For practical reasons, we have adopted a single estimate to capture the value of an hour of an individual's time that is a weighted average of the cost of time for in-work and non-working customers. Similarly, we have also assumed that the tax burden is even across our customers. We may revisit these issues as we get a better feel for how HMRC uses this estimate.

Based on data from various Office of National Statistics (ONS) sources, we estimate the cost of customer time to be £14.20 an hour. This rate applies to the current financial year. As we have based it on earnings data, HMRC will adjust it annually to account for earnings growth and changes in the in-work and non-working populations.

This is the first time HMRC has attempted to place a value of time on our non-business customers. We have encountered issues along the way that required us to adapt and build on the approaches developed by others across the public sector (e.g. DfT). Therefore, this paper is not a definitive assessment of how we should value customer or citizen time, but more an outline of the approach we have developed and why. We hope that in doing this, others working in similar fields can use and even build on our work.

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