SHOULD BANKERS PAY MORE TAXES? ANALYSING THE UK'S BANK PAYROLL TAX SCHEME USING EFFICIENCY AND EQUITY LENSES

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Abstract

This article takes a conceptual, tax policy analytical approach towards the 2009–2010 UK bank payroll tax (BPT) — often referred to as the 'banker's bonus tax' — from the tax policy conceptual frameworks of efficiency and equity. The first conceptual tax policy factor relating to efficiency under optimal tax theory is analysed in terms of Pareto optimality (Mirrlees et al., 2011), which seeks minimal distortions and avoidance of deadweight costs (Auerbach, 2013; Stiglitz 1986). The conceptual tax policy factor relating to equity will be analysed in terms of fairness, with a policy focus geared toward formal incidence (Shavrio 2009). Equity-related tax policy concerns as it relates to the UK bank payroll tax also include both the benefits principle and ability-to-pay principle, whilst incorporating vertical and horizontal equity concerns. This article is composed of two main parts. The first part provides a conceptual tax and policy analysis from the perspective of efficiency. The second part provides a conceptual tax and policy analysis from the perspective of equity and fairness. Throughout each part, the analysis is augmented through the utilisation of various graphical visual examples.

Keywords: UK Bank Payroll Tax, Optimal Tax Theory, Efficiency, Equity

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1. INTRODUCTION

This article aims to fill the gap in the research literature by providing a conceptual tax and policy framework analysis of the bank payroll tax (BPT), specifically through the lenses of efficiency and equity considerations, to answer the question of whether such tax scheme as embedded in the BPT represents prudent policy. The author argues that, on balance, it does not due to, among other things, the distortionary effects of the BPT, even incorporating its purported equity considerations. This article is composed of two main parts. The first part provides a conceptual tax and policy analysis from the perspective of efficiency. The second part provides a conceptual tax and policy analysis from the perspective of equity and fairness. Throughout each part, the analysis is augmented through the utilisation of various graphical visual examples.

In a legislative context, the UK's BPT was intended as a one-time tax on banker bonuses. The BPT's objective was to disincentivise banks from excessive risk-taking (Brunnermeier, 2009; Diamond & Rajan, 2009) by implementing a tax rate of 50% to banker bonuses exceeding GBP 25,000. Notably, the BPT was originally intended to be paid by

the banks, not the employees or the general public. The UK's BPT applies to 'taxable companies,' which include 1) all UK-resident 'banks'; 2) all UK-resident 'building societies'; 3) relevant foreign banks; 4) any other company which is a member of a 'banking group' and which is a UK-resident 'investment company', a UK-resident 'financial trading company' or a 'relevant foreign financial trading company' or 5) a UK-resident 'investment company' or 'financial trading company'. The BPT includes not just UK residents but also 'relevant foreign banks', which operate regulated trading activity through a UK 'permanent establishment' related to 'relevant remuneration'. In contrast, the BPT would generally not be imposed on certain HM Revenue and Customs (HMRC)-'approved' share incentives and share option schemes, although it will apply to 'unapproved' share incentives (Sullivan & Cromwell, 2009). As a rough corollary, in 2010, the highest UK income earners faced a one-off, unexpected tax increase from 40% to 50% (later reduced to 45%).

The expected BPT-related tax revenue was approximately GBP 550 million — covering a bonus award period between December 9, 2009 and April 5, 2010. However, it ultimately brought in GBP 2.3 billion. One view is that because the revenue raised was over four times the expected revenue, the BPT failed to meet its stated objective of lowering excessive banker-related bonuses because if anything, more (not less) bonuses were seemingly paid after the BPT's imposition. As an example, according to reports, Goldman Sachs paid 973 bankers $1 million or more in 2009, some of whom presumably included its London office of 5,400 — after the bank reported a $1.81 billion (GBP 1.2 billion) profit for the first quarter of 2009 (Quinn, 2009).

The paper is structured as follows. Section 2 proposes the literature review, Section 3 presents the methodology used in the study, Section 4 devoted to the results, Section 5 discusses the findings, Section 6 concludes the study.

2. LITERATURE REVIEW

The research literature posits that different standards can be used to measure the merits of certain tax policies, including the BPT. As one such tax approach, referred to as the optimal tax theory, efficiency can be measured based on Pareto optimality and is mainly concerned with effective incidence. Equity, on the other hand, is generally more concerned about formal incidence — arguably less relevant since often taxes are passed onto the producer (through labour and/or capital) — in addition to considerations of the ability-to-pay and benefit principles. In terms of applying the efficiency standard to tax design, such measurement (output) is largely dependent on the quantity and quality of data (input). An efficient (Pareto-optimal market generally leads to an equilibrium price and quantity). In contrast, a non-optimal tax design could be due to such things as policy choices, institutional changes needed, and political preferences. In terms of empirical research, at least one study suggests a positive correlation between efficiency and inequality (Andersen & Maibom, 2016).

Applying the optimal tax theory, which incorporates the first fundamental theorem of economics (Batchelder 2020), the BPT would conceptually lead to a non-Pareto optimal competitive equilibrium that would normally occur but for the BPT's implementation (Fleurbaey & Maniquet, 2018). The first fundamental theorem holds that under certain conditions, market outcomes will be Pareto optimal leading to competitive (Pareto efficient) equilibrium (in the long run), distinguishable from a non-Pareto optimal Nash equilibrium (Lockwood, 2020). As such, by definition, one cannot redistribute goods vis-a-vis the BPT such that one person is better off without making another person better off. This view however is predicated upon certain assumptions, specifically, perfect competition, full (and symmetric) information, and no externalities (albeit positive or negative) as it relates to the UK's banking sector (Reynolds, 2019). Another implicit condition (assumption) is production efficiency, whereby economic actors have equal rates of return — factoring in risk — which are maximising total revenue and income (Stiglitz, 1986; Auerbach, 2013). Applying the second fundamental theorem to the BPT, a Pareto efficient outcome could be reached through redistribution based on an economic actor's observable, initial endowments, through tradeoffs (Greulich et al., 2022). Tradeoffs can occur through such things as lump-sum taxes based on an economic actor's characteristics. That is, different combinations of preferences and characteristics may be traded to achieve more (subjectively) socially beneficial outcomes, hence in principle avoiding an efficiency-equity tradeoff (Stiglitz, 1986; Auerbach, 2013).

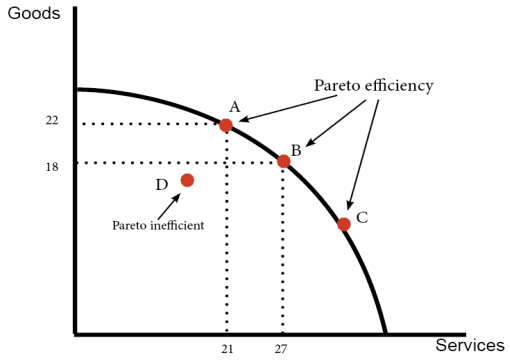
3. RESEARCH METHODOLOGY

This article takes a conceptual, tax policy analytical approach towards the 2009–2010 UK BPT from the tax policy conceptual frameworks of efficiency and equity. The first conceptual tax policy factor relating to efficiency is analysed in terms of Pareto optimality, which seeks minimal distortions and avoidance of deadweight costs. The second conceptual tax policy factor relating to equity will be analysed in terms of fairness, with a policy focus geared toward formal incidence. Equity-related tax policy concerns as it relates to the UK BPT also include both the benefits principle and ability-to-pay principle, whilst incorporating vertical and horizontal equity concerns. As such, this article's conceptual analysis is composed of two main parts. The first part provides a conceptual tax and policy analysis from the perspective of efficiency, with the analysis at times complemented through the utilisation of various graphical visual illustrations. The second part provides a conceptual tax and policy analysis from the perspective of equity and fairness. An alternative methodology could include a cross-country analysis involving other jurisdictions beyond the UK that have implemented similar banker bonus tax schemes, then draw conclusions in terms of the net benefits and costs based on the two-pronged criteria of efficiency and equity considerations, as done with this article's methodology.

4. RESULTS

The imposition of the UK's BPT can potentially disrupt and distort the equilibrium price and quantity of services rendered. This can then lead to a 'wedge' between price and quantity prices. Such tax wedge leads to consumers and producers generally paying a portion of the tax, and as such, represents the source of inefficiency (non-Pareto outcomes) through resultant deadweight costs. From an optimal tax theory perspective, given that the utility function must be maximised, the BPT can therefore lead to a distortion of resource allocation and deadweight costs, which affects consumer behaviour (Mirrlees et al., 2011). In part for this reason, and given the diminishing marginal value of money, including for banker wages, Mirrlees et al. (2011) have argued that the highest tax marginal tax bracket should have a rate of 0%. Such distortion, in turn, can lead to a non-Pareto optimal outcome leading to inefficient resource allocation, at the expense of (and trade-off with) possibly achieving the BPT's tax objectives (i. e., tax revenue raising, equity and perceived fairness). From an optimal tax theory perspective 'as a whole', the question of 'fairness' may be viewed as not the relevant question to ask (Mirrlees et al., 2011; Heady, 1993). Instead, under utilitarianism (achieving the greatest good or utility), the dispositive question could be reframed as whether the BPT maximises utility (as indicated by Figure 1), that is, the best outcome for most people (society) relative to other similarly-situated tax policies (Rawls, 1971).

Figure 1. Production possibility frontier (PPF) and optimal outcomes of the BPT



Source: www.economicshelp.org

4.1. Measuring tax efficiency: Pareto-optimal equilibria

In a non-tax distorted model scenario, an equilibrium point exists at the intersection of the demand (*D*) and supply curve (*S*) for the BPT, given certain model assumptions. Such assumptions include perfect information and competition, no market control, and no external costs or benefits. Arguably, the real world does not function within such underlying assumptions, creating a possible gap in the market efficiency model in theory and practice. An example of Pareto-optimal equilibrium exists graphically below (Figure 2).

Figure 2. Efficient market scenario (measurement) under optimal tax theory

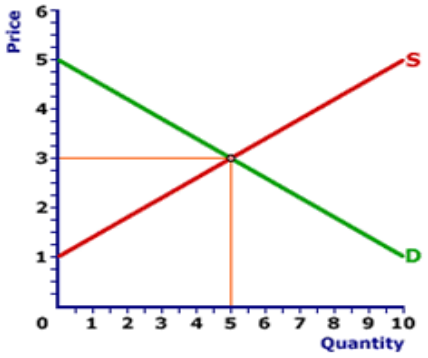


Figure 2 (above) represents an efficient market within the context of optimal tax theory. Here, the equilibrium price is \$3 (*P*0 = \$3), and the equilibrium quantity is 5 units. It is not possible to produce more or less of such goods or services. Given such points, market equilibrium can be measured as it relates to the UK BPT.

Efficient market equilibrium (Figure 3) of the BPT:

- *P*0 = \$3
- *Q*0 = 5 units.

Figure 3. Consumer surplus (left) and producer surplus (right) relating to the BPT under optimal tax theory

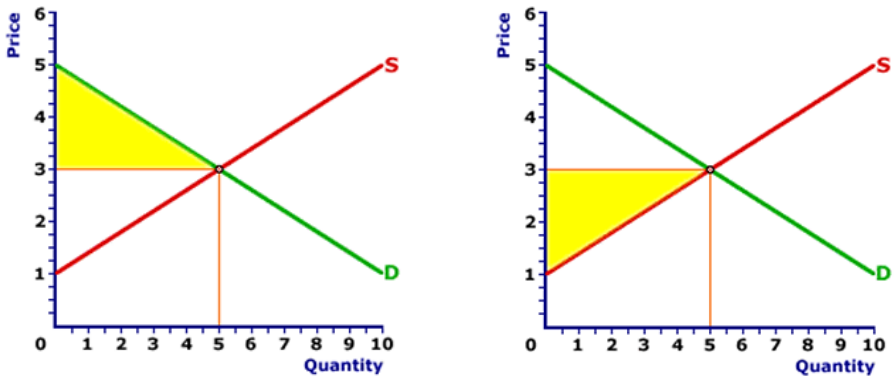


Figure 3 (above) illustrates consumer surplus (left) and producer surplus (right) in a pre-tax equilibrium market. They can also be arithmetically measured relating to the UK BPT.

$$Consumer\ surplus\ (highlighted\ triangle\ below\ D\ and\ above\ \$3)\ of\ the\ BPT = (0.5) \times base \times height = (0.5) \times (5-0) \times (5-3) = 0.5 \times 5 \times 2 = 5 \quad (1)$$

$$Producer\ surplus\ (highlighted\ triangle\ above\ S\ and\ below\ \$3\ of\ the\ BPT) = (0.5) \times base \times height = (0.5) \times (5-0) \times (3-1) = 0.5 \times 5 \times 2 = 5 \quad (2)$$

4.1.1. Worrisome wedges: taxes and efficiency distortions

Measuring efficiency for the BPT under optimal tax theory is more focused on the 'effective incidence' of tax, rather than the 'formal incidence' of a tax. This is because the 'effective tax incidence' of the UK BPT initially imposed on a producer would generally be transferred to the consumer. Specifically, in terms of graphical analysis, the 'formal incidence' of the BPT would in principle be placed on the producer, this would then be construed to affect the supply curve since the imposed tax initially impacts the producer (Figure 4 below). With a producer tax, which would be the banking professionals under the tax policy purview of the BPT, the supply curve shifts upwards (leftwards) relative to the original supply curve. The BPT would then lead in principle lead to a new supply curve, which is the original supply curve with the tax ($S + T$). As such, the BPT could essentially increase the cost of production of banker services, therefore, leading to greater potential banker bonuses. Such a case would be the opposite of the BPT's originally stated objectives, whereby bonus payouts of bankers and other finance-related professionals are increased (rather than decreased). The BPT's net economic effect would be a (relatively) higher price (i.e., higher banker wages) and (relatively) lower quantity of bankers in the labour markets produced (Stiglitz, 1986). The BPT could also create a tax wedge between the demand price and the supply price (see Figure 4 below).

Figure 4. After-tax equilibrium (measurement)

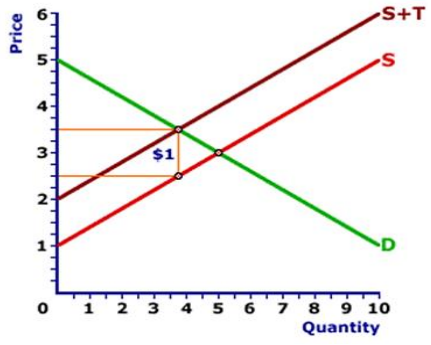


Figure 4 (above) demonstrates an example, using the simplest terms possible, that a \$1 per unit tax leads to a \$1 difference between the demand and supply price ($P1$ = 3.50; $Q1$ = 3.75 units). That is, the tax wedge amount of the BPT, which can be measured (above), would determine the after-tax market equilibrium points for both (higher) prices and (lower) quantities of banker services under the BPT's purview.

After-tax equilibrium of the BPT:

- $P1$ = \$3.50
- $Q1$ = 3.75 units

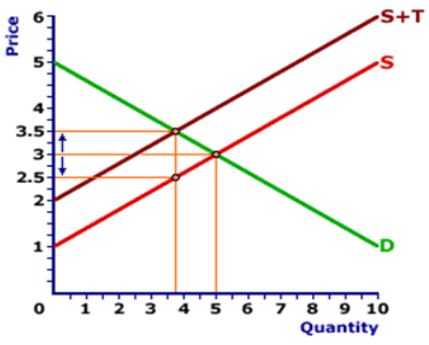
In terms of measurement of the BPT's resultant effects, the equilibrium price is now at \$3.50. The equilibrium quantity is now at 3.75 units. The net (measurable) effect of the (per unit) tax is the lower quantity and higher price. That is, the tax effect is effectively equivalent to a price hike (i. e, higher wages for bankers). Such a price hike then drives quantity down. Here, under this measurement model pursuant to optimal tax theory, the market equilibrium price for bankers has increased, with consumers paying a higher price for the service in question. Importantly, however, the producer is not receiving the full amount of such a higher price, since part of the higher price goes to the government as tax revenue. The question of whether the consumer or producer effectively pays for the BPT is a question related to tax incidence.

4.1.2. Measuring efficiency: Tax incidence

Unlike effective tax incidence concerns, formal tax incidence relating to the BPT from an efficiency (Pareto-optimal) perspective is generally irrelevant (as earlier referenced). This is because tax efficiency is more focused on efficiency gains toward optimal economic growth. In contrast, effective tax incidence is primarily focused on how economic gains are distributed (Kay & King, 1990; Shavrio, 2009). This is because the same incidence — or deadweight costs — in terms of (reduced) consumer and producer surplus are shared and is a function of elasticities (sensitivity) of supply and demand (Stiglitz, 1986).

The demand elasticity of the BPT is a function of the percentage change in quantity demanded relative to the percentage change in price. Supply elasticity of the BPT is a function of the percentage change in quantity supplied relative to the percentage change in price. The greater the elasticity relating to the BPT — indicated by a higher elasticity function number and/or flatter slope — the less the incidence (tax burden) borne (Stiglitz, 1986). The exact amount of tax incidence can be conceptually measured and calculated. As seen in Figure 5, the tax difference is the difference between the pre-tax market equilibrium price and the demand and supply prices after the tax imposition.

Figure 5. Post-tax incidence (measurement) of the BPT



In Figure 5, the maximum price that consumers are willing to pay for banker services, given the new equilibrium quantity (3.75 units) is $S+T$ = \$3.50. The effective tax incidence of the BPT can be measured by the difference between these three price levels. Put simply, the consumer pays a higher after-tax price (\$3.50 instead of \$3.00), resulting in a consumer surplus loss of \$0.50. The producer (banking sector) receives a lower after-tax price (\$2.50 instead of \$3.00), resulting in a producer (banking sector) surplus loss of \$0.50.

Tax incidence (post-tax numerical measurement) of the BPT:

- *Producer:* \$2.50 - \$3.00 = -\$0.50
- *Consumer:* \$3.00 - \$3.50 = -\$0.50

In this specific conceptual case, the effective tax incidence borne of \$0.50 is identical to both the producer (banker services) and consumer (banking clients). This may seem unlikely, and it may well be. However, this model is a relatively simplistic one to render the analysis. In reality, effective tax incidence is based on the slopes, elasticities, and shapes of the demand and supply curves. These factors are, in turn, a function of the quantity and quality of data derived to render such slopes, elasticities, and shapes of the supply and demand curves (Auerbach, 2013). Direct regulation by UK policymakers that meet the stated tax objectives could be enacted weighing the possible distortionary effects relative to revenue-raising potential. In terms of taxation, an increase in the highest marginal rates may have a similar tax incidence, although a cost-benefit must be used with such 'second-best' outcomes (Slemrod & Bakija, 2008; Schön 2009; Lipsey & Lancaster, 1956). In contrast, a lump-sum tax may not have such distortionary effects, and may also have a higher likelihood of being Pareto optimal (Stiglitz, 1986; Kaplow, 2008).

4.1.3. Tax incidence: Formal tax incidence is irrelevant; elasticities are relevant

The BPT proponents may argue that its tax incidence falls squarely on the banks, in an effort to affect banking behaviour in terms of lowering excessive risk-taking. This argument is, on balance, tenuous. First, (formal) tax incidence from an efficiency perspective is generally irrelevant. This is because tax efficiency is focused on efficiency gains toward optimal economic growth. In contrast, tax incidence is primarily focused on how economic gains are distributed (Kay & King, 1990), whereas, under this analytical framework, formal tax incidence would largely be deemed as immaterial (Shavrio, 2009). As such, the greater tax policy focus relating to the BPT would be on its effective tax incidence. This is because the same incidence — or deadweight costs — in terms of (reduced) consumer and producer surplus, are shared, and is a function of elasticities (sensitivity) of supply and demand (Stiglitz, 1986). According to Stiglitz (1986), no difference exists whether a tax is imposed on the producer or consumer. What does make a difference are the demand and supply elasticities, and whether the market is competitive or non-competitive (Stiglitz, 1986)? The demand elasticity of the BPT is a function of the percentage change in quantity demanded relative to the percentage change in price. The supply elasticity of the BPT is a function of the percentage change in quantity supplied relative to the percentage change in price. The greater the BPT's elasticity function — indicated by a higher elasticity function number and/or flatter slope — the less the incidence (tax burden) borne. Thus, the argument linking the BPT's formal incidence with 'excessive risk-taking' proclivity arguably falls short from an efficiency standpoint.

4.1.4. Measuring inefficiencies: Dealing with deadweight losses

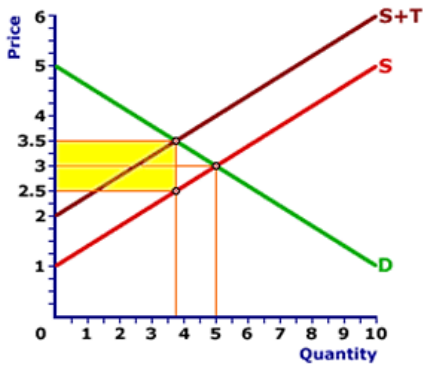
In attempting to meet certain objectives by imposing the BPT, the such tax would typically create distortions, deadweight costs, and disincentives. Specifically, a tax would lead to deadweight losses (costs) in terms of both an income effect (due to less relative income) and a substitution effect (whereby bankers may opt out of working to pursue greater leisure; a disincentive to earn), which is a welfare cost (Stiglitz, 1986). The income effect is unavoidable, given the tax, but the substitution effect is avoidable, since a more efficient tax design may mitigate such substitution effect (e.g., lump-sum tax). Moreover, the substitution effect in this context cannot be remedied by providing a subsidy equal to the tax amount because prices have changed. Hence, deadweight costs are created (defined arithmetically below):

Deadweight loss formula
(under certain conditions)

$$Deadweight\ cost\ (Excess\ burden) = Substitution\ effect\ amount - Welfare\ costs \quad (3)$$

Assuming pre-tax market efficiency (equilibrium price and quantity; $P0$ and $Q0$), and given the tax wedge, a portion of consumer surplus and producer surplus is transferred to the government equal to the tax amount. However, the amount of such consumer and producer surplus loss (in the above example) is greater than the amount transferred to the government as tax. This differential amount is a deadweight loss relating to the BPT (Kaplow, 2008).

Figure 6. Tax revenue (measurement) of the BPT



In Figure 6 (above), the (\$1.00) tax amount placed on the producer of banker services is represented graphically by the highlighted rectangle, located below the original (non-distorted, pre-tax)

demand curve ($D0$) and above the original (non-distorted, pre-tax) supply curve ($S0$).

To measure the tax revenue (conceptually):

•Step 1: Calculate the area of the rectangle (= tax amount);

•Step 2: Calculate the area of the rectangle ($L \times W$);

•Step 3: $L \times W = (3.75 - 0) \times (3.5 - 2.5)$;

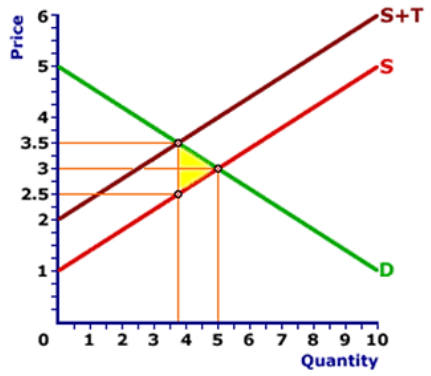
•Step 4: $3.75 \times 1 = 3.75$;

•Step 5: $Area = 3.75$.

Inefficiencies exist with many taxes in the form of an overall net decrease in consumer surplus and producer surplus. On the one hand, a certain percentage of such consumer and producer surplus is transferred to the government in the form of (additional) tax revenue, which the government should use to fund public programs for the public good. However, and importantly, a certain percentage of such consumer and producer surplus is simply eliminated (reduced), in the form of deadweight costs. No party in this measurement model — the consumers, producers, or government — gains from such surplus loss in the form of deadweight costs (Kay & King, 1990).

Such consumer and producer surplus loss is a distortionary effect as a result of the imposed BPT. Because of such tax, the original consumer surplus and producer surplus amounts — representing maximum values of efficient, Pareto-optimal outcomes — are likely to be reduced post-tax (Stiglitz, 1986, Auerbach, 2013).

Figure 7. Deadweight loss (measurement) of the BPT



In Figure 7 (above), the deadweight loss (DWL) amount as a result of the imposed tax is represented graphically by the highlighted triangle. This is also measurable, specifically:

DWL measurement of the BPT

A) Graphically: Triangular area below $D0$ and to the right of 3.75 units.

B) Numerically:

$$Area\ of\ highlighter\ triangle = (0.5 \times L \times W) \times 2 = \big(0.5 \times (5.0 - 3.75) \times (3.5 - 0.5)\big) = (0.5 \times 1.25 \times 3.0) \times 2 = 1.88 \times 2 = 3.75 \quad (4)$$

To apply the above models relating to efficiency, the imposed BPT could be seen to lead to distortionary effects, which in turn, would lead to potential non-Pareto efficient deadweight losses. As such, the tax could distort, and thus, comport an efficient market to an inefficient market.

4.2. Equity

4.2.1. Measuring equity and fairness of the BPT

Relating to the UK's BPT, the benefit principle and ability-to-pay principle represent redistribution criteria relating to equity-efficiency tradeoffs. As earlier analysed, a distorting tax policy leading to a non-optimal outcome in the form of deadweight costs to redistribute gains is often pursued out of 'fairness' within the conceptual context of an efficiency-equity tradeoff (Heady, 1993).

In terms of analysing fairness, the Rawlsian approach holds that systems should be based on maximizing the 'welfare of the worst of individual', though as seen in determining how to measure well-being, can be both challenging and difficult (Stiglitz, 1986). Generally, the more 'fair' a tax may be viewed — typically through the lens of vertical and horizontal equity — the more complex it would be, leading to greater distortionary effects, and thus, resulting in greater inefficiencies (Slemrod & Gillitzer, 2014). But this raises the question: what does 'fair' exactly mean and for whom? Because of equity's inherently subjective nature, a consensus is extremely difficult in terms of what constitutes 'fair' from a tax and public policy perspective. For the BPT, if 50% must be paid on earnings above GBP 25,000, does this imply that 51% on GBP 24,000 is not an 'unfair' bonus amount? What would be 'fair' in terms of the use of the BPT revenue — should all, some, or any portion be used directly for banking activities? If so, what type of taxes and/or regulations would directly curb 'excessive' risk-taking? What constitutes 'excessive' versus 'non-excessive'? If not, then should the BPT revenue go towards those most adversely affected by the 2008 subprime crisis? If so, would this be the taxpayers or shareholders of the most affected banking institutions?

Two equity-related concepts that provide some perspective to these related issues are the benefit principle and the ability-to-pay principle.

4.2.2. The benefit principle and the BPT

The benefit principle as an equity consideration is predicated on the notion that those who benefit the most from society should generally pay more in taxes. The ability-to-pay principle holds that those with the most income should pay the most taxes. The ability-to-pay principle, in turn, leads to two other notions of fairness, vertical equity (those with different incomes should pay different taxes) and horizontal equity (those with similar incomes should pay similar taxes) (Auerbach, 2013; Kaplow, 2008; Stiglitz, 1986). The concept of taxation admittedly become more subjective (normative) than objective (positivist) when it comes to these equity-related principles. However, it can be argued that equity can be positivist if seeking equality in terms of measurable outcomes. Still, natural rights theorists may argue for equality in property and self-ownership rights (Rawls, 1971). The notion of vertical equity leads to possible regressive, proportional, and progressive tax brackets in tax design (Kay & King, 1990).

4.2.3. The ability-to-pay principle and the BPT

The ability-to-pay principle is a tax and policy tool to provide more equitable (fair) outcomes based on income. This is predicated on the principle that those who have more income have a greater ability to pay taxes. Income, defined broadly (i.e., wages, profits, etc.) is used as a tax policy measurement tool since it represents the broadest tax base (Kay & King, 1990). Equity is also a function of the marginal utility of money (Auerbach, 2013; Stiglitz, 1986). An extra dollar is worth more to a lower-income person than to a billionaire. When consumers have fewer earnings, such consumers tend to spend relatively more of such earnings on necessities (essential goods and services), such as food, clothing, and perhaps insurance (in the U.S. case where health insurance is not a public good).

In contrast, wealthier individuals tend to invest additional dollars into capital. Given this, a lower-income individual paying 25% in tax is effectively paying more than an ultra-wealthy individual paying 25% in tax. In many countries, however, labour income is taxed at one of the higher marginal rates, while investment income and gratuitous transfers are taxed at relatively lower marginal rates. Even more, in the U.S. case, a notable portion of investment income is subject to the long-term capital gains tax rate of 20% in the highest tax bracket. Even adding 3.8% for the medicare surcharge, the final rate of 23.8% (20% + 3.8%) is generally still much lower than the effective tax rate for most working income.

4.2.4. Can fairness be measured?

A conceptually relevant question is: can equity (fairness) be measured, and if so, how exactly? The short answer is, in certain cases yes, but in limited circumstances. The constraint here is that what is deemed equitable and fair often depends on the individual, which in turn, is a function of the individual's perspectives and perceptions. For example, the benefit principle is, to a certain extent, in line with free market principles, whereby in theory, a consumer's net benefit is greatest (maximised) when marginal benefits (MB) equals marginal costs (MC), resulting in an equilibrium price ($P0$) and quantity ($Q0$) of a particular public good (Stiglitz, 1986). For example, if a certain consumer does not use a certain public park, then the such consumer should generally not be obliged to pay for using it. This may be a viable model for private (or arguably, quasi-public) goods since non-consumers can be excluded, and thus, can be calculated into whether a benefit has been received or not by a particular consumer, such as banking services pertaining to the BPT (Kaplow, 2008). But because of the intrinsic nature of public goods, it is more difficult to exclude, and thus, measure those who did not consume (and derive benefit) from a particular public good (i.e., national defence, clean air, public roads) (Kaplow, 2008; Stiglitz, 1986). Thus, determining the appropriate type and amount of tax becomes a challenging one, as seen in the BPT. Even assuming that everyone benefits from public goods, such as national defence, clean air, or even financial services, does this mean that every person (consumer) benefits exactly equally? Should financial services offered by bankers constitute public goods, at least in part? By which standard can a such measurement be done, and can this be converted into 'equitable' albeit disparate tax treatment and public policy?

Non-monetary benefits under the benefits principle, as it relates to the BPT's equity concerns, may also prove difficult to measure. One person's definition of 'fair' and 'equitable' may be quite different from another person's definition of equity and fairness. Moreover, do sufficient evidence and empirical studies exist that support the notion that wealthy individuals derive more benefit from society? For example, if a wealthy individual has five cars, in which three of the cars are 'weekend cars', does this mean the owner consistently and/or on average derives five times more benefit from the public road system relative to a person with just one 'necessity' car? Over what exact timeframe should a benefit be measured — one taxable year, a decade, a lifetime (economists prefer the latter, which policymakers do not have, thus relying on incomplete data and assumptions)? As is evident, it is often difficult to define exactly what constitutes a 'benefit' and what does not, which represent yet another challenging feature of the BPT's implementation.

5. DISCUSSION

Based on the tax policy conceptual rubrics applied here, on balance, the BPT's implementation will likely be non-optimal (non-Pareto efficient). On the one hand, the BPT can be viewed as a simple flat-rate tax of 50% on all bonuses exceeding GBP 25,000, which may be a more Pareto optimal conceptual approach. On the other hand, creating a system to model, analyse, 'quantify', and track every banker bonus, potentially within and beyond the UK (Sullivan & Cromwell Law Offices, 2009), will be time-consuming, costly, and administratively complex, particularly given that the BPT is a one-time tax. The BPT's potential tax policy risks and inefficiencies are also inherent in its embedded legislative language. For instance, the definition of 'bonus' has not been specifically defined in the BPT. Would all bonuses be taxed, for all bank employees (e.g., full-time basis, part-time basis, consultancy basis, etc.)?

If influencing excessive risk-taking by banking institutions is the primary objective, then other viable alternatives exist in terms of regulation and tax design alternatives. Direct regulation by UK policymakers that influence excessive risk-taking, such as leverage, derivatives taxation (for non-hedging purposes), higher capital adequacy ratio requirements, and regulatory capping of bonuses could be enacted. In terms of taxation, the UK's financial transaction tax and/or bank levy may already be sufficient in meeting certain tax objectives. In a related analysis, Devereux et al. (2015) demonstrate how European banks changed their portfolio of assets in response to tax levies, which would thereby impact investment behaviour in the UK banking sector, one of the world's largest and most prominent. Meanwhile, Netswera and Ngwakewe (2013) consider indirect taxes as an alternative approach to taxing high-income individuals.

Moreover, given that the tax incidence of the BPT is likely to fall on shareholders, a wealth tax (Auerbach, 2013), gift tax, consumption tax (Devereux & Vella, 2014; Bankman & Weisbach, 2007), or an increase in the highest marginal rates may have a similar tax incidence, although a cost-benefit must be used with such 'second-best' outcomes (Slemrod & Bakija, 2008; Schön, 2009; Lipsey & Lancaster, 1956) weighing the possible distortionary effects relative to revenue-raising potential.

6. CONCLUSION

This article has analysed the UK BPT through the tax and public policy analytical framework of *efficiency and equity* in consideration of the apparent tax objective of revenue raising and inhibiting excessive risk-taking in the post-2008 financial sector. This article argues that, on balance, the risks of the BPT, particularly in the form of related distortionary effects discussed herein, outweigh the BPT's benefits, even incorporating purported equity considerations. One research limitation of this article is that other factors beyond efficiency and equity, such as factors relating to administrative implementation, were not fully included. Still, given the capital flows directed to and from the UK banking sector, one of the world's largest international financial centres in terms of net capital flows, this study has important implications, particularly given the increasing post-subprime crisis era attention drawn towards this sector, generally, and bankers and their payrolls (including banker bonuses), specifically.

This paper also highlights the need for further conceptual analysis relating to equity versus efficiency tradeoffs. A systematic approach in terms of both measurement and management of such tax tradeoffs are hallmark features of a fair tax policy that affects both bankers and non-bankers alike. By raising relevant questions along with proffered concepts, criteria and considerations, this article represents a further step towards understanding such important issues.

In conclusion, under this article's analytical framework, policymakers may better understand that the BPT may not be Pareto optimal (efficient) given its distortionary effects, which must be weighed against other considerations in the framework. Even if fairness is a main policy goal, the evidence suggests that it will likely be realised at the cost of greater complexity and distortionary effects. It is then up to the policymakers to decide if such tradeoffs are worthwhile, amongst others in the framework relative to the next best alternatives.

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