

# Global capital markets, direct taxation and the redistribution of income

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The outstanding faults of the economic society in which we live are its failure to provide for full employment and its arbitrary and inequitable distribution of wealth and incomes. The bearing of the foregoing theory on the first of these is obvious. But there are also two important respects in which it is relevant to the second.

Since the end of the nineteenth century significant progress towards the removal of very great disparities of wealth and income has been achieved through the instrument of direct taxation — income tax and surtax and death duties — especially in Great Britain. Many people would wish to see this process carried much further, but they are deterred by two considerations; partly by the fear of making skilful evasions too much worth while and also of diminishing unduly the motive towards risk-taking, but mainly, I think, by the belief that the growth of capital depends upon the strength of the motive towards individual saving and that for a large proportion of this growth we are dependent on the savings of the rich out of their superfluity.

*(The General Theory, Chap 24 “Concluding Notes on the Social Philosophy towards which the General Theory might Lead”)*

## 1. INTRODUCTION

The theme of this conference is to explore contributions of new thinking in economics to major policy issues. Five issues highlight the contrast of this ‘New Economics’ with traditional economic theory: treatment of uncertainty (not reducing it to a computable risk value – ‘certainty equivalence’); the economy as a complex non-linear system, where change is not marginal or price-based; the ethical basis of economic policy, where welfare is not reducible to utilitarianism; that economic history matters, particularly for technological change (path dependence); and last but not least that macroeconomic policy formation is inherently distributive and thus political, requiring negotiation between social groups.

In fact progressive<sup>1</sup> tax systems (and fiscal policy more generally) are central to all five of these issues:

- i. Institutions are about the management of uncertainty (risk can be handled by markets), and must be funded out of general taxation; not as a voluntary service fee.
- ii. The epistemic grip of the neoclassical intertemporal representative agent optimisation model on policy is particularly marked as it fits the dominant ideological stance.
- iii. In an economy characterised by the market and a polity by democracy, the social contract must be underwritten by citizen entitlements independent of income.
- iv. Historically basic security functions of state to support the market need to be paid for; and thus taxation is and always has been central to political economy.
- v. The only way to reduce the poverty/inequality generated by the market is by progressive tax and transfer – both nationally and internationally.

This paper is about the “first of these considerations” that Keynes did not address, but which has since become a central issue of international economic policy – to judge at least by OECD and G20 statements. The creation of a single global capital market without an international regulatory system has clearly had the unfortunate consequences for macroeconomic stability (and thus full employment) foreseen in the debates on the establishment of the Bretton Woods system. However, free capital movement also sharply curtails the ability of governments to tax effectively capital income or asset values – adding a further motivation for liberalisation.

Standard principles of international taxation suggest that the tax burden should fall most heavily on those factors of production which are least mobile, in order to maximise government income and minimise the disincentives to economic growth. There has been a corresponding shift in the incidence of taxation from capital to labour as governments have tried to maintain levels of both fiscal revenue and private investment. Thus the theme of this paper, international income taxation is crucial for two reasons. First, that the mobility of capital means that only way to tax capital income is by international cooperation; and second that international development cooperation (‘aid’) relationships are inherently fiscal – channelling tax revenues from donor countries into budget of recipient country.

The paper opens in Section 2 with a brief critical survey of the current orthodox position on the main theoretical and empirical policy issues and debates on capital income taxation (and on high “wage” earners). Section 3 examines the problems and scope for international tax cooperation as a means of making effective progressive income taxation possible in a globalising world. The implications of this argument are then further explored in Section 4 in the specific context of tax recuperation by developing countries as a substitute for development assistance. Section 5 concludes.

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<sup>1</sup> In the economic sense of ‘progressive’, although the political sense is implicit too. Note that this paper does not address issues of tax adjustment to market prices to compensate for externalities etc (eg carbon taxes); although there are strong distributive and international implications here too.

## 2. The Theory and Practice of Tax Reform and Globalisation

The core underlying notion at the root of modern tax policy – particularly with reference to capital income (profits and interest) – derives from the Ramsay (1927) response to the seminal question from Pigou about optimal taxes on commodities; then extended by Mirrlees (1971). Heijdra and van der Ploeg (2002, p. 255) – a standard macroeconomics textbook with “new Keynesian” aspirations, for instance call the standard result “Ramsey taxes” which raise a given revenue in least distorting fashion. If labour supply is perfectly inelastic, then tax on labour income is a non-distorting lump sum tax, and capital should not be taxed at all; that the reverse case holds too: if labour supply is very wage elastic and the savings function is very interest inelastic. In the general case therefore both should be taxed, with the balance depending on the relative elasticities.

$$\frac{t_l}{1 - t_l} = \left(1 - \frac{1}{\sigma}\right) \frac{1}{\varepsilon_l}$$
$$\frac{t_k}{1 - t_k} = \left(1 - \frac{1}{\sigma}\right) \frac{1}{\varepsilon_k}$$

Where  $t$  is the tax rate on labour ( $l$ ) and capital ( $k$ ) incomes respectively;  $\varepsilon$  is the price-elasticity of the supply of capital and labour, and  $\sigma$  is the economic (‘distortion’) cost of each unit of tax raised.

This is the theme taken up by Lucas (1990) in his Hicks Lecture, where he formalises the Ramsay (1927) tax model in terms of a full intertemporal solution for the steady state growth path based on Ramsay (1929), finding that “if the Ramsay allocation converges to a steady state, then the Ramsay tax on capital is zero at that point” (p. 301). Applying this model to the US economy, Lucas finds that eliminating capital taxes would raise per capita welfare by some 7 percent.

Intergenerational distribution is central to the neoclassical model (although Ramsey himself wanted to weight all generations equally and was thus opposed to a social rate of discount) although intra-generational distribution is not. But even here Uhlig and Yanagawa (1996) have shown increasing the capital income tax can lead to faster growth in an overlapping generations model with endogenous growth: capital income taxation affects the old, and stimulates young workers to save and learn; the net effect on savings is positive if the interest elasticity of savings is relatively low, as in empirical practice it appears to be (0.5 or less)

The standard neoclassical model also assumes that government expenditure itself is a deadweight loss in terms of output and growth (though there may of course be gains to household welfare), but this assumption is inconsistent with modern endogenous growth theory. As Aghion and Howitt (1998) show, when public expenditure is used for human capital investment with strong externalities (and where markets will not fund education through credits) then taxing higher incomes to pay for the public education of the poor leads to higher levels of aggregate income. This they see as a convincing rejoinder to Mirrlees’ (1971) argument that the efficiency losses (mainly investment incentives) from capital

taxation are so great that in effect capital incomes should not be taxed at all. Indeed even in the case of perfect international capital mobility ( $\varepsilon_k \ll 0$ ); if the proceeds of capital taxes are used to provide economic infrastructure (as demonstrated formally in the Appendix to this paper) then a positive capital tax rate is still optimal too.

None the less, this orthodox restatement of the argument against capital taxation (and by extension, that of high salaries as well) has been enormously influential – partly because it has suited the interests of both the shareholders in, and the executives of, large corporations but also because of its intellectual power. The epistemic strength of the argument is increased by globalisation itself, as OECD (2010) points out: “It is generally assumed that choices related to corporate taxation are most affected by globalisation because of the ease with which multinational enterprises can move the location of at least some of their activities. However, highly skilled workers are also becoming more mobile and some countries are taking this into account in designing their personal tax systems. In contrast, the taxation of lower-skilled workers and of consumption is seen as being less affected by globalisation because these tax bases are less mobile. ... a shift in the tax structure from mobile income taxes to less mobile taxes, such as consumption taxes, would reduce progressivity since consumption taxes are in general less progressive than income taxes. Therefore, such tax shifts imply a trade-off between growth enhancing tax reforms and equity.”

Corporate income tax taxation is in any case a small (though relatively stable) source of revenue in OECD countries); and has actually risen over time in contrast to declining importance of personal income tax, especially at the higher (‘supertax’) levels.

**Table 2.1. Revenue shares of the major taxes in the OECD area**

	1975	1980	1985	1990	1995	2000	2005	2007
Personal income tax	30	31	30	30	27	26	25	25
Corporate income tax	8	8	8	8	8	10	10	11
Social security contributions <sup>1</sup>	22	22	22	22	25	24	26	25
(employee)	(7)	(7)	(7)	(8)	(8)	(8)	(8)	(9)
(employer)	(14)	(14)	(13)	(13)	(14)	(14)	(15)	(15)
Payroll taxes	1	1	1	1	1	1	1	1
Property taxes	6	5	5	6	6	5	6	6
General consumption taxes	15	15	16	17	18	18	19	19
Specific consumption taxes	18	17	16	13	13	12	11	11
Other taxes <sup>2</sup>	1	0	1	3	3	3	3	3
<b>Total</b>	<b>100</b>							

1. Including social security contributions paid by the self-employed and benefit recipients (heading 2300) that are not shown in the breakdown over employees and employers.

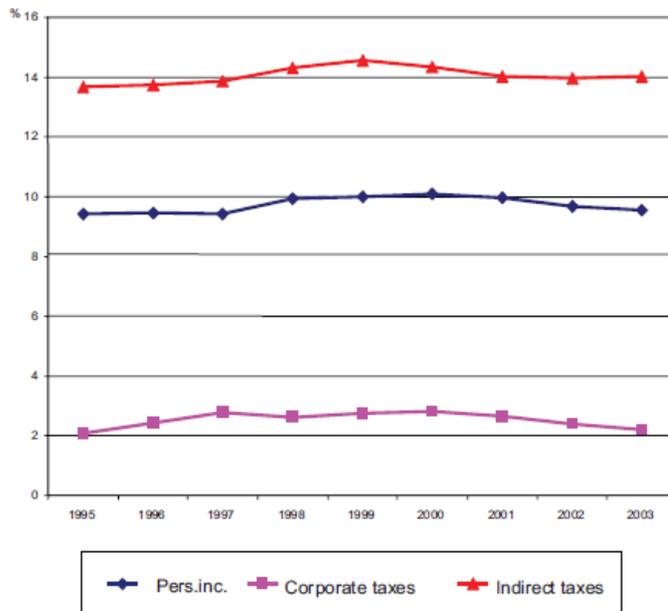
2. Including certain taxes on goods and services (heading 5200) and stamp taxes.

Source: OECD (2009), *Revenue Statistics 1965-2008*.

As the chart below indicates, however, all tax burdens have shown a mild cycle over time, in the EU at least. However, OECD (2001) in a critical survey of implicit tax rates does give useful data on capital taxes as a proportion of capital income, revealing a clear upward trend in capital income tax burdens from the 1960s to the 1980s, and then decline in the 1990s back to their previous level. The cycle is similar in the US and Europe, although the scale of the swing is larger in the latter. However, what is surprising however, is that with corporate tax

rates of the order of 30-50% in nominal rates, a yield of only 2-3% of GDP implies that taxable ('declared') profits are as little as 5% of GDP – an indication of the scale of avoidance/evasion in practice.

Chart 2: Indirect, personal income and corporate taxes (EU25, % of GDP)



Arnold (2008) makes the most comprehensive attempt to assess effect of tax structures on growth in OECD members; but controls for exogenous variables by using a Cobb-Douglas formulation with given stocks of fixed and human capital in each year and imposes an overall tax revenue constraint. On this basis, capital taxes and progressive income tax are shown to have reduced growth rates in OECD countries over the long run, in comparison with consumption taxes. Consistently, taxes on immovable property are shown to have least effect on growth. OECD (2010) culminates this line of research and recommends: less corporate and high rate personal income tax; more consumption taxes (i.e. VAT); and “recurrent taxes on immovable residential property”. But no account is taken of the distributive effects.

From this combination of theory and practice we can tentatively conclude that: (i) the case for low or zero taxes on corporate profits, capital income and high wages is as yet unproven theoretically; (ii) the policy case made (eg by the OECD) for such a stance is based as much on expedience (capital and labour mobility) as it is on principle (efficiency); (iii) despite the apparent consensus among policymakers, the tax structure has remained relatively stable, indicating that social forces are still important; but (iv) the implicit size of the tax base for corporate income (and personal asset income) is unconvincingly small as a proportion of national income, implying large-scale evasion facilitated by global asset mobility.

### 3. International tax coordination

International capital mobility has transformed national tax policy. Present national tax systems were designed in a post-WWII environment of trade protection, capital and labour immobility when very different rates of direct and indirect tax were feasible – but this is no longer the case (Tanzi 1996a). Free movement of capital and opportunities for the geographical dispersion of firms create fundamental challenges for tax authorities. Different national taxation norms and interstices between tax administrations create conflicts of interest. Lack of administrative co-ordination between tax jurisdictions supports capital flight and loss of vital tax revenue. Standard principles of international taxation now suggest – as we have seen on “Ramsey principles” - that the tax burden should fall most heavily on those factors of production which are least mobile, in order to maximise government income and minimise the disincentives to economic growth. There has been a corresponding shift in the incidence of taxation from capital to labour as governments have tried to maintain levels of both fiscal revenue and private investment.

The most effective way to reduce the elasticity of capital to taxation ( $\varepsilon_k$ ) - short of strict capital controls which are both infeasible and unsupported in a global economy – is to reduce or eliminate the possibility of reducing the tax burden by shifting jurisdiction of asset ownership. Tax competition is a serious issue for both developed and developing countries (UNCTAD, 1995; OECD, 1998; FitzGerald, 2002) but current international taxation arrangements pose an even greater threat to development finance for two reasons: first, the difficulties in acquiring the potential fiscal resources generated by both foreign and domestic trans-border firms; and second, the consequences for both capital flight and social equity of the inability to tax residents’ overseas assets.

The effective taxation of illicit capital flows (that is the transactions of both residents and non-residents that are not reported to or recorded by the national authorities) would provide not only a major resource to support effective public provision of the type outlined above. It would also increase the incentives for the private sector to invest locally, and reduce enormously the “protection” afforded to international criminal transactions by the “cloud” of tax evasion transactions going through offshore financial centres (Barrett, 1997; FitzGerald, 2004; Slemrod & Wilson, 2009). However, while developed countries in general (and the OECD in particular) have made considerable progress in tackling this problem of tax coordination between themselves over the last decade, developing countries have achieved little – even though they stand to gain more (at least in proportion to their own resources) from such an initiative.

The traditional view of capital income taxation in small open economies is that residence based taxes reduce the after-tax return on domestic savings by driving a wedge between the rate of return on world financial markets and the after-tax rate of return that received by residents – in other words, a tax on the ownership of capital or ‘savings’. In contrast, source-based taxes raise the required rate of return on domestic investment above the rate of return

on world financial markets, and thus amount to taxes on the location of capital – that is on investment. In consequence, the traditional literature suggests that a small open economy should not apply any source-based capital income taxation at all, adopting only residence-based systems (Burgess and Stern, 1993).

However, if these residence-based taxes cannot be collected effectively (due to lack of fiscal information, administrative capacity or international cooperation) then capital income taxes as a whole become undesirable. In sum, the traditional result from the optimal tax literature is that “that small open economies should adopt no source-based taxes and that capital income taxes should be eliminated altogether if countries cannot enforce residence-based taxes” (Bovenberg, 1994:118). This counsel of despair led a leading authority to argue that withholding taxes may be the only solution to the revenue problem: “It is unlikely that an efficient and complete system of exchange of information can be developed. This leaves the alternative of using withholding taxes applied at source as final taxes.” (Tanzi, 1998 p. 21). Specifically, in order to tackle the income-shifting problem, a presumptive tax could be levied on corporations on the basis of their gross assets rather than reported profits (Sadka and Tanzi, 1992).

However, there does exist a degree of international tax cooperation in the form of bilateral treaties which are now very widespread. Specifically, double taxation treaties are designed in effect to provide a direct transfer between fiscal authorities and thus not affect investment decisions (Frenkel *et al*, 1991). In practice there are two models used in the design of taxes on non-residents’ assets and residents’ assets abroad, which are similar in their general provisions but have very different implications for developing countries. The OECD Draft Taxation Convention/ Model Tax Conventions (OECD, 1997) is based on residence taxation; while the United Nations Model Double Taxation Convention between Developed and Developing Countries (UN 1980, 2000) which is based on source (or ‘territorial’) taxation.

Developed countries tend to adopt the residence principle, since they usually have a net positive foreign asset position and the residence principle maximises their tax take; although a number of emerging markets such as Mexico and Argentina have moved from source to residence taxation in order to stimulate foreign investment and capture income from their residents' overseas assets. None the less, Kay (1990) for instance recommends the source principle for UK corporation tax (net of investment expenditure and thus effectively a tax on cash flow) as being easier to assess.

The source principle is often also adopted because tax administrators have great difficulty in finding out how much foreign income accrues to their residents. The residence principle, although based on overall capacity to pay, has proved to be of limited significance in countries whose residents do not have substantial (recorded) investments in other countries, and whose fiscal administration is not well equipped to ensure its application. Moreover, to the extent that developed countries apply both the source *and* residence principles to their own residents, they claw back tax from their own investors in developing countries; while by

not taxing non-residents' security holdings they stimulate capital flight from developing countries.

For most countries a further issue is how to balance between maximising their share of revenues and maintaining a climate that attracts inward investment. This involves agreements on the sharing of revenues between host and home countries that implies a net transfer between the taxpayers of home and host countries in the last instance. By adopting a tax treaty, a host country also subscribes to international rules that promote stability, transparency and certainty of treatment. Since the tax systems of the major home (i.e. OECD) countries are based on worldwide income taxation principles, their multinational companies are frequently subject to some degree of double taxation. This fact not only deters international investment, but also provides incentives for the use of tax havens to channel crossborder capital flows through the incorporation of offshore holding companies.

Tax avoidance on a large scale worldwide is made easy by a lack of transparency in the way multi-national companies (MNCs) report and publish their accounts. Poorer and smaller developing countries are most vulnerable: they rarely have the necessary resources and capacity to challenge MNCs trading in their countries. The public accounts provided by MNCs represent the transactions of all the companies within the MNC group. However, the intra-group transactions, which are the basis for much tax avoidance, are not reported in the published accounts. Removing intra-group transactions from public view can make it impossible for tax authorities or anyone else to penetrate the accounts. This facilitates tax avoidance.

However, despite publishing their accounts as if they are unified entities, MNCs are *not* taxed in this way. Instead, each member company of the group is taxed individually. Given that over half of world trade is now intra-group trade (i.e. between companies under common control) and thus extremely susceptible to transfer mispricing, or routing through tax havens, the risk of tax loss is enormous. Country-by-country reporting, in contrast, means that an MNC would report in its accounts which countries it operates in; what name it trades under in each country; its financial performance in the countries where it operates; and this information must reconcile with the company's main published accounts.

In sum, effective income taxation thus becomes an international rather than a national policy issue. Information exchange is central to tax cooperation - although the scope and usefulness of exchanges of information are limited by political, legal, technical and administrative obstacles (Tanzi and Zee, 1999; Bacchetta & Espinosa, 2000; Huizinga & Nielsen, 2003).

Moreover, a number of countries – not just Caribbean islands - also play a key 'offshore' role in the international investment process where tax avoidance is of particular importance. The object here is not so much to attract foreign investment as such, but rather the administration of assets and tax revenue a "process that has been described as 'tax degradation', whereby some countries change their tax systems to raid the world tax base and export their tax burden." (Tanzi 1996b: 3).

#### 4. Tax Cooperation, Global Institutions and Aid

The Zedillo Commission proposed to address the tax cooperation problem from the point of view of developing countries by creation of an International Tax Organization (ITO) to:

- “At the least, compile statistics, identify trends and problems, present reports, provide technical assistance, and develop international norms for tax policy and administration.
- Maintain surveillance of tax developments in the same way that the IMF maintains surveillance of macroeconomic policies.
- Take a lead role in restraining tax competition designed to attract multinationals with excessive and unwise incentives.
- Slightly more ambitiously, develop procedures for arbitration when frictions develop between countries on tax questions.
- Sponsor a mechanism for multilateral sharing of tax information, like that already in place within the OECD, so as to curb the scope for evasion of taxes on investment income earned abroad.” (UN, 2001, pp iii-iv)

However, the creation of an ITO is apparently not on the G20 agenda at present, though tax cooperation still is – if only because of the huge public debt overhand from the global financial crisis. Thus from the point of view of developing country revenue authorities, bilateral taxation treaties are still the only reliable way to cover intra-firm transactions and thus overcome the problem of transfer pricing and to capture the overseas assets of their own residents. It is thus necessary to ensure far more comprehensive information exchange within existing treaties than is currently the case – particularly in relation to assets in the US and the EU. Such measures, however, become ineffective if offshore centres are used as transfer pricing points as well as for tax avoidance. In consequence, the application of the US ‘pass-through’ principle to tax havens would also be essential. Country-by-country reporting could be introduced immediately by the International Accounting Standards Board (IASB), which sets accounting rules for the vast majority of MNCs.

The U.N. Code of Conduct on Cooperation in Combating International Tax Evasion has recently made a step in this direction by agreeing that

“Governments commit to.... ensure that the reliable information is available, in particular, bank account, ownership, identity and relevant accounting information, with powers in place to obtain and provide such information in response to a specific request” (UN, 2009a, Section III d)

However “exchange of information upon request” is not effective exchange of information because in effect it requires the requesting government already to know the information that it is requesting. This is evidenced by the very small number of requests for information that are made, and the smaller number of requests that actually are implemented. Moreover,

Automatic reporting [by financial institutions of information to the tax authorities] also can serve to increase voluntary compliance. If taxpayers know that their banks are required to report income information to the tax authorities, taxpayers will be

more likely to file accurate returns regarding this income. In addition, automatic reporting enables tax administrations to implement programs that may benefit tax payers by reducing their compliance burden. (OECD 2000, para 109)

For this reason, the UN Commission on the International Monetary and Financial System recommended recently acceptance by all countries of an amendment of Article 26 of the U.N. Model Tax Treaty to make the exchange of information automatic (UN 2009b, para 79).

These automatic systems already exist in practice, but almost entirely between developing countries (OECD, 2010; Keen & Lighthart, 2006). Examples include: (a) The European Union Directive on the Taxation of Savings which provides for automatic exchange of information on interest income paid within the EU to individuals resident in the EU; (b) A number of OECD countries (Australia, Canada, Denmark, Finland, France, Japan, Korea, New Zealand, Norway, Sweden, United Kingdom) automatically exchange bank information with their treaty partners; (c). The U.S. Internal Revenue Code provides for the automatic exchange of information by the United States with Canada with regard to interest on bank deposits in the United States by individuals resident in Canada; and (d) the United States qualified intermediary (“QI”) provisions require foreign financial institutions to provide information automatically to the U.S.

There is no reason in principle why such systems should not be implemented by all countries particularly if they are given adequate technical support by international organisations – as already happens with (say) frontier controls. Starting with middle income countries (such as Chile, Mexico and South Africa) with experience in this field, expertise could be spread steadily. For this reason, the Zedillo Commission argued that the international community should

“Sponsor a mechanism for multilateral sharing of tax information, like that already in place within the OECD, so as to curb the scope for evasion of taxes on investment income earned abroad.” (UN, 2001, pp iii).

The OECD sums up the current state of knowledge as:

20. Offshore financial centres, broadly defined, reduce revenue available to developing countries where they act as a destination for income streams and wealth protected by a lack of transparency and show a refusal or inability to exchange information with revenue authorities who may have taxing rights in respect of that income or those assets. Data on revenues lost by developing countries from offshore non compliance is unreliable. Most estimates, however, exceed by some distance the level of aid received by developing countries—around USD 100 billion annually. (OECD 2010, p. 6)

At first sight it might seem, therefore, that if the tax authorities in developing countries – with the assistance of their counterparts in developed countries and comprehensive action on tax

evasion through offshore financial centres – were in receipt of these sums, the total amount of international fiscal transfers (aid plus tax) available for development finance could be doubled. Either outcome would presumably make the attainment of the Millennium Development Goals more likely (or at least, less unlikely).

However, the main gainers from tax recovery would be the larger and richer developing countries, and specifically in per capita terms the middle-income countries or regions – because these are those that are most integrated into the world economy and generate the profits which underpin tax evasion. This relationship is logically the inverse of aid allocation – which, geostrategic considerations apart – is generally focussed on poorer countries and regions, particularly Africa. None the less, as a first step, it would be reasonable to expect that, if tax recovery were realised, that middle-income countries as a group and possibly larger low-income countries with strong economies such as India and China could graduate entirely from ODA recipient status. This would allow the existing global aid budget to be reallocated entirely towards low income countries and humanitarian emergencies.

In most of the lower-income developing countries, therefore, international tax cooperation could not be a substitute for ODA, but could become a complementary source of development finance. This is not a strange as might seem at first sight, because although the funds are channelled through different institutions (typically ministries of finance and ministries of international development) they are both fiscal transfers from government to government, and they both have their origins in taxation. It would be logical, therefore, that the two flows should be administered in parallel, particularly because ODA in recent years has increasingly taken the form of budgetary support in cases of regular development programmes as opposed to humanitarian emergencies.

Even if increased international tax income did lead to some reduction in other sources of taxation, as the fiscal response literature suggests might happen, this could also be beneficial. Low income countries – and Africa in particular – have tended to rely on indirect taxation to a great extent, which tends to be regressive as it is generally focussed on manufactured mass consumption items. The switch from trade taxes to VAT has made the regressive effect even greater, because the import duties on imports tended to bear more heavily on non-essential consumer goods. A substitution of VAT by international taxation would thus make the tax system more progressive and thus contribute to reducing income inequality. Alternatively, if international taxation is included in the figures for corporate income tax for Africa, its share of GDP would increase by about one-half from its currently relatively low level by international standards of 4 percent of GDP (Keen & Mansour, 2009).

What is proposed in this paper is clearly feasible; and to the extent that it is already becoming best practice between developed countries themselves; does not require new principles to be agreed and can build on existing administrative systems and experience. In essence it proposes no new tax and no change in tax rates – just the effective collection of what is already legally established; and can be considered due to developing countries as of right rather than a donation.

## 5. Conclusions

This has been an exploratory argument; aimed at establishing the taxation of capital income (and indeed progressive income tax more generally) as a central feature of “the new economics”. I have tried to show that there are sound theoretical and policy reasons for doing this:

In the field of theory these include

- Breaking the grip of the neoclassical intertemporal optimisation model of the representative household/agent with complete knowledge of/insurance against the future
- Reintegrating distributional, and thus political economy considerations, into macroeconomics through the theory of public economics
- Reinstating investment, and its public component, as central rather than savings; to economic growth and economic development theory.

In the field of policy (which is what this paper is about) they include

- underpinning social democracy in capitalist economies through commitment to keep lower income groups at acceptable distance from the mean
- effective regulation of international capital flows for fiscal purposes; with valuable externalities for prudential regulation of financial imbalances and illegal activities
- a sustainable replacement for non-humanitarian international development cooperation based on established principles of tax cooperation and resource sharing

It is ironic that, as Gaspard (2003) points out, Keynes’ close friend and protégé Ramsay was the founding father of the neoclassical macroeconomic model still used today in tax policy design. To be fair, Ramsey himself did not see his model as prescriptive, but rather as an application of a mathematical rule (dynamic consistency) to assist economic judgement – in a similar way that his friend Wittgenstein understood philosophy to be a practical tool to help us clarify our thoughts.

The New Economics will need to produce similarly powerful models if it is to significantly affect the process of economic policy debate.

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## APPENDIX

Consider a small open economy with three production factors: immobile labor ( $L$ ), mobile capital ( $K$ ), and immobile infrastructure ( $J$ ).

$$(1) \quad Y = A.L^\alpha K^\beta .J^\gamma$$

The usual conditions obtain, and the return on capital,  $r$ , is

$$(2) \quad r = \frac{\partial Y}{\partial K}$$

The rate of return on capital in the small, open economy and in the international economy will be determined by the domestic corporation tax rate ( $t$ ) in the former, and by the relevant international rate of return ( $r^*$ ), and the international corporation tax rate ( $t^*$ ):

$$(3) \quad r(1-t) \geq r^*(1-t^*)$$

As the economy is open, capital will flow in so long as the post-tax rates of return are attractive (alternatively, capital will flow out, if the inequality is reversed). Differentiating (1) with respect to  $K$  and substituting into (2) in the usual way yields the familiar condition for the domestic capital market equilibrium:

$$(4) \quad r = \beta \frac{Y}{K}$$

When combined with the equilibrium on capital account derived from (3) yields the capital-output ratio as a function of the domestic and international corporation tax rates ( $t, t^*$ ):

$$(5) \quad \frac{K}{Y} = \frac{\beta(1-t)}{r^*(1-t^*)}.$$

Clearly, increasing domestic tax rates ( $t$ ) will reduce the capital-output ratio – as will falling international tax rates ( $t^*$ ). The capital stock ( $K$ ) is determined in this manner. For a given domestically-owned capital stock (the product of previous savings decisions), the rise (or fall) of the total capital stock will be reflected in inflows (or outflows) of foreign capital. For instance, if the domestic asset accumulation were determined by a savings rate ( $s$ ), then foreign investment flow itself ( $F$ ) would have the form  $F = (K - K_{-1}) - sY$ .

If we assume for the moment that not only the labor supply ( $L$ ) but also the infrastructure stock ( $J$ ) are independent of the corporation tax rate, then we can write ( $Y$ ) in terms of ( $t$ ) as:

$$(6) \quad Y = \left[ AL^\alpha J^\gamma \left\{ \frac{\beta(1-t)}{r^*(1-t^*)} \right\}^\beta \right]^{\frac{1}{1-\beta}}$$

From (6), it is quite evident that any increase in the domestic corporation tax rate ( $t$ ) will reduce national income ( $Y$ ). The optimal rate is zero, or even negative (subsidies) if these can be financed. This is the basis of the argument for reducing corporation tax rates in small open economy countries in order to stimulate foreign and domestic investment. In addition, it is clear that if the international corporation tax rate ( $t^*$ ) is reduced, or that of competitors for inward investment, then in order to maintain national income levels, it will be necessary to reduce ( $t$ ).

Yet how is infrastructure to be funded? Remember that this includes not only physical facilities but also skilling, institutions etc. The stock ( $J$ ) is made up of the previous years' stock adjusted for depreciation ( $d$ ) plus the yield of corporation tax at the margin:

$$(7) \quad J = J_{-1}(1-d) + tKr$$

To simplify the algebra, we only consider the last term. In this case, we can rewrite (1) by substituting in (5) and the truncated (7) to yield:

$$(8) \quad Y = AL^\alpha \{tr\}^\gamma K^{\beta+\gamma},$$

which by substituting in (5) again and re-arranging, yields the interesting solution

$$(9) \quad Y = \left[ aL^\alpha \beta^\beta \{r^*(1-t^*)\}^{-\beta} t^\gamma (1-t)^\beta \right]^{\frac{1}{1-\beta-\gamma}}.$$

Equation (9) demonstrates that the effect of changes in the corporation tax rate is not as simple as the previous exercise implied, for an increase reduces the private capital stock ( $K$ ) and raises the public stock ( $J$ ). In fact there is an optimum value of ( $t$ ), which lies between zero and unity – at both of these points  $Y$  is zero. Maximization of ( $Y$ ) by differentiation of (9) with respect to ( $t$ ) yields a result for the optimum tax rate ( $T$ ) of the form:

$$(10) \quad T = \frac{\gamma}{\beta + \gamma}$$

which depends on the relative marginal productivity of the two forms of capital stock.

The optimal corporation tax rate ( $T$ ) will be positive as long as the marginal productivity of infrastructure is positive. It is important to note that this result is independent of the international tax rate ( $t^*$ ). In other words, countries should set their optimal tax rate independently of the international rate.