# Combining Dutch Presumptive Capital Income Tax and US Qualified Intermediaries to Set Forth a New System of International Savings Taxation

## Marcel Gérard

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## Abstract

Beyond the traditional debates over information exchange *vs* flat taxation at source, legislative advances have produced interesting innovations and suggestions concerning how to tax international savings. We examine some of these advances, which we then use to set forth and investigate a proposal for European and international savings taxation. That proposition combines the outcome of a recent Dutch reform and lessons from the US qualified intermediaries mechanism. We show that such a system exhibits the same desirable properties as exchange of information, but potentially at reduced compliance cost, and is sustainable within a repeated game framework.

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> "although it is not *desirable* to tax capital income on a source basis [because source-based taxes are distortionary], it is not administratively *feasible* to tax capital on a residence basis" Joel Slemrod[1]

## 1. Introduction

Throughout history two key functions have traditionally been associated with government: issuing high-powered money and levying taxes. However most European Union member states have relinquished the former function to the European Central Bank.

Exercising the latter remains their last right of sovereignty. Therefore it makes sense to keep the power to levy tax at the national level, as long as this does not interfere with the exercise of similar powers by other member states. This implies organising the taxation of internationally mobile flows of goods, assets and income in a way consistent with that principle, which is the principle of subsidiarity.[2]

Beyond the right of sovereignty associated with the privilege of levying taxes, is the right of a jurisdiction to conduct its own fiscal policy in line with its own preferences for the quantity and type of public goods and services, as well as the distribution of the tax burden between individuals and types of goods and income. Put another way, this is the right of an administration to make its own decisions about the functions of taxation, and thus the roles of government pointed out by Musgrave and Musgrave (1980), under the condition of non- or least interference with similar decisions by other member states.

Those decisions are, in many countries, still influenced by the global income approach introduced by Haig (1921) and Simons (1930). As a consequence, for those countries, an *Ideal Tax System*, or *ITS*, should allow each government to tax every domestic taxpayer on his or her worldwide global income, at an individualised rate depending on, e.g., the size of his or her income. We term this approach *HS-ITS*, where *HS* refers to *Haig-Simons*. However, for various reasons, some governments, e.g. Belgium, the Nordic countries and the Netherlands, have deleted the final part of this definition, adopting a system where capital income is taxed at a flat rate. Let us term that system *DIT-ITS* where *DIT* means *Dual Income Tax*. The main argument justifying that dissenting view as still supporting an *ITS* is that nowadays the area of mobility of capital is larger than that of labour, and of the territory of the jurisdiction of national tax authorities.

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[1] Slemrod (1995) quoted by Cnossen (2002).
[2] For a discussion of the principle of subsidiarity see a.o. Sinn *et al.* (1993) and Sinn (1994), and for its application to taxation, Cnossen (2002) and McLure (2001).

Facilitating the implementation of an *ITS*, either *HS-ITS* or *DIT-ITS*, is the target of many international organisations such as the OECD and the EU authorities. The choice between *HS* and *DIT* depends on the sovereignty of national authorities.

In this paper, we establish that maximising the fiscal power at the discretion of domestic or local authorities is a basic position. Attempts to go beyond this principle and to further centralise tax policy, have been are unsuccessful.

We also introduce a second characteristic of an *ITS*: each government is allowed to use the proceeds of the tax either to finance public goods and services or for distributive or incentive purposes. Adding that characteristic rules out using the proceeds of the tax to grant refunds to resident taxpayers for taxes levied abroad, including through a crediting mechanism. Adding this second characteristic is not a plea to abolish the withholding tax but possibly to eliminate crediting.

Regarding the taxation of savings income of individual taxpayers, the arguments above lead us to present an idea to tax that income that is based on present EU Commission proposals, on a recent Dutch reform, and on the current US tax system for taxing foreign savings income. The system is designed with reference to the Euro zone of the European Union, but could be adapted for, and applied to, other areas. It has the following characteristics: (1) participating jurisdictions levy a withholding tax, whose rate is determined by the EU member state of residence of the investor, on EU source income paid to EU fiscal residents, (2) the withholding tax is computed on a presumptive income translated to EU currency by the country of residence of the investor, (3) the withholding tax is applied by each participating bank to its liabilities toward its customers who are residents of that EU country, separated into country baskets, and its proceeds are then transferred to that country.

In Section 2 we review the present situation from an institutional viewpoint and introduce our proposal. In Section 3, we propose a more formal analysis of our proposition. This follows closely the model used by Huizinga and Nielsen (2003) and Keen and Ligthart (2003), showing the properties and the sustainability of our view, including in the framework of a repeated game. The last section suggests conclusions and avenues for future research.

## *2. Institutions*

The taxation of international savings income, including that among European Union member states, is based on OECD model conventions, although the EU Commisssion has issued some proposals to attempt to create a European system.

### 2.1. The OECD model

The *OECD model* aims to eliminate, or at least limit, double taxation of cross-border flows of income. For savings income, the power of taxation is shared between home and host jurisdictions, allowing the source country – that of the bank which pays – to levy a withholding tax, and enabling the investor's residence jurisdiction to levy another tax, provided either that the withholding tax can be imputed on domestic tax liabilities – up to the highest of those liabilities on that income – or that the residence country exempts foreign

income up to a small fraction. With respect to the *ITS* defined above, the imputation mechanism provided by the OECD is almost ideal. It would be ideal if supplemented by a system of exchange of information between payers or their governments and tax authorities of the country of residence of investors, on the one hand (thus meeting the first characteristic of an *ITS*) and by the abolition of withholding tax levied at source, on the other hand (to satisfy the second characteristic). Therefore the OECD model can be viewed as an *Almost Ideal Tax System* or *AITS* (see Gérard and Hadhri,1994).

## 2.2. EU advances

Three successive proposals at EU level have tried to improve the OECD model system.

In 1989, EU Commissioner Christiane Scrivener proposed to adopt at the EU level, for interest on bonds only, a common withholding tax of, say, 15 per cent. Since exchange of information was not considered in the *Scrivener proposal*, the system was not an *ITS*; it privileged taxation at source. The proposal was not adopted.

Nine years later, the Commission returned with the *Verona coexistence model*[3] that allowed governments to choose between levying a withholding tax or engaging in exchange of information. That new proposal was also rejected.

Finally, in 2001, the EU governments rallied to the *Feira compromise*[4], named after the Portuguese city where the Council of Finance Ministers met. The ideal of *ITS* was again affirmed, and a system of exchange of information would be launched starting in 2005, for all but three member states. Those three, Austria, Belgium and Luxembourg – which have bank secrecy rules including with respect to their own residents (at least while they are alive) – only agreed to levy a withholding tax progressively increased up to 35 per cent, and to transfer 75 per cent of the collected revenue to the residence countries of the foreign EU investors. They also agreed to move to information exchange not later than in 2010, provided that a similar system was in place with EU neighbouring jurisdictions, including Switzerland and the Channel Islands.

## 2.3. The EU and Switzerland

The outcome of the negotiations between the EU and the Swiss authorities is not the adhesion of the Swiss to exchange of information with the EU, even though the Swiss institutions have accepted, in some respects, to provide the US authorities with such information. However the Swiss authorities agree to levy a withholding tax on income paid to EU residents, and thus to enter a mechanism similar to that conceded to Austria, Belgium and Luxembourg within the EU, in which 75 per cent of the revenue collected at source is paid to the country of residence of the investor.

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[3] European Commission (1998).
[4] European Commission (2001).

## 2.4. Three concerns around Ramsey and the Belgian, Dutch and Nordic innovations

The European *ITS* targeted process reviewed above deserves at least three comments.

First, the process is limited to interest on bonds and on some related assets. It does not cover dividends or capital gains. And, above all, it does not extend to a large class of other assets with the same safety as bonds: insurance products. Thus the Feira process, through exchange of information, leads to taxation, and possibly heavy taxation, of a single type of income, although a close substitute exists which escapes exchange of information and thus taxation. According to Ramsey's (1927) perspective, this is taxing a bad candidate.[5]

Second, the European process is not Ramsey–consistent because it applies to a territory which is too small. Saving is much more mobile than labour: the area of mobility of capital is the entire world, while that of labour is the country – but for skilled individuals.[6] Therefore organising exchange of information within the EU is recognising the territory of the Union as a single jurisdiction. However the EU is geographically smaller than the actual area of savings mobility.

The third comment is that a series of countries have already tackled our first two concerns.

Twenty years ago, Belgium gave up *de jure* a global system which it had failed to apply *de facto*, and recognised a withholding tax levied at source as a final tax. This is in line with the second concern above. Belgium is actually an interesting case: its openness, due to its size and geographic position, and its long experience of monetary union with Luxembourg, makes it a potential forerunner of the future fate of others.

Recently, the Netherlands joined Belgium in levying a flat tax on savings income. But, the Netherlands met our first concern (above), by giving up any ambition to pursue bankers' imagination but tackling the issue of substitutability among types of assets. To this end they decided on a flat tax levied on the presumptive income from the financial wealth.[7] The *dual tax system* adopted by the Nordic countries also imposes a flat rate on capital income.[8]

## 2.5. US Qualified Intermediaries

Finally, the US authorities have proposed to banks worldwide, thus bypassing the foreign governments, that they become qualified intermediaries (*QI*) of the IRS, the Internal Revenue Service. Most banks have accepted and have committed themselves: (1) to levy the withholding tax provided for by the treaty between the US and any given country on US source income paid to a fiscal resident of that given country, and to transfer the collected amount to the US authorities; (2) to be audited by IRS agreed experts, and (3) to register the

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[5] In the good old days when labour and savings were both inelastically supplied in the country of residence of their holders, and when the imagination of the bankers was more limited, BTS could be considered as consistent with Ramsey's view that income tax should be negatively proportional to the supply elasticity of the respective factors.

[6] People leaving the South or the East of the EU at the start of their career and possibly going back at home at the end, irrespective of their skill, cannot be considered as mobile workers in economic terms.

[7] See e.g. Cnossen and Bovenberg (2001).

[8] See e.g. Sorensen (1994).

tax identification number of US fiscal residents who are paid income by the bank. Failure to accept such commitment compels the bank either to provide the US authorities with full identification of non-US customers or to pay a 30 per cent withholding tax on any payment received from a US source, including values of financial assets.

### 2.6. The proposal: taxation at source at a rate determined by the country of residence

All these premises support the following proposal, which marries taxation at source with determination of the tax rate by the country of residence:

(1) EU jurisdictions, or at least a subset of EU jurisdictions decided to join that system, levy on EU source income paid to EU fiscal residents, a withholding tax whose rate is determined by the EU member state of residence of the investor;

(2) that withholding tax is computed on a presumptive income translated into an EU currency determined by the country of residence concerned;

(3) that withholding tax is applied by each participating bank on its liabilities toward its customers resident in that EU country, divided into country baskets; its proceeds are then transferred to that country.

Point (1) is inspired by the US *QI* system for non-US fiscal residents, which seems to be acceptable to non-EU countries and institutions, as exemplified by the agreement between the EU Commission and the Swiss authorities; point (2) comes from Dutch recent reform and meets the first concern above; finally point (3) combines the US country basket practice and the transfer mechanisms to the residence jurisdictions provided by both the EU and the US.

### 2.7. Transition

The system just described seems to be feasible. Moreover it is an *ITS*, or more precisely a *DT-ITS*. Section 3 below demonstrates this, and shows that such a system can rule out fiscal externalities, that it supports a Pareto optimum with taxation, and that it is sustainable in the long run in the framework of a repeated game. Such a framework is especially relevant, since the real world in general and Europe especially, is a repeated game. To conduct this exercise we use a formal setting similar to that employed by Huizinga and Nielsen (2003) and Keen and Ligthart (2003).

## *3. Analysis*

In this section we consider two jurisdictions of different size, denoted respectively by subscripts *a* for the smaller and *A* for the larger. By assumption, the level of saving in the larger jurisdiction (or the number of residents) is $\theta$ time larger than in the smaller. We use this framework to prove that the proposal for an international tax system suggested above is an ideal tax system, or *ITS*.

We start by considering a single type of asset, so that our argument focuses on the qualified intermediaries (*QI*) inspired part of the proposal, rather than on the one based on the *Dutch*

*reform*. Then, in the last part of the section, we propose a reinterpretation of the model, which extends the argument to the Dutch side of the proposal. Since there is only a single agent in each jurisdiction, there is no room to discriminate between resident taxpayers or to deal with progressive *vs* flat taxation.

## 3.1. The model

In the smaller jurisdiction the savings income of the typical individual agent is

$$y_a = \left(1 - m_a^h\right) x_a + \left[1 - m_A^f - p_A \max\left(m_a^h - m_A^f, 0\right)\right]\left(1 - x_a\right) \\ - \frac{\beta_a}{2}\left(1 - x_a\right)^2 \tag{1}$$

where $m_a^h$ is the tax rate on income from investment at home by residents of country $a$, $m_A^f$ is the tax rate on income paid to foreign investors in the larger country $A$, $x_a$ is the fraction of the investment of a resident of country $a$ invested domestically, and $1 - x_a$ is its counterpart invested abroad. Moreover $p_A$ stands for the fraction of the information transmitted to $a$ from $A$, and the last term, $\beta_a$, refers to the cost of investing abroad; we assume that $\beta_a \in ]0, \infty[$.

Maximising (1) with respect to $x_a$ shows that the amount of saving invested abroad is such that the investor is indifferent between investing an extra unit at home or abroad. Then

$$1 - x_a = \frac{m_a^h - m_A^f - p_A \max\left(m_a^h - m_A^f, 0\right)}{\beta_a}. \tag{2}$$

The amount of tax revenue available to the government of the smaller jurisdiction is

$$T_a = m_a^h x_a + p_A \max\left(m_a^h - m_A^f, 0\right)\left(1 - x_a\right)\left(1 - \mu_a\right) + m_A^f\left(1 - x_a\right)\lambda_A \\ + m_a^f\left(1 - x_A\right)\theta\left(1 - \lambda_a\right) + p_a \max\left(m_A^h - m_a^f, 0\right)\left(1 - x_A\right)\theta\mu_A \tag{3}$$

In such a system, tax revenues of government $a$ consists of
- $m_a^h x_a$, the proceeds of the tax on the domestic investment of resident taxpayers;
- $p_A \max\left(m_a^h - m_A^f, 0\right)\left(1 - x_a\right)\left(1 - \mu_a\right)$, the proceeds of the tax levied at home on the foreign income of resident taxpayers, net of the fraction $\mu_a$ repaid to the foreign jurisdiction to compensate for the service of information exchange;
- $m_A^f\left(1 - x_a\right)\lambda_A$, the proceeds of the withholding tax levied abroad on capital income paid to taxpayer residents of the home jurisdiction which is transferred to the home or residence jurisdiction; thus $\lambda = .75$ in the EU 75 per cent mechanism, $\lambda = 1$ in the US *QI* system;

- $m_a^f (1-x_A)\theta(1-\lambda_a)$, the proceeds of the withholding tax on capital income paid to non-residents, net of the fraction of that income transferred to the jurisdiction of residence of those non-residents;

- $p_a \max(m_A^h - m_a^f, 0)(1-x_A)\theta\mu_A$, the proceeds of the tax levied abroad on income of the residents of the foreign jurisdiction, through the information transmitted by the home jurisdiction, which is repaid to that jurisdiction.

Keen and Ligthart (2003) provide an investigation of the role of the parameter $\mu$. In the rest of this paper we will ignore it, formally setting $\mu_i = 0, i = a, A$.

In this model, information exchange can be associated with the usual crediting mechanism. In this case, foreign tax is credited up to the maximum of the domestic tax rate; this is reflected in the expression $\max(m_a^h - m_A^f, 0)$ which implies that, in case of full information exchange, the foreign income of a resident taxpayer of jurisdiction $a$ is taxed at rate $m_a^h$ if $m_a^h \geq m_A^f$, and at rate $m_A^f$ if $m_a^h < m_A^f$.

Finally, the objective of any jurisdiction $i$ ($i = a, A$) is to maximise its social welfare function

$$S_i = y_i + u_i T_i, \;\; i = a, A \tag{4}$$

where $u_i$ illustrates how much the jurisdiction values public goods; like Keen and Ligthart (2003) we suppose that $u_i \geq 1$.

## 3.2. Benchmark: an Ideal Tax System (*ITS*)

In an *ITS* – or more precisely in its translation into this model – each government

(1) is able to tax the worldwide income of its resident taxpayers at a rate it determines itself, and
(2) is permitted to use the whole revenue generated by that tax.

This implies, for jurisdiction $a$, (1) effectively taxing both the domestic and foreign the income paid out to its residents at rate $m_a^h$, and (2) being able to use the amount collected for its own purposes. Point (2) rules out having to give up part of the collected amount, say, through a tax credit designated to offset foreign taxation. This is irrelevant to the present model where the existence of a non-zero cost of investing abroad implies that if foreign and domestic income are identically taxed at residence no capital is invested abroad.

## 3.3. Full Information Exchange (*FIE*)

A full information exchange, or *FIE*, is one – but not the only – way to implement an *ITS*. In *FIE* $p_i = 1, i = a, A$, and no fee is refunded to the other country to compensate for the

exchange of information, $\mu_i = 0$. In that world, and given our assumption that $\beta_a \in \left]0,\infty\right[$, each agent invests only at home and social welfare levels are

$$
\begin{aligned}
S_a^* &= 1 + \left(u_a - 1\right)m_a^h \\
S_A^* &= \theta\left[1 + \left(u_A - 1\right)m_A^h\right]
\end{aligned}
\tag{5}
$$

for the smaller and the larger jurisdiction respectively. That result is internationally Pareto optimal and characterises the social welfare attainable under an *ITS*. Notice that per capita social welfare in the larger country is $S_A^*$ divided by $\theta$.

## 3.4. OECD's Almost Ideal Tax System (*AITS*)

Under an almost ideal tax system (*AITS*), each government sets its withholding tax rates separately. Despite the fact that taxpayers have to report their foreign income to their home tax authorities, they have no incentive to do this, except to avoid the shame of tax evasion. Therefore it is reasonable to assume that they do not report their foreign income, and consequently, to consider the OECD system as a pure source tax system. Then, maximising (4) with respect to the withholding tax rate applied to income paid to non residents, implies that, since $p_i = \lambda_i = 0$,

$$
m_a^f = \frac{m_A^h}{2}, \quad m_A^f = \frac{m_a^h}{2}.
\tag{6}
$$

By offering foreign investors a tax rate lower than they are deemed to pay at home, each government tries to attract foreign capital to get taxable income. These results however are not Pareto optimal. Indeed we observe that

$$
\frac{dS_A}{dm_a^f} = \left(u_a - \frac{1}{2}\right)\theta\frac{m_a^h}{\beta_a} > 0, \quad \frac{dS_a}{dm_A^f} = \left(u_A - \frac{1}{2}\right)\frac{m_A^h}{\beta_A} > 0
\tag{7}
$$

since the values of public goods are deemed not to be less than unity. Notice that the withholding tax rates can vary from one jurisdiction to another, just as domestic rates.

Interestingly, the smaller jurisdiction can be made better off by the OECD's *AITS*. Saving abroad will enable part of domestic savings to escape full taxation, while attracting savings from abroad will push up tax revenue. Should the smaller country be small enough, it can then be better off. To illustrate, consider the case where the jurisdictions are identical except for size – all the parameters are identical across jurisdictions while $\theta > 1$. In this case the smaller country will be better off if

$$
\theta > 2 - \frac{1}{2u_a}.
\tag{8}
$$

However, taken together the two countries are worse off, so that no side payment is possible from the larger country to the smaller one. Nevertheless the threshold defined by equation (8) will still play a role later on in this paper.

The social welfare levels are then,

$$S_a^- = S_a^* - \left[ \left( u_a - \frac{1}{4} \right) - \frac{u_a}{2}\theta \right] \frac{\left( m_A^h \right)^2}{2\beta_A}$$

$$S_A^- = S_A^* - \left[ \left( u_A - \frac{1}{4} \right)\theta - \frac{u_A}{2} \right] \frac{\left( m_a^h \right)^2}{2\beta_a}$$

(9)

Notice that both Huizinga and Nielsen (2003) and Keen and Lighthart (2003) assume that domestic tax rates are exogenously given, being a sort of global income tax rate uniformly applied to residents' domestic income. Should these rates be endogenous, we have, maximising (4) with respect to the domestic tax rate and using (6),

$$m_a^h = \frac{u_a - 1}{2u_a - 1}\left( m_A^f + \beta_a \right) = \frac{2\left( u_a - 1 \right)}{3u_a - 1}\beta_a$$

$$m_A^h = \frac{u_A - 1}{2u_A - 1}\left( m_a^f + \beta_A \right) = \frac{2\left( u_A - 1 \right)}{3u_A - 1}\beta_A$$

(10)

and these rates increase with the value of public goods and the costs of investing abroad. It turns out that, if these costs vanish, all tax rates also vanish, while if the costs vanish for residents of the smaller jurisdiction, then $m_a^h$ and $m_A^f$ are set to zero while the other two rates are still positive so that the small jurisdiction taxes income paid to foreigners more than it taxes income paid to residents.

## 3.5. The EU journey

In this section we successively review the Scrivener mechanism of a common withholding tax, suggested by the EU Commission in 1989, the Verona co-existence model proposed in 1998 and finally the mechanism provided by the Feira agreement of 2001.

### 3.5.1. The Scrivener mechanism

The OECD system seems to be a bad mix of non-enforced exchange of information and incentives to tax evasion. In contrast the Scrivener proposal of a common withholding rate across European countries frees taxpayers from the shame of not reporting foreign income, at least if the common withholding tax is a final levy for investors.

Analytically there are three ways to cope with the Scrivener proposal, depending on how the rate of withholding tax is determined.

First, we can suppose that each jurisdiction selects the rate in a non-cooperative manner. This produces the same game as the OECD system, and is the case considered by most authors. Second we imagine that all jurisdictions choose the rate together. In this case it is quite realistic to suppose that, given that unanimity must prevail when tax decisions are taken, the common withholding tax rate $m^f$ is such that

$$m^f = \min\left(m_a^f, m_A^f\right) \tag{11}$$

and one of the two jurisdictions will experience a welfare loss, becoming worse off compared to the OECD system.

Finally, it may be that the jurisdictions will choose the value which maximises their joint welfare, in which case they will maximise $S_a + S_A$ with respect to a common $m^f$. The first order condition of this maximisation implies that, at equilibrium, the value of $m^f$ is given by

$$m^f = \frac{u_a + u_A - 1}{\dfrac{2u_a - 1}{\beta_a} + \dfrac{2u_A - 1}{\beta_A}\theta}\left(\frac{m_a^h}{\beta_a} + \frac{m_A^h}{\beta_A}\theta\right) \tag{12}$$

which is equivalent to *ITS* only if both jurisdictions are identical except for size. Thus, in general, even under the optimistic view that a common value for the withholding tax can be agreed, the Scrivener proposal is not *ITS*.

### 3.5.2. The Verona co-existence model

In the Verona co-existence model, jurisdictions are allowed to either levy a withholding tax or to exchange information. It can easily be shown that in the former case they will adopt the same policy as under the Scrivener mechanism, while in the latter case they will decide to provide no information.[9] As shown by Huizinga and Nielsen (2003) and Keen and Ligthart (2003) we find that

$$m_a^f = \frac{m_A^h}{2}, \; p_A = 0 \tag{13}$$

based, a.o., on

$$\frac{dS_a}{dp_a} = -u_a m_a^f \frac{\theta}{\beta_A}\left(m_A^h - m_a^f\right) \le 0. \tag{14}$$

These results are characterised by no spontaneous exchange of information and attractive withholding tax rates for foreigners, they illustrate a non-cooperative situation.

Cooperative behaviour, with $p_i = 1$ and $m_i^f = 0$ if $\beta_i = 0$, could make both jurisdictions better off but immediately raises the issue of its sustainability, a question that we will not investigate here – see Huizinga and Nielsen (2003) and Keen and Ligthart (2003) on that point.

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[9] Notice that the latter result differs from that obtained by Bachetta and Espinoza (1995; 2000).

### 3.5.3. The Feira agreement

The Feira agreement *per se* needs no further analysis. Indeed it sets forth the second component – exchange of information – of the Verona model, although it applies the first one to three countries with $\lambda = .75$. Details of most of these results can be found in Huizinga and Nielsen (2003). In a static setting they can be summarised as,

$$\text{a) withholding tax}: m_a^f = \frac{m_A^h}{2}, \frac{dS_A}{dm_a^f} \propto (u_A - 1)m_A^h + m_a^f > 0$$

$$\text{b) information exchange}: p_a = 0, \frac{dS_A}{dp_a} > 0 \tag{15}$$

$$\text{c) mixed (Verona) regime}: m_a^f = \frac{m_A^h}{2}, p_A = 0$$

The inequalities on lines a) and b) indicate that the solution for the withholding rate and the level of information exchange, respectively, are not optimal from a cooperative point of view; they are both too small since the welfare level of the other country would be improved by an increase in those values.

Let us simply observe the following two points.

If the two jurisdictions are both allowed to apply a withholding tax at source without exchange of information, and if the values of the withholding tax rates are not determined in such a way as to maximise the joint social welfare, then the smaller jurisdiction has no interest in adhering to a system of transfer of collected revenue while the larger is interested in subscribing to such a system. Indeed, we have that

$$\frac{dS_a}{d\lambda} \propto -\frac{\left(m_A^h\right)^2}{\beta_A}\theta + \frac{\left(m_a^h\right)^2}{\beta_a}$$

$$\frac{dS_A}{d\lambda} \propto -\frac{\left(m_a^h\right)^2}{\beta_a} + \frac{\left(m_A^h\right)^2}{\beta_A}\theta \tag{16}$$

and, if the jurisdictions are equal in everything but size, the first expression is negative while the second is positive.

Otherwise, if the rate is unique and determined cooperatively so that it maximises the joint social welfare, equation (12) becomes,

$$m^f = \frac{(u_a + u_A - 1)\left(\dfrac{m_a^h}{\beta_a} + \dfrac{m_A^h}{\beta_A}\theta\right) + (u_a - u_A)\left(\dfrac{m_a^h}{\beta_a} - \dfrac{m_A^h}{\beta_A}\theta\right)}{\dfrac{2u_a(1-\lambda) - 1 + 2u_A\lambda}{\beta_a} + \dfrac{2u_A(1-\lambda) - 1 + 2u_a\lambda}{\beta_A}\theta} \tag{17}$$

which again deviates from the *ITS* outcome unless the jurisdictions are identical except possibly for size.

## 3.6. The proposition

Let us now turn to the proposal described in Section 2.6. We first show that the proposed system is an Ideal Tax System, *ITS*, and thus is equivalent to full exchange of information, *FIE*. Then, we show how that system supports a Pareto improvement and how it is sustainable in a repeated game setting.

### 3.6.1. A one shot game

Suppose that the game consists for each jurisdiction, e.g. for jurisdiction *a*, in selecting the withholding tax levied by the other jurisdiction, *A*, on income paid out to residents of the former jurisdiction, *a*, both jurisdictions being committed to applying that rate and to fully transferring to the jurisdiction of residence of the investor the revenue collected through the tax (so that $\lambda_i = 1$). Thus the maximum social welfare level for jurisdiction *a* is

$$\underset{m_A^f}{Max}\, S_a = y_a + u_a T_a \,. \tag{18}$$

The first order condition implies that

$$\left(1 - 2u_a \lambda_A\right)\frac{m_A^f}{\beta_a} - \left(1 - u_a - u_a \lambda_A\right)\frac{m_a^h}{\beta_a} = 0\,, \tag{19}$$

giving

$$m_A^f = \frac{1 - u_a - u_a \lambda_A}{1 - 2u_a \lambda_A} m_a^h \,. \tag{20}$$

When $\lambda_A = 1$, this equation becomes

$$m_A^f = m_a^h \tag{21}$$

which is exactly its value under an Ideal Tax System: the fiscal externality has been eliminated by the full transfer process.

To show this, consider the derivative of the *A* jurisdiction social welfare function with respect to the withholding tax $m_A^f$ now determined by the *a* jurisdiction.

$$\frac{dS_A}{dm_A^f} = \left(1 - \lambda_A\right) u_A \frac{m_a^h - 2m_A^f}{\beta_a} \tag{22}$$

which is negative for $m_A^f = m_a^h$ unless $\lambda_A = 1$.

The explanation of the negative sign is that an increasing value of the withholding tax reduces the attractiveness of the *A* jurisdiction and thus tax revenue for that jurisdiction; however that argument disappears if the whole tax revenue collected by that means is transferred to the other jurisdiction. Then equation (22) reduces to

$$\frac{dS_A}{dm_A^f} = 0 .$$ (23)

This tax system supports a Pareto optimum, although the cooperation is limited to the double commitment:

(1) to allow each foreign jurisdiction to set the withholding tax that the source jurisdiction will levy on income paid out in its territory; and

(2) to transfer the whole revenue collected through that withholding tax to each relevant foreign jurisdiction.

It turns out that,

> <u>Proposition 1</u>: An international tax system where each foreign jurisdiction is allowed to choose the withholding tax that the source jurisdiction will levy on income paid out in its territory, and where the whole revenue collected through that withholding tax is transferred to each relevant foreign jurisdiction, is an ideal tax system, and thus is equivalent to a system of full information exchange.

The levels of social welfare reached in the jurisdictions are $S_a^*$ and $S_A^*$ respectively; their values are given by equation (5).

To illustrate this, consider the case of US *QI* legislation: a bank in country *A* levies on income paid to residents of country *a* a withholding tax whose rate is determined by a treaty between country *a* and the US, and whose revenue is fully transferred to the US; merge the US and country *a* and you are exactly in the situation of the proposition discussed here. Income obtained in *A* is taxed at the rate decided by *a* and the US and the welfare level in *A* is not affected by the size of that tax.

Notice that, if $\lambda_i < 1$ (e.g. $\lambda_i = .75$) as in the post-Feira European Union, the tax system is not *ITS*. Using (20), the *a* jurisdiction wants *A* to tax at rate

$$m_A^f = \frac{1 - 1.75u_a}{1 - 1.50u_a} m_a^h > m_a^h$$ (24)

although that rate is too high from the point of view of *A*'s social welfare. Indeed, using (22) and our examination of OECD *AITS*, we observe that for $m_A^f$ given by (24)

$$\frac{dS_A}{dm_A^f} < 0 .$$ (25)

The best value for that tax rate from the point of view of *A*'s social welfare is, see equation (6) above

$$m_A^f = \frac{m_a^h}{2} \tag{26}$$

### 3.6.2. Pareto improvement

Compared to the OECD *AITS,* the system discussed here always generates a welfare gain for the two jurisdictions taken together and for the larger one on its own. The smaller jurisdiction experiences a welfare gain only if it is not too small relative to the larger. Otherwise a side payment is necessary to convince the small jurisdiction to join the system.

More formally, the larger jurisdiction gains by joining the new system if

$$\left(u_A - \frac{1}{4}\right)\theta - \frac{u_A}{2} > 0 \tag{27}$$

or

$$\theta > \frac{2u_A}{4u_A - 1} \tag{28}$$

which always holds since $u_A \geq 1$. The smaller jurisdiction gains if

$$\left(u_a - \frac{1}{4}\right) - \frac{u_a}{2}\theta > 0 \tag{29}$$

or

$$\theta < \frac{4u_a - 1}{2u_a} = 2 - \frac{1}{2u_a} \tag{30}$$

For $u = 1$ that implies $\theta < 1.5$, and so the smaller jurisdiction must be at least two-thirds the size of the larger one. Otherwise a side payment is needed. This is always possible since the overall gain is positive, summing to, using equations (27) and (29) and assuming the two jurisdictions are identical except for size,

$$(2u - 1)\frac{1 + \theta}{4} > 0 . \tag{31}$$

Thus we can state:

> Proposition 2: In an economic setting where jurisdictions are identical except for size, an international tax system where each foreign jurisdiction is allowed to determine the withholding tax that the source jurisdiction will levy on income paid out in its territory, and where the whole revenue collected through that withholding tax is transferred to the relevant foreign jurisdiction, improves the social welfare of large jurisdictions compared to that obtained under the OECD *AITS*. It improves that of small jurisdictions if they are not too small. Otherwise a

side payment from the large jurisdictions is needed to persuade the small jurisdictions to join the system. Since overall social welfare goes up, such a payment is always possible.

The model used in this discussion, however, does not allow us to investigate the impact of giving up individualised taxation of capital income, nor to introduce a presumptive rate of return. Nevertheless, the model enables us to discuss the sustainability of the proposition in a repeated game framework.

### 3.6.3. A repeated game

If the game is played repeatedly, which is the case on the real tax scene, can a jurisdiction gain by deviating from the *ITS* equilibrium outcome? And, consequently, what are the *non-cheating conditions*?

If jurisdiction $a$ (viz. $A$) deviates, by which is meant that it sets $\lambda_i = 0$ and $m_i^f$ equal to its value given by equation (6), it will experience an immediate gain, reaching a social welfare level given by one of the following equations

$$S_a^+ = S_a^* + \frac{u_a}{2} \frac{\left(m_A^h\right)^2}{2\beta_A} \theta \text{ or } S_A^+ = S_A^* + \frac{u_A}{2} \frac{\left(m_a^h\right)^2}{2\beta_a}. \tag{32}$$

The other jurisdiction will suffer a welfare loss: it will get the *AITS* outcome minus the proceeds of the withholding tax (since it respects its commitment to transfer this), thus

$$S_a^{--} = S_a^- - \frac{u_a}{2} \frac{\left(m_A^h\right)^2}{2\beta_A} \theta \text{ or } S_A^{--} = S_A^- - \frac{u_A}{2} \frac{\left(m_a^h\right)^2}{2\beta_a}. \tag{33}$$

However jurisdiction $A$ (viz. $a$) will probably then also decide to give up the system and go back forever to OECD *AITS*. Thus the social welfare level of both jurisdictions will be $S_i^-$ which has the value given by equation (9).

In the long run, the pay off from deviating is negative if

$$S_i^* + \frac{S_i^*}{\rho} > S_i^+ + \frac{S_i^-}{\rho} \tag{34}$$

where $\rho$ stands for the discounting rate and $S_A^*$ for the *ITS* outcome; that outcome is given by equation (5) above. For the larger jurisdiction, that condition turns out to be

$$\left(1 + \frac{1}{\rho}\right) \frac{u_A}{2} - \left(u_A - \frac{1}{4}\right) \frac{\theta}{\rho} < 0 \tag{35}$$

This *non-cheating condition* always holds for economically acceptable values of the parameters. E.g. suppose $u_A = 1$, then equation (35) implies $\rho < 1.5\,\theta - 1$, a condition certainly respected if $\rho < 0.5$. For the smaller country, the equivalent *non-cheating condition* is

$$\left(1+\frac{1}{\rho}\right)\frac{u_a}{2}\theta - \left(u_a - \frac{1}{4}\right)\frac{1}{\rho} < 0 \tag{36}$$

which only holds if the small country is not too small, namely if

$$\theta < \left(2 - \frac{1}{2u_a}\right)\frac{1}{1+\rho} \tag{37}$$

which can be compared with equations (8) and (30).

As an example, if $u_a = 1$ and $\rho = .10$, the larger jurisdiction can not exceed 1.36 times the smaller, or the smaller needs to be at least 73 per cent the size of the larger. Otherwise a side payment is necessary. This is no problem *per se* since: even if the larger jurisdiction has to compensate its small partner to prevent it from cheating, the non-cheating condition still holds for that country. That condition becomes, assuming that the larger jurisdiction differs from the smaller only by the size factor $\theta$,

$$\left[\left(1+\frac{1}{\rho}\right)\frac{u}{2} - \left(u - \frac{1}{4}\right)\frac{1}{\rho}\right](1+\theta) < 0. \tag{38}$$

For, say $u = 1$, this holds if $\rho < 0.5$, which is economically meaningful. The threshold value of the discounting rate is smaller than in the case where no side payment is made to the smaller jurisdiction.

As a conclusion,

> Proposition 3: In an economic setting where jurisdictions are identical but in size, an international tax system where each foreign jurisdiction is allowed to decide on the withholding tax that the source jurisdiction will levy on income paid out in its territory, and where the whole revenue collected through that withholding tax is transferred to each of those foreign jurisdictions, is sustainable in the long run in the framework of a repeated game. If the small jurisdictions are too small for the non-cheating condition to hold, a side payment from the large jurisdictions is needed to have the small jurisdictions participate honestly to the system; such a payment is always possible.

## 3.7. The Dutch face of the proposal

So far we have focused on the *IQ* face of the proposal, not on the Dutch one. Now assume that there are not only two jurisdictions but also two financial products, and that either full

exchange of information or the mechanism discussed in Section 3.6 above applies to one product (say interest) while OECD *AITS* applies to the other product (say dividends). Suppose also that there is no cost of reorganising a portfolio and no difference in terms of risk among the products.

In that extended framework, the investor of jurisdiction $a$ will obtain an income

$$y_a^* = 1 - m_a^h \tag{39}$$

from his or her investment in bonds and an income

$$y_a^- = \left(1 - m_a^h\right)\left(1 - \frac{m_a^h}{2\beta_a}\right) + \left(1 - \frac{m_a^h}{2}\right)\frac{m_a^h}{2\beta_a} \tag{40}$$

from his or her investment in shares. Comparing those two equations will convince the resident of jurisdiction $a$ to invest in shares. And if a third product that is untaxed in jurisdiction $A$ exists, it immediately becomes the most preferred investment. In any case the social welfare level will not be $S_a^*$.

In this framework, Full Information Exchange supports an Ideal Tax System only if it applies to all financial products. The same is true for the proposal discussed in Section 3.6. However this requires the tax legislator to keep an eye on the imagination of the bankers and the insurance companies. A way to escape such a battle of wits is to disregard the various types of capital income and to tax a presumptive return on capital instead. This is equivalent to taxing the capital itself, and is what we do in the proposal discussed in this paper. The Netherlands has also chosen this way to tax income from capital invested at home by its resident taxpayers. In the proposal we extend that policy to capital invested abroad: each bank makes a basket of presumptive income per jurisdiction of residence of its customers (as it does for the US *QI* legislation) and applies to of each basket income the withholding tax set by the corresponding residence jurisdiction (again as it does for *QI*).

Then, equation (39) applies to any financial product and $S_a = S_a^*$.


## 4. Conclusion

This paper first reviewed various systems for taxing international savings income, including the system suggested by the OECD tax treaties model, the series of mechanisms proposed by European Union authorities and the ways adopted by different countries, including Belgium, the Netherlands, the Nordic countries and the United States. For the US the review focussed on the qualified intermediaries mechanism through which banks around the world levy tax rates set by tax treaties between the US and the respective jurisdictions of residence of the customers of those banks, and transfer to the US the revenue generated by the tax.

Based on this review, we have proposed a system which has the following characteristics,

(1) EU jurisdictions, or at least a subset of EU jurisdictions decided to join that system, levy on EU source income paid to EU fiscal residents, a withholding tax whose rate is determined by the EU member state of residence of the investor;

(2) the withholding tax is computed on a presumptive income determined by the country of residence concerned and translated to EU currency;

(3) the withholding tax is applied by each participating bank on its liabilities to its customers who are residents of each EU country, separated into country baskets; its proceeds are then transferred to each relevant country.

Point (1) is inspired by US *QI* regarding non-US fiscal residents and seems to be acceptable to non-EU countries and institutions (on the grounds of the agreement between the EU Commission and the Swiss authorities); point (2) comes from recent Dutch reform and meets a concern about the existence of various substitutable forms of savings; finally point (3) combines the country baskets provided by the US *QI* legislation and the cross-border tax revenue transfers from the source to the residence jurisdictions provided for by both the EU and the US rules.

We then examined this system and its premises, adapting the modelling approach used by Huizinga and Nielsen (2003) and Keen and Lighthart (2003). Although this form of modelling does not allow us to investigate the impact of giving up individualised taxation of capital income (i.e. of moving from *HS-ITS* to *DIT-ITS*), or of introducing a presumptive rate of return as in the Netherlands, it does enable us to prove that the system (1) is equivalent to cooperative full exchange of information (Proposition 1), (2) represents a Pareto improvement for large jurisdictions and also for small ones, provided that they are not too small (in which case a feasible side payment can be requested from the large jurisdictions) (Proposition 2), and (3) is sustainable in the long run in the framework of a repeated game, provided that the large jurisdictions are ready to compensate the too small ones for adopting a non cheating attitude through a feasible side payment, if necessary (Proposition 3). This last proposition is especially important since the tax scene is a repeated game.

Future research should address the impact of giving up individualised taxation of capital income, thus moving from *HS-ITS* to *DIT-ITS*, and the use of a presumptive rate of return on assets rather than a distinct income for each type of asset.

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