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Taxation of virtual currency

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4 | Income tax: general considerations

4.1 INTRODUCTORY REMARKS

Chapters Four to Six are concerned with income tax aspects of virtual currency. Chapter Four describes a model system for taxing income from virtual trade. Chapter Five examines how income from virtual trade is actually taxed in some selected countries. Based on the comparison of the existing scenario with the model one, recommendations are made in Chapter Six. The structure of the income tax chapters, as well as their parallelism to the indirect tax chapters, is shown in Table 2 (which reproduces Table 1 from section 1.3.).

Table 2: Thesis structure

	Income tax	Indirect tax
Model scenario	Chapter 4 - Answers the question: how income from virtual trade should be taxed - Describes the model income tax system that meets the criteria of equity, neutrality, certainty and administrative feasibility - Is independent of country-specific characteristics	Chapter 7 - Answers the question: how transactions involving virtual currencies and items should be taxed - Describes the model indirect tax system that meets the criteria of equity, neutrality, certainty and administrative feasibility - Is independent of country-specific characteristics

	Income tax	Indirect tax
Actual scenario	Chapter 5 - Answers the question: how income from virtual trade is actually taxed under the existing tax legislation - Describes the income tax systems of the United States, United Kingdom, Germany and the Netherlands - Each country-specific chapter is organized according to the income categories (e.g. business income, miscellaneous income, capital gains) - Does not provide recommendations or suggestions for improvement	Chapter 8 - Answers the question: how transactions involving virtual currencies and items are actually taxed under the existing tax legislation - Describes the indirect tax systems of the European Union and the United States - Each country-specific chapter is organized according to the structural elements of the indirect tax system (e.g. personal scope, taxable transactions, exemptions) - Does not provide recommendations or suggestions for improvement
Comparison	Chapter 6 - Answers the question: how the actual scenario can be aligned with the model scenario - Compares the actual scenario with the model one and makes recommendations for improvement of the existing tax systems	Chapter 9 - Answers the question: how the actual scenario can be aligned with the model scenario - Compares the actual scenario with the model one and makes recommendations for improvement of the existing tax systems

Chapter Four describes a model system for taxing income from virtual trade. This description consists of two steps. First, the chapter looks how the concept of income has developed over years in an attempt to identify the most comprehensive income definition – a definition independent from any country specific characteristics and limitations. The concept of income is of critical importance in the debate over how the rules of income taxation should be designed and applied. Although this term is frequently used in society, it means different things to different people. Most people regard gross income as receipts earned from labour or as a return from investments. Some economists claim that true income equates to psychological experiences or to utility. Others take a more pragmatic view by confining income to money. Section 4.2 seeks to find the most comprehensive (not necessarily workable or practical) income definition that can be used as a starting point for further considerations. For this purpose,

it reviews the theories that shaped the development of the income concept: subjective and objective interpretations, the Schanz-Haig-Simons model and the accounting definitions.

The second step is to take the most comprehensive income definition and narrow it down to a workable income concept. Potential limitations may be imposed solely on the basis of solid arguments resulting from the acknowledged taxation principles and the goals of taxation. According to Ronald Dworkin, a principle is a “standard that is to be observed not because it will advance or secure an economic, political or social situation deemed desirable, but because it is a requirement of justice or fairness or some other dimension of morality”.²³⁹ Principles are the normative basis for the creation of legal rules and function as the essential criteria of evaluation for lawmaking. They are a way of classifying policy considerations that are taken into account while making decisions about tax law. The Court of Justice of the European Union (ECJ) and many national courts frequently refer to the general principles of law as a support for the interpretations they give. However, it should be noted that, although principles may provide supporting arguments, they do not offer a certain and technically correct solution to a legal problem. Making decisions about taxation involves a trade-off among the relevant criteria and, therefore, political or value judgments.

Although there are considerable variations in the income tax rules from country to country, the underlying taxation principles are common to all jurisdictions. The main four axioms upon which a tax system ought to be based were set out by Adam Smith in *The Wealth of Nations*.²⁴⁰ They are: equity, certainty, convenience and efficiency. Although these canons were developed in 1776, they still influence tax policy today.²⁴¹ As virtual trade takes place in the “borderless world”, the general principles of taxation laid down by the OECD in the Ottawa Report (1998) are also used as a benchmark. Those principles are: neutrality, efficiency, certainty, simplicity, effectiveness, fairness and flexibility.²⁴² Accommodation to practical considerations should not be viewed as a “retreat” from the comprehensive income concept, but rather as a “shift” to its practically applicable version.

In short, the evaluation model moves “from theory to practice”: it begins by finding the most comprehensive and universally accepted income concept. However, as such concept may not work well in practice, the general principles of taxation are used to modify it in order to make it capable of practical application.

239 R. Dworkin, *Taking Rights Seriously*, ch. 2 (Harvard University Press 1978).

240 A. Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Book V, Chapter II (1776).

241 G.K. Morse & D. Williams, *Principles of Tax Law*, p. 5, 6th ed. (Sweet & Maxwell 2008).

242 OECD, *A Borderless World: Realizing the Potential of Global Electronic Commerce* (1998).

There are three main types of activities involving virtual currencies that may be relevant for income tax purposes:

- creation of virtual currency (through mining or completion of quests);
- possession of virtual currency that appreciates in value; and
- exchanges (*see* Table 3)

Exchanges may give rise to two types of income: real income (when virtual currencies and items are sold for money in the legal sense)²⁴³ and virtual income (when goods and services are exchanged for virtual money).²⁴⁴ The tax treatment of income expressed in virtual currency is more problematic. Although virtual currencies are designed to perform the same functions as traditional currencies, they cannot be regarded as money in the legal sense, but they are properly characterized as assets.²⁴⁵ Table 1 illustrates different types of exchanges involving virtual currency and items.

Table 3: Exchanges involving virtual currency and items

		<i>Consideration</i>	
		<i>Real money (i.e. money in the legal sense)</i>	<i>Virtual currency (asset)</i>
<i>Transaction object</i>	<i>Real goods or services</i>	Traditional sales transactions	Barter transactions (for example, a shop accepting payments in bitcoins)
	<i>Virtual items and currencies</i>	Traditional sales transactions (for example, sale of bitcoins for USD)	Barter transactions (for example, a Second Life shop accepting payments in Linden Dollars)

4.2 DEFINITION OF INCOME

4.2.1 Subjective interpretations

In the early 20th century, neoclassical economics focused on the concept of utility. According to their assumptions, individuals maximized a utility func-

²⁴³ In the context of virtual worlds, the sale of game objects for traditional currency is called “real money trade” and described in section 3.2.4.3. *Real Money Trade (RMT)*.

²⁴⁴ In the context of virtual worlds, the sale of game objects for in-world virtual currency is called “in-world trade” and described in section 3.2.4.2. *In-World Transactions (IWT)*.

²⁴⁵ See section 3.7. *Characterization as securities or assets*.

tion, the components of which were commodities (goods and services consumed now and in the future) and leisure. Income was defined as a measure of the economic utility experienced by an individual.²⁴⁶

In 1909, Richard Ely observed that income “has reference to the satisfaction which we derive from the use of material things or personal services during a period of time.”²⁴⁷ Frank William Taussing (1947) noted that “all income consists in the utilities or satisfactions created. Economic goods are not ends in themselves but means to the end of satisfying wants. Our food, clothing, furniture, may be said to yield psychic income. They shed utilities, so to speak, as long as they last.”²⁴⁸ Before Haig discarded the subjective concept as one not useful in practice, he wrote that “fundamentally income is a flow of satisfactions, of intangible psychological experiences.”²⁴⁹

The concept of psychic income was substantially developed by Irving Fisher. His basic proposition was that “the income of an individual is the total flow of services yielded to him from his property.”²⁵⁰ Fisher reached this conclusion by recognizing that monetary income is merely the means by which people acquire goods they need. But these goods are beneficial to consumers only for the services they supply. Fisher regarded the goods as “capital” and the services they provide as an individual’s income.

4.2.2 Objective interpretations

During the late 19th and early 20th century, economists and legal scholars developed various tests to determine whether a particular receipt constituted income. Emphasis was put on certain objective features, such as inflow, convertibility into cash, periodicity, origin from business transactions, realization, purpose and intention of the parties to transactions.²⁵¹

The source theory (*Quellentheorie*) was developed by Bernhard Fuisting and implemented as early as in the Prussian Income Tax Act of 1891.²⁵² According to this concept, a receipt constitutes income if it is periodic and comes from a permanent source.²⁵³ Franz Guth described income as “any

246 For a more detailed description of the subjective income concept, see V. Thuronyi, *The Concept of Income*, 46 Tax Law Review, p. 52 (1990).

247 R.T. Ely, *Outlines of Economics*, p. 98 (Macmillan 1909).

248 F.W. Taussing, *Principles of Economics*, p. 119 (Macmillan 1947).

249 R. Haig, *The Concept of Income – Economic and Legal Aspects*, in: R. Haig (ed.), *The Federal Income Tax*, p. 2 (Columbia University Press 1921).

250 I. Fischer, *The Nature of Capital and Income*, p. 101 (Macmillan 1912).

251 For a more detailed description of the objective interpretations of the income concept, see K. Holmes, *The Concept of Income*, ch. 3 (IBFD 2001).

252 E. Ratschow, *Blümich: Einkommensteuergesetz: Loseblatt-Kommentar*, sec. 2 mn 26 (C.H. Beck Verlag 2009).

253 A detailed description of the preservation of source doctrine can be found in P.H. Wueller, *Concepts of Taxable Income – The German Contribution*, 53 Political Science Quarterly 1 (1938).

increase in economic ability, which flows with a certain regularity from a given source. The recipient may enjoy income, consume it, or destroy it without impairing his 'stock' ...". For Thomas Malthus, income was "portion of stock of wealth which the possessor may annually consume without injury to his permanent resources". While the expression "source" is by no means perfectly clear, it is usually linked to the traditional categories in the functional distribution theory, i.e. land, capital, labour and entrepreneurship. The source theory derives from the "harvest tradition" in agricultural societies, where land produces its fruit at regular intervals. In this concept, capital gains and increases in asset value should not be subject to income tax: not the value of the capital but its yield, not the appreciation of the tree but the value of the fruit is the proper object of taxation.

A modification of the source doctrine was the clear surplus theory, according to which income arises only when an individual's capital stock is maintained after he has acquired the necessities of life for his customary standard of living.²⁵⁴ This theory extended the source test by requiring that account should be taken of personal expenditure to maintain the necessities of life associated with an individual's social position.

Another test specified that income must arise from an economic activity undertaken by its recipient. The productivity/market participation criterion was first introduced into the German literature by Heinrich Ludwig Biersack in 1850.²⁵⁵ Others also applied it to distinguish income from other receipts. According to Wilhelm Roscher, "the term receipts covers all 'comings-in', such as gifts, lottery winnings, windfall gains, and inheritances. Income, however, includes only such receipts as accrue in consequence of the recipient's economic activities".²⁵⁶

Some scholars and jurisprudence included a periodicity requirement in their notion of income.²⁵⁷ Only flows from recurrent events could give rise to income but not gains arising from isolated transactions. The periodicity criterion became one of the significant features of the income identification in early English common law.

Early in the development of the income concept, some courts required that incomings in forms other than cash must be convertible into cash to constitute taxable income. In *Tennant v. Smith* (1892), the court held that the value of accommodation provided by an employer to his employee is not income as the latter was obliged to use it for his own benefit and could not sublet it.²⁵⁸

²⁵⁴ See Homles, *supra* n. 251, at ch. 3.

²⁵⁵ H.L. Biersack, *Ueber Besteuerung, ihre Grundsätze und ihre Ausführung* (1850), translated in Wueller, *supra* n. 253.

²⁵⁶ W. Roscher, *Die Grundalgen der Nationalökonomie* (1869), translated in Wueller, *supra* n. 253.

²⁵⁷ See Homles, *supra* n. 251, at ch. 3.

²⁵⁸ *Tennant v. Smith* (1892) AC 150.

If a possibility of subletting existed, income tax could be assessed on a positive rental value.

Another requirement included by courts in the income concept was realization. A gain must be realized before it can be treated as income in the legal sense. A mere increase in the value of property is not income when it is not the business of the taxpayer to deal in such property. Realization is not synonymous with conversion into cash since it does not require the asset be converted to money by way of sale. The receipt of property having an exchangeable value in consideration for the asset is realization.²⁵⁹

4.2.3 Schanz-Haig-Simons model

During the late 19th century, a wealth accrual concept of income was developed. Georg von Schanz first described income in terms of wealth accrual in Germany in 1896. In his view:

‘the concept of income is related to the economic ability of persons. When we wish to determine an individual’s income, we must ask what economic power has accrued to a given person over a given period of time. In other words, we wish to know what means came within the disposing power of a given person, who, during the period in question, neither impaired his capital nor incurred personal debts.’²⁶⁰

According to Schanz, an influx of wealth could also arise from the consumption of owner-occupied house and the use of a benefit in kind donated by another person. However, to constitute income, increases in economic power and benefits from using one’s own resources had to be capable of monetary valuation.

Twenty-five years later, in the United States, Robert Haig wrote the second major dissertation on this topic.²⁶¹ Haig interpreted income as “the money value of the net accretion to one’s economic power between two points of time”. The elements that enhance one’s economic power included: cash, any goods or services obtained in kind (also those obtained by way of gift), any unrealized increases in the value of assets held during the period and the value of benefits obtained from non-market events. According to Haig’s interpretation, an increase in an individual’s economic power over a period is an increase in his capacity to command more resources. Therefore, when wealth accrual is adopted as the tax base, taxation is imposed on a person’s capacity to do something in the future. Tax is not imposed on the exercise of that ability.

259 *Peabody v. Eisner* 247 US 347 (1918).

260 G. von Schanz, *Der Einkommensbegriff und die Einkommensgesetze*, Finanz-Archiv (1896) translated in Wueller, *supra* n. 253.

261 Haig, *supra* n. 249.

Haig stressed that a benefit must be susceptible of valuation in terms of money to constitute income.

Henry Simons developed a similar concept of income, also based on increases in a person's economic power derived in monetary or non-monetary form.²⁶² However, he took a step further by combining wealth accrual and consumption. Haig's definition did not deal explicitly with consumption as consumption arose after the economic power had been obtained: it was sufficient to determine when the power was accrued without examining how it was subsequently applied. Simons measured income at a later stage and broke down Haig's accrual of economic power into two ways it could be applied: consumption expenditure and savings. Under Simons's model, one had to wait to see how Haig's *a priori* economic power was actually applied by an individual before his income could be identified. Simons also considered imputed income to be included in the income concept, provided that it was susceptible of valuation in monetary terms. Property rights formed a central element of Simons's concept. He defined income as the market value of rights exercised in consumption and an increase in the value of a person's store of property rights. Whether a benefit had a market value greater than zero depended on whether the underlying rights were transferable. If not, it had no market value.

The approach described in this section has become the foundation measure of income in the 20th century economics. It is commonly known as the Haig-Simons concept of income. In recognition of Schanz's initial contribution, it is termed here the Schanz-Haig-Simons model.

4.2.4 Accounting definition

This section looks at income definitions provided by two major sets of accounting rules: International Financial Reporting Standards (IFRS) and US Generally Accepted Accounting Principles (GAAP).

The IFRS Framework provides the basic accounting concepts that underlie the preparation and presentation of financial statements. It defines income as "increases in economic benefits during the accounting period in the form of inflows or enhancements of assets or decreases of liabilities that result in increases in equity, other than those relating to contributions from equity participants."²⁶³ This definition encompasses both revenue and gains. Revenue is the gross inflow of economic benefits arising in the course of the ordinary activities of an entity and is referred to by a variety of different names including sales, fees, interest, dividends, royalties and rent.²⁶⁴ Gains represent

262 H. Simons, *Personal Income Taxation – The Definition of Income as a Problem of Fiscal Policy* (University of Chicago Press 1983).

263 IFRS Framework 4.25(a).

264 IFRS Framework 4.29.

other items that meet the definition of income and that may, or may not, arise in the course of the ordinary activities of an entity.²⁶⁵ The IFRS definition of income also includes unrealized gains; for example, those arising on the revaluation of marketable securities and those resulting from increases in the carrying amount of long term assets. Income is recognized in the income statement when an increase in future economic benefits related to an increase in an asset or a decrease of a liability has arisen that can be measured reliably.²⁶⁶

Financial Accounting Standards Board (FASB) Concepts Statement No. 6 also distinguishes between revenue and gains. Revenues are inflows or other enhancements of assets of an entity or settlements of its liabilities (or a combination of both) from delivering or producing goods, rendering services, or other activities that constitute the entity's ongoing major or central operations.²⁶⁷ Gains are increases in equity (net assets) from peripheral or incidental transactions of an entity and from all other transactions, other events and circumstances affecting the entity, except those that result from revenues or investments by owners.²⁶⁸ Both revenues and gains form part of comprehensive income which is "the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. It includes all changes in equity during a period except those resulting from investments by owners and distributions to owners."²⁶⁹ Revenues and gains are recognized when they are realized or realizable, and earned. Being realized means that products (goods or services) or other assets are exchanged for cash or claims to cash. Revenues and gains are realizable when related assets received or held are readily convertible to known amounts of cash or claims to cash. Revenues are considered to have been earned when the entity has substantially accomplished what it must do to be entitled to the benefits represented by them.²⁷⁰

4.2.5 Interim conclusions

This section has reviewed the subjective and objective interpretations of the income concept, the wealth accrual model and the income definition for accounting purposes.

The main flaw of the subjective interpretations is that the concepts of utility and well-being have meaning only in the abstraction of economic theory and

²⁶⁵ IFRS Framework 4.30.

²⁶⁶ IFRS Framework 4.47.

²⁶⁷ FASB CON 6 No. 78.

²⁶⁸ FASB CON 6 No. 82.

²⁶⁹ FASB CON 6 No. 70.

²⁷⁰ FASB CON 5 No. 83.

can be applied neither to the determination of tax liability nor to tax collection. It is not possible to measure the levels of individual utility and compare them. Even if it was possible to create a measure for some aspects of well-being, well-being alone does not furnish an additional capacity to pay tax. To quantify the “flow of satisfactions”, economists often turned to consumption of goods and services and used their values to determine the subjective income. However, individual utility means not only consumption expenditure but also savings. Due to the difficulty in income determination, the notion of psychic income was rejected by many scholars. Simons asserted that “income must be conceived as something quantitative and objective. It must be measurable. Moreover, the arbitrary distinctions implicit in one’s definition must be reduced to a minimum.”²⁷¹ Similarly, Haig considered that psychic income is an “entirely impractical basis” for an income tax. He argued that goods and services are only of economic significance if they can be subjected to evaluation in monetary terms.²⁷²

The objective criteria made the definition of income narrower because there were more hurdles that a given benefit had to pass before it could be classified as income. As a result, many benefits which increased an individual ability to pay were not captured. For example, the requirement that income arises only from productive economic activity ignores the fact that individuals who receive the same amount of money from productive activities and other sources are in equal positions as regards their spending power. Similarly, the periodicity test fails to satisfy the tax policy objective of imposing tax equitably in accordance with a person’s ability to pay. Another problem arises with regard to the expectation of recurrence. Although a payment may not be expected to recur, what if unforeseen events mean that it in fact does occur again? Should the initial payment be retroactively treated as income in such circumstances?²⁷³

The definition of income for accounting purposes is a broad concept that also includes enhancements of assets in the form of unrealized revaluations, provided that such increases can be measured reliably and have a sufficient degree of certainty. However, the accounting concepts are designed for companies and not for individuals. Their purpose is to provide an accurate analysis of the profitability of an entity to its stakeholders. Individual income tax, in contrast, is concerned with the measurement of the net economic gain of a taxpayer for the purpose of collecting a portion of the gain as tax. It is related to the person’s actual ability to pay at a certain time and not to his ongoing performance. Due to their different purposes, the concepts used in accounting are not considered further.

271 Simons, *supra* n. 262, at p. 42.

272 Haig, *supra* n. 249, at p. 6.

273 Holmes, *supra* n. 251, at ch. 3.

As the Schanz-Haig-Simons concept was developed by economists, its use for tax law purposes might seem questionable. The terms “consumption” and “wealth” are vague and open-ended. No criteria have been provided for resolving the ambiguity and this leaves room for various interpretations and is difficult to reconcile with Simons’s statement that “the arbitrary distinctions implicit in one’s definition must be reduced to a minimum.”²⁷⁴ Although an income concept is incomplete without specifying the taxable unit and the taxable period, both Haig and Simons believed that the specification of those elements was not of great importance.²⁷⁵

On the other hand, the Schanz-Haig-Simons concept is the most comprehensive model to determine a person’s income. It postulates that income is represented by an increase in wealth and consumption expenditure over a certain period. As an accrual concept, it does not make income dependent on realization. Income arises once the taxpayer is either entitled to receive value or has consumed goods or services. Such an approach prevents the taxpayer from manipulating the time of income recognition. The Schanz-Haig-Simons model embraces all benefits in kind without requiring them to be convertible into cash. As it is based on gain rather than flow, it makes periodicity irrelevant to the income determination. Equal taxation of all accessions to wealth, regardless of their source, leads to investment neutrality (investment are not distorted beyond the distortion inherent in any income tax) and ensures equal treatment of taxpayers in equal positions (income from certain activities is not privileged). Therefore, a tax system based on the Schanz-Haig-Simons model as closely as possible promotes economic efficiency.²⁷⁶ In theoretical writings, there is a general consensus that the Schanz-Haig-Simons model provides adequate income tax criteria.²⁷⁷ However, no country has succeeded, or even dared, to fully implement it so far. The reasons for the wide gap between theory and practice are more technical than conceptual. Increases in asset value could be assessed only if each taxpayer were to keep a balance sheet showing his properties. However, obliging individuals to maintain accounting records seems utterly unenforceable and politically unacceptable.²⁷⁸

As the most comprehensive concept, the Schanz-Haig-Simons model is used as a starting point for the examination whether trade in virtual currencies and items may give rise to taxable income. According to this model, receipts from trade in virtual currencies can be regarded as income if they have value (see section 4.2.5.1) which improves the economic position of a taxpayer (see section 4.2.5.2).

²⁷⁴ Simons, *supra* n. 262, at p. 42.

²⁷⁵ Thuronyi, *The Concept of Income*, *supra* n. 246, at p. 47.

²⁷⁶ *Id.*, at p. 93.

²⁷⁷ Thuronyi, *The Concept of Income*, *supra* n. 246.

²⁷⁸ S. Plasschaert, *The Definition of Gross Taxable Income in Schedular or Global Income Taxes*, 31 Bull. Intl. Fisc. Doc. 12, p. 539 (1977).

4.2.5.1 Value

First, it is necessary to establish whether virtual objects and currency represent value for their “owners”. As the concept of value exist in many scientific disciplines (philosophy, social sciences, economy), its meaning depends on the context it is used in. This thesis focuses exclusively on economic value as the concept of income is originally an economic concept. However, even in economics, it is disputed what value is and how it can be created. There is a long-standing debate whether value is a quantitative or a qualitative concept, or a mere rate of exchange between two goods.²⁷⁹ This thesis does not aim to provide an in-depth analysis of the merits of each approach. Instead, it observes that they are all centred around the concept of exchange. If value is described as quality, it is measured by the test of exchange (for example, speed may be considered as a personal quality of a runner, but the ability to run a certain distance within a certain time is used to measure it, i.e. a relation between kilometers and seconds). If value is described as quantity, this quantitative measure is the result of previous exchanges or of the state of mind of people that has grown out of settled habits of exchange.

Bowman and Ambrosini (2000) differentiate two types of value: use value and exchange value.²⁸⁰ Use value refers to the specific quality of goods and services as perceived by users in relation to their needs. Such judgments are subjective and individual specific. Exchange value is defined as the monetary amount realized at a certain point of time when the exchange of the product takes place or the product is used. Viewed together, these definitions suggest that value translates into the user’s willingness to exchange a monetary amount for the value received. This willingness depends on the user’s subjective evaluation of the novelty and appropriateness of the item. The greater the perceived novelty and appropriateness, the greater the potential use and exchange value to the user who understands the meaning of the item in a specific context and knows what alternatives exist at a given time.

Although virtual currencies and items are assets that amount to nothing more than a computer code existing in the computer network, people are willing to pay traditional currency for their purchase. The concept of value does not require the value be easily measurable or remain stable over a particular period. It is sufficient that people who are familiar with virtual trade are willing to spend money on virtual items and currencies. Nevertheless, it should be clear that the value of the community-related currency depends on the popularity of the virtual world it belongs to. Once the virtual world closes down, its currency becomes worthless and does not have any value as no one is willing to offer valuable resources in exchange for it.

²⁷⁹ J.M. Clark, *The Concept of Value*, The Quarterly Journal of Economics, pp. 663-673 (1915).

²⁸⁰ C. Bowman & V. Ambrosini, *Value Creation versus Value Capture: Towards a Coherent Definition of Value in Strategy*, 11 British Journal of Management, pp. 1-15 (2000).

4.2.5.2 Enhancement of economic position

Second, it is necessary to examine whether the possession of virtual currency improves the economic position of its “owner”. Universal virtual currency (bitcoins) enhances the spending power of an individual. He “owns” the coins as he is the only person that can use them (through the possession of the private key). Virtual coins accumulated in his wallet can be spent for a limited number of goods and services or they can be exchanged for traditional money that can be spent for unlimited purposes.

Community-related currency can be spent for purchases within the virtual environment or exchanged for real money. On the one hand, the right to use such currency is subject to many contractual limitations (for example, ban on real money trade or requirement to pay subscription fee) that significantly restrict the user’s freedom to dispose of the currency as he deems fit. On the other hand, virtual world participants have horizontal rights versus other participants. The fact that a player “owns” virtual currency means that other users cannot use it without his permission. The “owner” is able to control his virtual resources and to decide about their application within the limits set by the world operator. His legal entitlement in the form of use rights is enforceable against other users. When virtual currency is acquired by a player, his ability to command virtual resources increases and can be subsequently exercised. Enhancement of economic power is an economic concept and should not be determined only on the basis of legal rules. Although contractual provisions can influence the economic position of an individual, the actual possibility to exchange virtual currency for monetary amounts should be equally taken into account.

Therefore, in general, the receipt of virtual currency may enhance the economic position of an individual and be classified as income under the Schanz-Haig-Simons concept, provided that the currency in question can be exchanged for other valuable resources (which are, in the majority of cases, traditional money).

4.3 PRINCIPLES OF INCOME TAXATION

In the second step, the evaluation model investigates how the application of the general principles of taxation can make the Schanz-Haig-Simons income concept more practicable. Departures from this income concept may be necessary because, based on other policy constraints, it may not be desirable to tax income in its most comprehensive form. This section examines how the application of the principles of equity, certainty, flexibility, administrative feasibility (which includes effectiveness, efficiency and simplicity) and neutrality can make the most comprehensive income concept more practicable.

4.3.1 Equity

Widespread consensus exists that the fundamental principle of personal income tax is the ability-to-pay (equity) principle,²⁸¹ which requires the establishment of a fair relationship between the resources available to the taxpayer and the amount of tax paid by him. It dates back to Adam Smith's canon of equality of taxation:

‘the subjects of every state ought to contribute towards the support of the government as nearly as possible in proportion to their respective abilities; that is in proportion to the revenue, which they respectively enjoy under the protection of the state.’²⁸²

There are two dimensions to the notion of equity: vertical and horizontal. Horizontal equity means equal treatment of individuals considered to be in equal positions, which should result in people with similar tax capacity facing similar tax liabilities. Arbitrary deviations from equal treatment create dissatisfaction among taxpayers who are subject to discrimination and result in pressures for the enactment of additional special benefits that legislators find it difficult to resist. Horizontal equity can be achieved by widening the tax base to ensure that all gains and benefits are included in it and by equating the tax treatment of income from different sources. It is breached if a tax system exempts certain categories of income to achieve other social or economic aims. The difficult thing about horizontal equity is to determine which factors are taken into account (and which factors are excluded) in ascertaining the relative positions (or tax bases) of individuals. Deciding which characteristics are caught and which are omitted depends on policymakers' ideas of fairness and on what society considers to be equitable.²⁸³

Vertical equity means that people in different circumstances should pay an appropriately different amount of tax since it is fair for a heavier tax burden to fall on people who are better able to bear it. It presupposes progressive income tax rates (or at least higher nominal taxes for high-income earners than for individuals with low income) and permits discrimination between taxpayers in order to facilitate wealth redistribution between the rich and the poor.²⁸⁴

The main question that arises in the context of equity is to determine when taxpayers can be considered to be in a similar position. Under the Schanz-Haig-

281 In some countries, the ability-to-pay principle is a constitutional requirement. For example, in the view of the German Constitutional Court (*Bundesverfassungsgericht*), the principle of tax justice (which requires the imposition of tax burdens in proportion to the taxpayers' abilities) can be derived from the equality principle (article 3 of the German Constitution).

282 Smith, *supra* n. 240, at ch. 2.

283 R.A. Musgrave, *In Defense of an Income Concept*, 81 *Harvard Law Rev.*, p. 45, (1967).

284 J. Kirkbridge & A.A. Olowofoyeku, *Revenue Law, Principles and Practice*, p. 11 (Tudor Business Publishing 1992).

Simons concept, the value of an individual's consumption and changes in the net value of his assets need to be compared to decide whether taxpayers are similarly situated. Neither the form (cash or benefits in kind) nor the source of income is relevant. Income is also deemed to exist if assets appreciate in value. If a taxpayer has no money inflow but only unrealized increases in non-cash assets (for example, plots of unrented vacant land), he obtains a greater share of economic resources. If these assets are converted to cash at that increased value, greater consumption rights fall upon the owner. Thus, under the Schanz-Haig-Simons concept, unrealized gains should be subject to taxation, whereas the application of the realization doctrine would constitute an unfair deviation from the income concept.

Many scholars agree with the proposition of the Schanz-Haig-Simons concept that realization is an unnecessary and undesirable concept of income tax law.²⁸⁵ In their view, income should be deemed to be generated when an economic benefit is derived, which is the time when an asset increases in value, and not when realization occurs. The ability to defer tax on asset appreciation confers a benefit on the taxpayer due to the time-value of money. Consequently, taxpayers with income in the form of appreciated assets bear a lower tax burden than taxpayers with an identical amount of income from other sources. The deferral creates an incentive to invest in property generating returns in the form of capital appreciation, thereby distorting investment decisions and affecting economic efficiency. The realization requirement is also said to violate vertical equity since the benefits of the deferral accrue mainly to wealthy taxpayers who tend to own greater amounts of capital. A market-to-market system in which every taxpayer would have to report as income an annual increase in the value of his assets would eliminate the above mentioned problems. In the case of virtual currency, if the realization principle is disregarded, taxes should be levied not only on profits from exchange transactions but also on the creation and possession of virtual currency that appreciates in value. In contrast, the application of the realization principle would only prevent taxing the possession of virtual currency and items that increase in value, but it would not exclude from taxation virtual income from barter transactions.

However, in my view, the decision whether taxpayers are similarly situated has to take into account the form and source of their income. It makes a substantive difference for taxpayers not only whether their gain is realized or not but also whether an increase in wealth is accompanied by a receipt of

285 J. Kwall, *When Should Asset Appreciation Be Taxed?: The Case for a Disposition Standard of Realization*, 86 *Indiana Law Journal* 77 (2011); D. Elkins, *The Myth of Realization: Market-to-Market Taxation of Publicly-Traded Securities*, 10 *Florida Tax Review* 5 (2010); Thuronyi, *The Concept of Income*, *supra* n. 246, p. 58.

liquid assets.²⁸⁶ Taxpayers having cash can easily settle their tax liability, whereas taxpayers without liquid resources have to monetize their assets or borrow the necessary funds, and such transactions are far from costless, either psychologically or financially. Taxpayers selling their assets incur transaction costs. The imposition of tax on unrealized appreciation may dissuade taxpayers from investing in assets which cannot be easily converted into cash. This fear could prevent economic resources from being directed to their most efficient uses.²⁸⁷ Moreover, taxpayers may develop a sentimental attachment to their assets (for example, to avatars or certain virtual items), so that for the person concerned the asset has added value beyond the objective economic value. A sale of such property could involve significant psychological costs.²⁸⁸ Forcing taxpayers to mortgage their assets is also problematic. Property that is not easily marketed is not easily borrowed against. When the property is speculative, leveraging the investment increases the level of risk of holding the asset. Taxpayers may not be willing to incur additional risk and they may be reluctant to invest in speculative assets, knowing that the tax system may force them to increase the level of risk in the future.²⁸⁹

At the first sight, the liquidity problem resulting from the possession of virtual currency seems to be easy to solve. Virtual currency can be sold on various websites offering exchange services. Liquidation of bitcoins requires no more than a click on a computer screen. The costs involved are minimal. A sentimental attachment of a person to his bitcoins is hardly possible and, if it exists, it does not reach a level that warrants consideration by the tax system.

However, the possibility to sell virtual currency depends on whether other people want to buy it: if no one wanted to buy virtual currency (for example, due to negative publicity or a market crash), taxpayers could not obtain traditional currency to meet their tax liabilities. Given the extreme price fluctuations of Bitcoin, taxpayers who sell their “coins” due to temporary cash-flow problems could not be sure that they can repurchase bitcoins when the cash-flow problem is resolved. Selling certain community-related currencies (for example, *World of Warcraft* virtual gold) is a risky venture. The seller breaks the rules of the game and this could lead to the termination of his virtual account and loss of his virtual identity.

286 S. Pareja, *Taxation without Liquidation: Rethinking “Ability to Pay”*, Wisconsin Law Review, p. 841 (2008). Pareja observes that although the common view is that the ability to pay does not consider liquidity, liquidity is a significant issue in the tax context. He suggests dividing assets transferred by gift or bequest into two classes: liquid assets and illiquid assets. With respect to the latter, the recipient should be able to avoid immediate income inclusion.

287 Elkins, *supra* n. 285, at p. 381.

288 *Id.*, at p. 380.

289 *Id.*, at p. 379.

The need to take into account liquidity concerns could also be deduced from Adam Smith's canon of convenience:²⁹⁰

'every tax ought to be levied at the time, or in the manner, in which it is most likely to be convenient for the contributor to pay it. A tax upon the rent of land or of houses, payable at the same term at which such rents are usually paid, is levied at the time when it is most likely to be convenient for the contributor to pay; or, when he is most likely to have wherewithal to pay. Taxes upon such consumable goods as are articles of luxury are all finally paid by the consumer, and generally in a manner that is very convenient for him. He pays them by little and little, as he has occasion to buy the goods. As he is at liberty, too, either to buy, or not to buy, as he pleases, it must be his own fault if he ever suffers any considerable inconvenience from such taxes.'

The most convenient moment to settle a tax liability is when the taxpayer has liquid resources.

Since changes in the value of virtual currency are unpredictable, virtual income is a weak indicator of a person's ability to pay. Consider the following example: a person who sells goods (value: EUR 100) for 2 bitcoins (EUR 200) and makes a profit of 1 bitcoin (EUR 100) has to pay tax on EUR 100. The profit of EUR 100 exists only in a virtual form (i.e. the person has not exchanged any bitcoins into traditional currency). Assuming a tax rate of 30%, the tax liability amounts to EUR 30. At the time of the tax payment, the value of bitcoin drops to EUR 10. If the taxpayer exchanges his 2 bitcoins to have the necessary liquidity to settle his tax liability, he will obtain only EUR 20. The transaction results in an overall loss of EUR 80 (i.e. the value of goods minus the sales revenue expressed in the traditional currency),²⁹¹ but the taxpayer is required to pay tax of EUR 30. This outcome contradicts the ability-to-pay principle.²⁹²

Since taxes cannot be paid in the form of any intangible units, differentiating between activities that produce money and those that do not appropriately reflects the limitations inherent in the tax system. Taxpayers who have cash are not faced with problems similar to those that taxpayers having virtual income are confronted with (lack of liquidity), so those two groups of taxpayers cannot be regarded to be in a comparable situation. As the principle of equity

²⁹⁰ Smith, *supra* n. 240, at ch. 2.

²⁹¹ Given the (still) limited acceptance of Bitcoin among traders, the receipt of this digital currency cannot be considered a "final" stage of transactions. Entrepreneurs accepting bitcoins do so in order to exchange them into traditional currency. In the view of the Danish Tax Administration (*see supra* n. 45), there is no business reason to use the Bitcoin system and its application is a superfluous and unnecessary step in the execution of monetary transactions since all invoices must be issued in the traditional currency.

²⁹² One possible solution would be to pay the tax due and carry forward of the loss from the exchange transaction. However, if the value of Bitcoin subsequently rises, the loss carry forward would have to be adjusted. Frequent adjustments would unnecessarily complicate the calculation of taxable income.

requires that only similarity situated taxpayers are treated alike, it does not preclude a different treatment of virtual and real income.

4.3.2 Certainty and flexibility

The source of the principle of certainty is the Latin expression “*nullum tributum sine lege*”, which, in the context of taxation, expresses the requirement that in the assessment and enforcement of taxes, governments must act on the basis of enacted laws rather than rulings related to individual cases. In many countries, the principle of certainty is backed up by the constitution. Taxpayers must be able to predict the consequences of their actions. A retroactive application of law is not acceptable, and a legal provision may not have effect until it is published and becomes known to the taxpayers. In the case of non-compliance with the principle of certainty, legal remedies must be provided in order to protect the person concerned.²⁹³

Adam Smith stated that:²⁹⁴

‘the tax which each individual is bound to pay ought to be certain, and not arbitrary. The time of payment, the manner of payment, the quantity to be paid, ought all to be clear and plain to the contributor, and to every other person

...

not near so great an evil as a very small degree of uncertainty.’

Certainty requires a tax system be clear, so that the taxpayer can understand and anticipate tax consequences of his actions.²⁹⁵ The predictability of law protects those who are subject to the law from arbitrary state interference with their lives. Legal certainty enables people to plan their future. The OECD and the European Union have emphasized the need for legal certainty through clear, transparent and predictable tax obligations.²⁹⁶ Thus, income determination cannot depend on a variety of imprecise legislative terminology subject to various interpretations. Any subjectivity inherent in the income concept must be reduced to a minimum.

Virtual currencies are surrounded by uncertainty. There are still doubts whether the Bitcoin system is a truly peer-to-peer network or whether its creators may be able to control the underlying algorithm. It is not clear either whether some groups of individuals could affect the functioning of the whole system. Virtual worlds are created by companies and exist as long as those companies maintain them. Virtual contents can be modified at any time. The

²⁹³ Westberg, *supra* n. 21, at p. 65.

²⁹⁴ Smith, *supra* n. 240, at ch. 2.

²⁹⁵ OECD, *A Borderless World: Realizing the Potential of Global Electronic Commerce*, p. 4 (1998).

²⁹⁶ Id.; European Commission, *Communication on Electronic Commerce and Indirect Taxation*, COM(1998)374 final (17 June 1998).

most powerful tool of modification that the operators reserve to themselves is the right to end the world.

This existential uncertainty shall not translate into legal uncertainty. Unsophisticated taxpayers engaged in virtual trade must be aware of any possible tax obligations resulting from those activities. They should know whether the receipt of virtual currencies has fiscal consequences. In the absence of official rules, people turn to the Internet for help. However, they may find a lot of misinformation there: blogs, wikis and other websites provide differing opinions on the tax treatment of virtual currencies, including some that could lead taxpayers to believe that transacting in virtual currencies relieves them of their responsibilities to report and pay taxes. For example, after the Danish tax authorities ruled that profits from casual bitcoin trading are not subject to tax, but taxpayers who trade in bitcoins in the ordinary course of business are subject to the general rules, one website posted the following statement:

‘Trading Bitcoins in Denmark is exempt from taxes in Denmark. “Skatterådet”, the Danish commission for taxes, decided that virtual currencies are not “real” money, so they will not charge taxes.’²⁹⁷

Even if taxpayers are aware that they may have a tax liability, they may be uncertain about the correct income characterization or the determination of the taxable profit. For these reasons, the tax authorities should provide guidance that is understandable by the general public and not only by people who specialize in tax law. The guidance should state: whether virtual currency may be part of gross income and, if so, how to calculate the tax liability. The tax authorities of some countries issued guidance on virtual currencies, but limited this guidance to the statement that the general rules apply.²⁹⁸ Such a statement is insufficient as it presupposes that individuals know precisely what those general rules are. An individual who is only familiar with tax on employment income may not know what rules apply to entrepreneurs.

In my view, the principle of certainty requires equal treatment of all virtual worlds. The question whether taxable income is generated cannot depend on the features of a virtual world or the wording of the EULA (for example, whether participants are granted property rights in virtual items or whether real money trade is allowed). Nevertheless, several authors proposed to make the tax treatment of income from virtual worlds dependent on the characteristics of the virtual currency involved.

Professor Seto (2008) divides virtual worlds into three categories, based on the characteristics of the in-world currency, and argues that it is appropriate

297 See the news report “Bitcoin taxfree in Denmark” (25 Mar. 2014) on <http://bitcoincharts.com/>.

298 For example, the Dutch Ministry of Finance, Letter of 10 April 2013, *supra* n. 41; HMRC, *Brief 09/14*, *supra* n. 44.

to apply a different tax treatment to each of these types.²⁹⁹ His first proposed category includes games, such as *Monopoly*, in which non-redeemable, non-convertible currencies or game credits exist to facilitate game play (worlds with non-redeemable, non-convertible currencies). A world built around such currency is an implausible venue for serious income production in the absence of real money trades.³⁰⁰ Therefore, in-world transactions in such worlds should not generally be treated as generating taxable Haig-Simons-Schanz consumption value or changes in net worth. For taxpayers engaged in this kind of in-world trade, the game is only a game. His second proposed category includes worlds in which in-world currency is routinely redeemed for cash by the game operator, although such currency does not need to be fully convertible, i.e. it may not be readily transferable outside the game or exchangeable for non-virtual value (worlds with redeemable currencies). In such environments, the currency does not merely facilitate play with psychological victory as the reward, but players are encouraged to think of such currency as the equivalent of cash. Chips issued by brick-and-mortar casinos appear to fall into this category. Activities in worlds with redeemable currencies should be taxed under US constructive receipt rules. The third category includes worlds like *Second Life*, which have effectively convertible in-world currencies. A world built around such currency is not just a game and amounts earned there should be treated as income.

In his article *Real Taxation of Virtual Commerce*, Steven Chung (2008) also proposes to make the tax treatment of virtual worlds dependent on the virtual currency characteristics.³⁰¹ As currencies of unstructured worlds are versatile and increasingly used in the real world, they represent cash equivalents and should be treated like foreign currency. According to Chung, a virtual world shares some characteristics with a foreign country: each has its own laws, culture and economics. If virtual currencies are treated like foreign currencies, all in-world transactions should be taxable. Any realized exchange gains and losses should be accounted for using the statutory rules of Subchapter J. As those rules apply only to businesses and not to private transactions, the IRS should issue special regulations for the latter (or exempt them). In contrast, in structured worlds with closed economies, administrators want to ensure that virtual currency is used only for its original purpose: enhancing participants' enjoyment of the virtual world. Therefore, closed-economy currencies are not as useful in the real world as their commoditized counterparts are. It is difficult to convert them into real currency since administrators regularly ban the accounts of those who engage in real money trade. For these reasons, the receipt of closed-economy currencies – whether they are found or obtained through transactions – should not be considered gross income. Even though

299 Seto, *supra* n. 24.

300 For the concept of real money trade, see section 3.2.4.3. *Real Money Trade* (RMT).

301 Chung, *supra* n. 24.

there may be real economic value in closed-economy currencies, this value is theoretical and is only realized when the currency is sold for real money.

A different approach is taken by professor Chodorow (2008), who focuses on the impact of virtual income on the taxpayer's ability to pay taxes.³⁰² He argues that taxation of virtual income should be a function of the taxpayer's ability to cash out. Income from worlds that permit participants to cash out should be taxed because the receipt of such income increases the ability to pay taxes. Income from worlds that preclude participants from cashing out should be excluded from the tax base. For this purpose, the IRS should designate worlds as either open or closed based on the ability to cash out and the considerations described above. This classification should be made on a world-by-world basis and published by the IRS as an annual list of open and closed worlds. The IRS should look primarily at the EULA regarding the permissibility of real money trade and at the extent to which developers enforce those rules.

The main concern of the above-mentioned views is that they make the tax treatment of virtual trade dependent on the wording of the EULA on a particular classification of virtual worlds. In my view, this would contradict the principle of legal certainty since the decision about tax consequences would be left to the virtual world operators. Administrators generally do not want to make their worlds taxable, so they are likely to modify the wording of the EULA in order to ensure that any in-world transactions are tax free. Or they may prohibit exchanges outside the context of the world, but do little to enforce the rules. If a court issues a decision adverse to the interests of a game developer or its users, it seems likely that the operator will revise the EULA. Since contractual arrangements can be amended any time, taxpayers could not predict the tax consequences of their actions.

Making the tax treatment of virtual income dependent on the wording of a contract would be contrary to the principle that tax law is independent from private law. Private law terms used in tax law (for example, the concept of property) should not be interpreted according to their private law meaning.³⁰³ Thus, although the wording of the EULA is important for the determination of the tax consequences of virtual trade, those consequences should mainly be based on the economic reality and substance of the transactions.

Furthermore, it is difficult to divide virtual worlds into clear-cut categories (for example, structured or unstructured). Many worlds do not fit neatly into one category or lie somewhere in the middle of the spectrum. As a result of this, they are differently classified by different people.

While legal certainty is an important principle of taxation, it should not be forgotten that virtual currency is an evolving phenomenon. It seems unlikely that tax legislation could provide legal certainty with regard to all aspects of dealings in virtual currency. New (yet unknown) currency schemes may appear

302 Chodorow, *Ability to Pay and the Taxation of Virtual Income*, *supra* n. 24.

303 See section 3.2.2. *Legal framework*.

and replace the existing ones. The principle of legal certainty must be balanced against the ability of a tax system to respond to changes in economic circumstances.³⁰⁴ Tax rules used to regulate trade in virtual currencies should exhibit a certain degree of flexibility and adaptability to the changing circumstances.

4.3.3 Administrative feasibility

Because public law is enforced by the government and potentially applicable to everyone, administrative ease should be a centrally important value. A legal rule is administrable to the extent that it can be applied easily and without excessive controversy by the governmental agency charged with its enforcement.³⁰⁵ The tax system should exhibit the characteristics of effectiveness, efficiency and simplicity.

A legal solution can be considered to be effective when it is adequate to produce the intended result and as efficient when it performs or functions in the best possible manner with the least waste of time and effort. In other words, being effective is about doing the right things, whereas being efficient is about doing things in the right manner. Tax rules should produce the right amount of tax revenue at the right time. The potential for tax evasion and avoidance should be minimized, while keeping counter-acting measures proportionate to the risks involved.³⁰⁶ The costs that a tax system imposes on both taxpayers (in complying with the laws) and governments (in collecting taxes) should be kept at a minimum. Adam Smith considered administrative costs to be a major threat to tax efficiency:³⁰⁷

‘tax levying may require a great number of officers, whose salaries may eat up the greater part of the produce of the tax, and whose perquisites may impose another additional tax upon the people ... By subjecting the people to the frequent visits and the odious examination of the tax-gatherers, it may expose them to much unnecessary trouble, vexation, and oppression.’

He concluded that taxes are frequently much more burdensome to the people than they are beneficial to the government.

Taxing virtual income would prove effective if it helped reach the main goal of taxation which is to raise revenue. There is no point in taxing a source of income if costs of tax collection exceed the collected revenue or if large amounts of tax remain uncollected despite efforts to the contrary. While that

304 OECD, *Electronic Commerce: Taxation Framework Conditions*, p. 4 (1998).

305 A.G. Abreu & R.K. Greenstein, *Defining Income*, 11 Fla. Tax Rev. 295, p. 332 (2011).

306 OECD, *A Borderless World: Realizing the Potential of Global Electronic Commerce*, p. 4 (1998).

307 Smith, *supra* n. 240, at ch. 2.

consideration is often labeled administrative convenience, it is pure common sense.

Community-related virtual currency is predominantly used for transactions within virtual worlds. Such transactions tend to involve low-value items. In December 2007, *Second Life* residents engaged in 341,791 in-world transactions using Linden Dollars. Almost half of them included gross amounts of less than USD 10.³⁰⁸ The tax revenue from these transactions (income tax is imposed on the profit and not on the turnover) is not likely to justify costs involved in calculating the virtual income and documenting those calculations.

From an efficiency point of view, an attempt to tax both income in the virtual form and the corresponding profit from the exchange of this virtual income into traditional currency would give rise to valuation issues that might be difficult to understand by an average taxpayer (bitcoin users are mainly individuals and small enterprises). The fact that virtual income has been taxed would have to be taken into account when virtual profits are exchanged into traditional currency, and this means that tax administrations and taxpayers would have to devote considerable resources to valuation and income determination issues. These problems are illustrated by the following example:

In January, an entrepreneur sells goods (value: EUR 300) for 5 bitcoins. At the time of the transaction, 1 bitcoin = 100 EUR, so the profit is EUR 200. In February, the value of bitcoin increased to EUR 200, so the entrepreneur sells the same goods (value: EUR 300) for 3 bitcoins and makes a profit of EUR 300. The entrepreneur pays tax on his total profit of EUR 500, using money from other sources. He has now 8 bitcoins; however, the basis in those bitcoins is not the same since the bitcoin prices were different when the "coins" were acquired. Next year, when the bitcoin value reaches EUR 400, the entrepreneur sells 4 bitcoins and obtains EUR 1600. The question of how to calculate the gain from the exchange transactions is complex. It makes it necessary, first, to determine which bitcoins were sold and, second, to establish the basis is the "coins" that were disposed of.

The difficulty of income determination in the above-mentioned example could be eliminated if taxable income arose only upon conversion of virtual currency into real money. In such a case, virtual currency would be valued only once when it is sold. At that time, the seller would be taxed on the difference between the current value of the currency and the cost of goods sold. In the example mentioned above, the seller would make a taxable profit of EUR 1000 (1600 – 600). The value of 4 bitcoins that have not been sold yet would be disregarded since the prospect of making a profit is remote. Infrequent valuations required by the convertibility standard are less onerous than valuations under a system that taxes both virtual and real gains. Although disregarding virtual income is a serious deviation from the comprehensive

308 Vetter, *supra* n. 107, at p. 857.

Schanz-Haig-Simons concept, it is a means of contending with practical difficulties inherent in taxing the value of assets that are subject to extreme price fluctuations.

Furthermore, whether the revenue-raising goal of taxation can be achieved depends on taxpayers' behavior and enforcement possibilities. Tax compliance is a multi-causal phenomenon and cannot be guaranteed only by a deterrence strategy. Although some taxpayers are deterred from underreporting of income by the threat of penalties, the enforcement of tax laws may also have a negative effect on tax compliance: punishment simply suggests that others do not cooperate and this undermines any cooperation norm.³⁰⁹ The tax determination process ultimately rests on taxpayers' disclosing their financial affairs and paying what they owe without overt government compulsion. It is each citizen's self-enforcement of the legal duty that keeps the tax system running smoothly. The tax system is based on "voluntary compliance". This term does not mean that taxpayers have any choice in the matter of paying taxes. Rather, it describes the motivation of some taxpayers to fulfil their duties at their own volition.³¹⁰

As regards virtual currencies, reliance on self-reporting is not a workable solution. Taxpayers have little incentive to report something that, in their view, is not likely to be detected. It would be an extremely difficult (or a nearly impossible) task for the tax authorities to find out that someone has earned virtual income. It would require constant monitoring of Internet transactions, virtual worlds and exchange websites. Even if a virtual entrepreneur with a large trade volume was detected by the tax authorities, it would be necessary to identify him. Tax compliance can only be secured if there is a full disclosure of the parties involved in the transactions. As the Internet is a decentralized system visited by people from all over the world and anonymity is a central feature of decentralized currency schemes, online activities cannot easily be linked to a certain person. Taxpayers can exploit this anonymity to conceal their identities and locations.

A core problem for enforcement of tax laws is asymmetric information. The taxpayer knows the facts regarding the relevant transaction but tax authorities have to obtain this information either from the taxpayer himself or from a third party.³¹¹ It is well known that tax compliance can be improved by

309 E. Posner, *Law and Social Norms: The Case of Tax Compliance*, 86 Virginia Law Review 1781, p. 1786 (2000); D. Kahan, *Signaling or Reciprocating? A Response to Erich Posner's Law and Social Norms*, 36 Richmond Law Review 367, p. 369 (2002).

310 R. Seer, *Voluntary Compliance*, 67 Bull. Intl. Taxn. 11 (2013); L. Lederman, *Reducing Information Gaps to Reduce the Tax Gap: When Is Information Reporting Warranted?* 78 Fordham Law Review, p. 1737 (2010).

311 Lederman, *supra* n. 310, at p. 1735.

involving third parties in the procedure of tax assessment.³¹² The fact that tax authorities can obtain information from a third party and the taxpayer knows about it fosters taxpayer honesty. Information reporting is efficient if it is imposed on parties who are fewer in number and who have appropriate infrastructure (for example, a bookkeeping system). In an ideal scenario, the information provided by third parties can be matched with the amounts on the taxpayer's return.

4.3.4 Neutrality

The principle of neutrality has many meanings. The first one relates to capital export neutrality (CEN) and capital import neutrality (CIN).³¹³ The second one is concerned with the influence on taxpayers' behavior. A neutral tax system does not interfere with other economic, environmental or social policy objectives that should be pursued by non-tax measures. The design of a tax system should only be influenced by tax considerations and do not result in an adaptation of the taxpayer's behavior. Taxpayers' decisions should be motivated by economic rather than tax considerations.³¹⁴ However, in practice, neutrality is difficult to achieve, and governments often want to interfere with people's choices deliberately to ensure that certain behavior is encouraged or discouraged.

The concept of neutrality implies that the obligation to pay taxes should not force people to undertake any actions to obtain resources necessary to satisfy it (like the sale of virtual currency).³¹⁵ Since the function of the state is to protect liberty and property, the government should not use the tax system to reduce the scope of permissible individual choices and to change the pattern of individuals' preferences.³¹⁶ It also means that legislators should not introduce extensive monitoring and reporting requirements, since those may eventually harm virtual worlds that are still largely visited for hobby purposes. As the US Supreme Court once noted, "the power to tax involves

312 Id., at p. 1737; L. Lederman, *Statutory Speed Bumps: The Roles Third Parties Play in Tax Compliance*, 60 *Stanford Law Review*, p. 695 (2007); E. Cheng, *Structural Laws and the Puzzle of Regulating Behaviour*, 100 *Northwestern University Law Review*, p. 655, p. 675-676 (2006).

313 CEN means that there is no tax incentive to locate an investment within or outside a certain country. To achieve CEN, the principle of taxation in the state of residence should be applied. The investment is taxed in the residence state independent of the country where it is made. CIN refers to the tax neutrality between domestic and foreign investments in a certain country. To achieve CIN, the principle of taxation in the source state should be applied. Foreign as well as domestic investments are taxed in the source state. See Westberg, *supra* n. 21, at sec. 4.3.1.

314 OECD, *A Borderless World: Realizing the Potential of Global Electronic Commerce*, p. 4 (1998).

315 This issue is discussed in more detail in section 4.3.1. *Equity*.

316 R.A. Epstein, *Taxation in a Lockean World*, 4 *Social Philosophy and Policy* 1, p. 55 (1986).

the power to destroy”.³¹⁷ The principle of neutrality should prevent the tax system from exercising that power. Accordingly, the decision whether to tax virtual world activities must be made after careful consideration of whether the virtual economy can withstand it.

4.4 CONCLUSIONS

This chapter sought to answer the question whether income from transactions in virtual items and currencies should be subject to tax. An evaluation model consisting of two steps was used for this purpose. First, a comprehensive income definition was found and, second, the generally accepted taxation principles set out by Adam Smith in *The Wealth of Nations* and by the OECD in the Ottawa Report (1998) (equity, certainty, flexibility, administrative feasibility and neutrality) were applied to narrow down this definition to a workable income concept. The conclusions are as follows.

According to the comprehensive Schanz-Haig-Simons model, all increases in wealth should be taxable. It should not matter whether profits are generated in virtual or traditional currency. However, this economic view does not translate well into tax law because it ignores the practical requirement that taxable income should be reliably measured, reported and paid. A comprehensive income definition could apply in an imaginary but neither in a virtual nor in the real world. Thus, it must be compromised to achieve a workable income definition for practical taxation purposes. Practical concerns regarding administrative costs, expected revenues, the risk of non-compliance and difficulties in valuation may override the theoretically correct result.

The focus on the income tax principles helps clarify the proper use of the income concept in the context of virtual trade. The principle of equity does not preclude a different treatment of real and virtual income. Taxpayers with real and virtual income cannot be regarded as being in comparable positions since taxes can only be paid in legal currency. Consequently, taxpayers with virtual income would be forced to monetize their assets or to borrow the necessary funds to finance their tax liability. Although Bitcoin and other types of virtual currency may increase the taxpayer’s *potential* ability to pay, they cannot *actually* be used to settle a tax liability. Excluding virtual income from the tax base is also consistent with the principle of neutrality (the obligation to pay tax should not force people to undertake any actions to obtain resources necessary to satisfy it) and the principle of convenience (it is convenient for a taxpayer to settle a tax liability when he has liquid resources).

The principle of certainty requires equal treatment of all virtual worlds. For tax consequences of trade in community-related currency, the wording

317 *McCulloch v. Maryland*, 17 US 316, 431 (1819).

of easily modifiable contractual arrangements should not be decisive, but such transactions should be assessed on the basis of their economic substance.

Administrative feasibility is a key concern for tax policy. Since the primary purpose of a tax system is to raise revenue, all rules should be capable of practical operation. Tax legislation should not be too burdensome for tax authorities to enforce and for taxpayers to apply. In view of the fact that online marketplace is an anonymous environment where individuals can easily conceal their identities and locations, it is obvious that tracking virtual income of taxpayers is well beyond the capacity of the tax administration. Voluntary compliance is not a workable solution since taxpayers have little incentive to report something that is not likely to be detected. Moreover, if virtual income was subject to tax, both tax authorities and taxpayers would have to devote substantial resources to annual valuations of virtual currency and to the monitoring of the transaction chain.

The analysis in this chapter shows that there is a strong case against taxing virtual income (both realized and unrealized).³¹⁸ The illiquidity, valuation and compliance difficulties, combined with the resentment of taxpayers, would threaten a tax system based on self-assessment. In my view, the general principles of taxation imply that virtual income should remain tax free.

On the other hand, the principles of taxation do not prevent taxing real income (which arises when virtual currencies and items are sold for real money). It seems fair that those who make money from virtual trade, irrespective of whether occasionally or on a regular basis, should face tax consequences of their activities. Moreover, the receipt of cash solves any liquidity problems. It defers taxation until the taxpayer has the means to pay the tax. If real income from virtual trade was excluded from taxation, this would enable people who typically provide their services online to earn their income tax free. For example, if a person creates virtual objects in *Second Life* for a customer, the transaction (exchange of a virtual object for cash) would be similar to that in which a person exchanges virtual currency for cash. The seller could claim that since he just cashed out his virtual earnings, his income should remain tax free.

³¹⁸ Unrealized income is generated when virtual currency increases in value. Income is realized when virtual currency is mined or obtained from transactions.

