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Non-Technical Summary

In the last few years, information and communication technologies (ICT) have spread with increasing speed in both private and business sectors. The main consequences of the increased use of *ICT* in markets and hierarchies consist in the development of digital markets, the regional and organisational decentralisation of the internal organisation as well as the more frequent occurrence of hybrid forms of co-operation. In contrast to the locally independent and international activities of enterprises, the current *system of international corporate taxation* is based on physical and legal aspects, which serve as taxable entities and tax attributes.

In this paper, the consequences of the increased use of ICT on international corporate taxation, namely on the tax attributes in the residence and the source country as well as on the scope of taxation, are examined. *Generally accepted tax principles* are used to evaluate current tax regulations as well as to recommend possible reform approaches. When applying the international tax principles to the economic structure changed by the use of ICT, the concept of *capital export neutrality* shall prevail in international corporate taxation whereas the concept of *capital import neutrality* is deemed as not being appropriate. The principle of inter-nation equity requires that taxation is based on the principle of *economic allegiance*. In order to determine the source of profits, the *supply approach* is preferable.

Regarding the *tax attributes in the source country*, the application of the current *permanent establishment concept* to the changed economic structures raises problems, such as in case of *telecommuting.* In this regard, an adaptation of the definition of a permanent establishment might be helpful. As regards *digital markets*, it is consistent with the tax principles that no taxation takes place if the consumer market represents the only nexus to the source country. Thus, reforms concerning an enlargement of the definition of a permanent establishment are not recommendable. Concerning the *tax attributes in the residence country*, the criterion of the *place of effective management* designating a company's residence poses problems as it may not be possible to determine the one place of effective management. Possible solutions for these problems might consist in an adjustment of the criterion of the place of effective management or (a combination of) additional alternative criteria, such as the economic nexus or the residence of the managers.

As regards the *scope of taxation*, due to the increased use of ICT, it becomes more and more difficult to identify the source of income and the respective amount. Since those incentives especially have an impact in case of taxation according to the *source principle*, the application of this approach is *not recommendable*. In contrast, it is shown that international taxation should be based on the *residence principle*.

ICT and International Corporate Taxation: Tax Attributes and Scope of Taxation

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Abstract

In this paper, an outline of the consequences of the increased use of ICT on international corporate taxation, namely on the tax attributes and the scope of taxation, is given. It is argued that the concept of capital export neutrality shall prevail, as it is deemed to be the most appropriate to the changed economic structure. With regard to the tax attributes in the source state, an enlargement of the notion of a permanent establishment in order to shift tax revenues to the source state is not recommendable. Concerning the tax attributes in the residence state, it is shown in how far problems might arise and which alternatives might constitute a solution. As regards the scope of taxation, we recommend that international corporate taxation shall be based on taxation according to the residence principle.

JEL-Classification: H21, H25, H26

Keywords: International Corporate Taxation, Efficiency, Electronic Commerce, Information and Communication Technologies

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Structure

1. Introduction

In the last few years, information and communication technologies (ICT) have spread with increasing speed in both private and business sectors. The implementation of ICT is leading to noticeable changes in the organisational structures of the economy. A "*virtualisation*" can be observed in the internal organisation of enterprises as well as in the market organisation. *Market transactions* carried out by enterprises are processed either completely or in part by ICT, thus creating digital markets. It is possible to participate in these markets from locations all over the world and the participants may remain anonymous. With respect to the *internal organisation* of a company, the implementation of ICT leads to regional decentralisation since the process of producing goods and services makes use of production factors situated in various locations. Also, an organisational decentralisation can be observed within the enterprise as a modularisation of the value added chain is taking place. In addition, the application of ICT entails the creation of *hybrid forms of enterprise co-operation*, such as virtual organisations. Thus, the companies' boundaries are blurring. Furthermore, the contribution of each partner to the creation of value is difficult to identify. To summarise, due to the utilisation of ICT, economic activities are becoming more mobile and international.

In contrast to the locally independent and international activities of the enterprises, the *current system of international corporate taxation* is intended to be applied to traditional economic activities: Physical and legal aspects serve as taxable entities and tax attributes, such as the legal form of the company or the definitions of the place of effective management and the permanent establishment.

Based on the organisational changes as outlined above, the *objective* of this paper is to give an insight into the principal problems in corporate taxation resulting from the use of ICT.[1] The main focus lies on the systematic compilation of the resulting consequences for the tax attributes and the scope of international corporate taxation.[2] Accordingly, the emphasis is placed on the definition of the tax attributes, the stipulation of the source and residence principle as well as on the choice of methods to avoid double taxation in an international context. In this regard, particularly the definition of the place of effective management and the definition of a permanent establishment raise problems. The previous discussion concerning taxation issues raised by ICT as well as the resulting consequences mainly concentrated on the enlargement of taxation at the source. It is often presumed that the tax revenues in the source country are declining and that, consequently, an enlargement of the tax attributes

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1 In order to assess possible solutions, one first has to be aware of the underlying problems. See Hickey, 2000: 91.

2 This paper does not deal with other issues raised by the increased use of ICT, such as problems of income allocation or transfer pricing.

in the source country as well as a taxation according to the source principle is necessary in order to guarantee inter-nation equity. In contrast, this paper will show that the focus should lie on the residence principle due to economic as well as practical reasons.

The basis for the evaluation of the current tax regulations are the generally accepted *tax principles* which underlie the system of international taxation. The main demanded criteria are the *neutrality principle* and the *equity principle,* which requires equal treatment among different taxpayers. In addition, *inter-nation equity* as well as *administrative feasibility* of the international system of corporate taxation are required.

Using the outcome of this analysis, the *question* whether or not the currently valid international taxation regulations can be upheld and to what extent several amendments need to be made will be investigated. Based on these findings the *additional objective* of this paper consists in discussing approaches of how to possibly reform the tax attributes as well as the scope of international corporate taxation. The possible reform concepts should be based on the stipulated international tax principles and, moreover, should include considerations developed in other countries or by supranational institutions, especially by the OECD.

2. Virtualisation of Enterprise and Market Structures by Use of ICT

ICT constitute the technical basis for all kinds of organisational forms. They facilitate the flow of information as well as the co-ordination of the production process of goods and services.[3] In general, markets and hierarchies are the two basic alternative ways of governing transactions.[4] In between, a vast range of hybrid arrangements exists. As a fundamental principle, firms always search for the most efficient organisational structure for their economic activities. Due to the economic advantages of ICT, such as the possibility to reduce cost and to save time, the use of ICT in all kinds of organisational structures has increased substantially over the last years. As a result, the shift in the application of ICT is leading to observable changes within the organisational structures of the economy which are outlined below. Certainly, those developments are not valid for the whole economy. However, they can be seen as standing just at the beginning.

2.1. Extra-Organisational Virtualisation: Digital Markets

A market transaction includes several different phases, such as the information phase, the decision-making phase, the agreement and the termination.[5] Due to the use of ICT, market transactions are being processed either completely or in

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[3] See Fink, 1998: 7-9.

[4] See Badaracco Jr., 1991: 310.

[5] See Picot et al., 2001: 338.

part by information and communication technologies, thus creating *digital markets*.[6] Geographic distances between market partners do no longer matter and a participation in these markets is possible from locations all over the world. The market participants are often anonymous. For a company, it is possible to do business without any physical location in the demand jurisdiction.[7] Single transactions may not be identifiable, as they are part of a complex structure which cannot be separated easily.

Intermediation is a central activity in a market-orientated economy, which brings buyers and sellers together.[8] For example, intermediaries organise the exchange of goods and services or the gathering of information. The occurrence of intermediaries on digital markets depends on the fact whether structures without any intermediaries, structures with physical intermediaries, or structures with ICT-based intermediaries are most efficient for a given business operation. Three major developments can be observed: *Firstly*, if a distribution via intermediaries becomes inefficient, a *"dis-intermediation"* will take place. This means that some or even all steps in the value added chain are eliminated.[9] For example, it becomes possible to directly distribute goods from the producer to the customer by exclusion of retailing and wholesaling.[10] *Secondly*, if a structure with ICT-based intermediaries[11] is the most efficient one, new and additional intermediation services emerge (*"re-intermediation"*).[12] Possible business segments are information gathering and analysis (e.g. price information and comparison, search engines), online auctions, consulting services, security services or payment processing.[13] *Thirdly*, in case the market structures with physical intermediaries are the most efficient solution, the physical intermediaries will continue to exist.

In addition, the *product attributes* of products traded on digital markets differ from those traded on physical markets. For example, if digital products are downloaded, they can be sold and thus change the owner without a physical transport.

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6 See Brunsbach, 2003: 25-27; Jacobs (Ed.), 2002: 405-406; Picot et al., 2001: 339.

7 See Malone et al., 1989: 167.

8 See Lucking-Reiley and Spulber, 2001: 57.

9 See Picot et al., 2001: 377; United States Department of the Treasury, 1996: 19. Especially in the computer industry, manufacturers give up the conventional ways of distribution and offer their products exclusively over the internet. See Mangold, 1999: 30-31.

10 This is often the case if only a small portion of the value added is contributed by traditional intermediaries. See Gareis et al., 2000: 35-36.

11 An ICT-based intermediary may, for example, consist of a server and the respective software equipment.

12 See Lucking-Reiley and Spulber, 2001: 57-61; Picot, 1999: 6; and for the example of book retail Riehm et al., 2001: 170.

13 See Reichwald, 2001: 41; Picot, 1999: 8-9; Berryman et al., 1998: 152.

2.2. Intra-Organisational Virtualisation

Within the internal organisation of an enterprise, the implementation of ICT may lead to a *regional decentralisation* as the process of producing goods and services makes use of factors of production in various locations and thus gets more international.[14] The physical location of the production factors as well as the spatial difference between them are less important since the access can be realised by ICT.[15] Due to this local independence, competition between different locations and jurisdictions becomes more intense.[16] In addition, spatial decentralisation leads to an increase in the cross-border exchange of goods and services.

Furthermore, an *organisational decentralisation* can be observed within the firm. Instead of a hierarchical structure, the organisation gets rather process-orientated:[17] The unit considered is not the legal entity anymore, but the economic process, which includes the whole value added chain.[18] The different value creation chains may be intransparent and thus hard to identify. They are fragmented by the legal structure of the firm.[19] Consequently, the real organisational and economic structures of the company deviate more and more from the legal structure. On the basis of those integrated, consumer-orientated processes, the company is organised in separate entities which have the decision making authority and responsibility for their own results, the so-called modules or profit centres (*"modularisation"*).[20] The exchange of goods and services between the profit centres leads to intra-organisational networks.[21] As a result, the classical boundaries within the firm are blurring.[22] One module, for example, might be a shared service centre which constitutes a consolidated back-office for a company that is intended to provide certain services for the whole company.[23] Typical tasks performed in such centres are, among others, bookkeeping and marketing.

Furthermore, the *management structure* of an organisation tends to be non-hierarchical but consists of several management centres with equal rights and linked with each other.[24] In case of such bi- or poly-centric management

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14 See Brunsbach, 2003: 20-21.
15 See Owens, 2002: 125.
16 See Müller-Stewens, 1997: 31.
17 This development is called "business-reengineering". See Müller-Stewens, 1997: 1, 8. In a survey from 1995, 80% of the firms stated that they want to realise a more process-orientated organisational form. See Theuvsen, 1996: 66; Venkatraman, 1991: 137-140.
18 See Picot et al., 2001: 231-232; Raupach, 1998: 72-74.
19 See Raupach, 1998: 119.
20 See Brunsbach, 2003: 23. Possible basic units of the modules are product lines, business areas or sales regions. See Picot et al., 2001: 230, 244-246.
21 See Prinz, 2000: 537.
22 See Reichwald and Möslein, 1996: 6.
23 See Miller, 1999: 46; Töpfer, 1996: 249.
24 See Theuvsen, 1996: 69-70.

structures, the top management is located in several different jurisdictions instead of one fixed place.[25] Consequently, by use of ICT, such as video-conferencing or e-mail, decisions of relevance for the company can be taken either alternating in different locations or at the same time in different places.[26]

In addition, the increased use of ICT and thereby the modularisation and spatial decentralisation enables new forms of work structures. The most notable one is *telecommuting*[27], which implies a relocation of the workplace from the company site to another place for the whole working time or part time.[28] Since the connection between different workplaces is effectuated by ICT, the distances between these workplaces become less important. Thus, employees have the possibility to be less mobile whereas, on the other hand, the spatial structure of the organisation becomes more flexible.[29] One can distinguish between *different forms* of telecommuting.[30] The most widespread type of remote work is home-based telecommuting, meaning that the employee works at home for at least one full day per working week. Centre-based telecommuting means that the employees work in so-called "telecommuting-centres" – establishments that offer workplaces to employees of one or more organisations. Mobile teleworkers are those who work at least ten hours per week away from home and their main place of work, e.g. on business trips, travelling or on customers' premises. The high importance of telecommuting is reinforced by the fact that, nowadays, intangible factors of production, like human capital, play a bigger role in the value added process and constitute a bigger portion of the total assets and of the value of a company.[31]

2.3. Inter-Organisational Virtualisation

The application of ICT also enables the creation of *hybrid forms of enterprise co-operation* between legally independent but economically dependent companies, such as strategic alliances[32], strategic networks or joint ventures. These forms of co-operation are long-term co-operations, based on either treaties or simply on trust. A further development of the modularisation and the creation of networks between different entities consists in the *"virtual organisation"*[33], currently the final model of a flexible organisational structure.

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25 See Avi-Yonah, 1997: 528.
26 See the example of the Ford Motor Company in Rayport and Sviokla, 1995: 79.
27 The average percentage of teleworkers in Europe in 1999 amounts up to 6% of the European work force; see empirica, 2000: 21.
28 See Jacobs (Ed.), 2002: 412; empirica, 2000: 8; Reichwald and Möslein, 1996: 9.
29 See the historical context in detail in Mokyr, 2001: 9-14.
30 See in detail empirica, 2000: 8-11; Reichwald and Möslein, 1996: 13-14.
31 See Tapscott et al., 2001: 213-214.
32 See the example in Byrne et al., 1993: 38.
33 See Müller-Stewens, 1997: 25; Davidow and Malone, 1992: 5-7. "Virtual" characterises the object as something that possibly exists, but generates its existence not from the real physis but from ICT-based structures. See Fink, 1998: 15-16.

A virtual organisation represents a dynamic, temporary network between several legally and economically independent entities that come together quickly in order to develop a certain product or project or to make use of specific market opportunities.[34]

Given the different forms of co-operation, the contribution of each partner to the added value tends to be very small and hard to identify.[35] The conventional value added chain turns into value added networks. This results in an intense increase in the inter-company transactions. In addition, the legal boundaries of the firm – well defined by regional and temporal aspects or by the workforce and know-how – are no longer clearly distinguishable.[36] Since the important decisions are taken jointly, the management structure of those inter-organisational networks is non-hierarchical and poly-centric.[37]

3. Normative Criteria for an Optimal Taxation

The underlying theoretical framework for this study consists of four generally accepted tax principles, which represent important tax principles in international taxation.[38] They constitute normative criteria for an optimal taxation and are used to evaluate the current tax regulations as well as to recommend possible reforms. The general tax principles have implications on the tax attributes as well as on the choice between taxation according to the residence or the source principle. In the following sections, the immediate effects of the generally accepted tax principles on the application of the residence or the source principle in case of the changed economic structures are elaborated on. The implications on the tax attributes and the effects that these implications have on the application of the residence and the source principle are outlined in section four.

3.1. Efficiency and Neutrality

One of the fundamental principles of taxation is the *"neutrality principle"*, which is derived from the requirement of efficiency of taxation.[39] According to the general welfare theory, a tax system can only be efficient if taxes do not interfere with economic decisions of rational decision-makers.[40] This means that in a world without taxes decisions should be made in the same way as in a world where taxes exist. Otherwise, inefficiencies caused by adaptive activities of the decision-makers may result. Considering the level of the whole national

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[34] See Schlossmacher, 2002: 96; Byrne et al., 1993: 36-38.

[35] See Picot, 1999: 5.

[36] See Brunsbach, 2003: 30; Schlossmacher, 2002: 96; Ashkenas et al., 1995: 199-204; Badaracco Jr., 1991: 302-306, 314.

[37] See Breuninger and Krüger, 1999: 82; Davidow and Malone, 1992: 162; Badaracco Jr., 1991: 302-306, 315-316.

[38] See also Jacobs (Ed.), 2002: 294-295.

[39] See also OECD, 1998: 4.

[40] See also Commission of the European Communities, 2001: 26; and for details see Mas-Colell et al., 1995: 328-330.

economy, only a neutral tax system guarantees that the optimal resource allocation is not affected.

The matter of interest of international tax law are cross-border activities. In the international context, the neutrality principle calls for neutral treatment of cross-border transactions within the framework of the national tax systems.[41] Since in practice the tax systems of at least two jurisdictions have to be applied and since the tax regulations generally differ, neutrality and efficiency can always be fulfilled according to the valuation of only one jurisdiction.[42] Basically, there are two different concepts that consider the economic benefits of neutrality and efficiency: *Capital export neutrality* and *capital import neutrality*, which guarantee neutrality either in the residence or in the source country.[43]

According to the basic idea of the principle of *capital export neutrality* (CEN), a tax system should not affect the decision by any specific taxpayer as to which country to invest in. This can be achieved by treating all domestic taxpayers according to the valuation of their country of residence.[44] Economically, this concept of international taxation guarantees international production efficiency.[45] The allocation of investments among countries is not influenced by the tax treatment of the profits in the country receiving the investment, i.e. generating the connected income.[46] Since all domestic investors are taxed at an equal rate, they are indifferent in regard to the alternatives of investing in the country of residence or in the source country.[47] The usual way to achieve CEN is to finally tax the world-wide income of a taxable entity (*"world-wide principle"*) according to the tax rules valid in the country of residence (*"residence principle"*).[48] Theoretically, in the context of international taxation, this would lead to an immediate and sole taxation on the shareholder's level. According to this approach, a corporation does not constitute a taxable entity. In case of a (foreign) corporation, taxation would take place irrespective of the fact if the profits of the (foreign) corporation have been distributed or retained. However, in international taxation, this approach is deemed to be unfeasible and, therefore, it does not represent a workable solution.[49] An alternative would be the final taxation of the proportional profits of a (foreign) corporation – now

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41 See Spengel, 2003: 248.
42 See Spengel, 2003: 249; Zuber, 1991: 115.
43 See Jacobs (Ed.), 2002: 19-35; Doernberg et al., 2001: 67; Commission of the European Communities, 2001: 27.
44 See Spengel, 2003: 249; Zuber, 1991: 116.
45 This is due to the fact that in case of CEN, the marginal productivity in the residence and the source country are identical, even when considering the fiscal effects. See Homburg, 2000: 278-280.
46 See Tanzi, 1995: 76.
47 See Commission of the European Communities, 2001: 27; McLure Jr., 2000: 11; Musgrave and Musgrave, 1972: 69.
48 See Schreiber, 1998: 54; Vogel, 1988: 311.
49 See Jacobs (Ed.), 2002: 295-296; Jacobs (Ed.), 2002a: 99-101; Schreiber, 1998: 75-76.

representing a taxable entity – in the country of residence when accrued. For this purpose, on the level of the domestic participant, taxes paid by the foreign corporation in the source country would have to be fully credited against the tax due by the domestic participant in the country of residence in the accrual period (*tax credit method* and *full tax imputation*).[50] Thereby, in order to achieve international production efficiency, it is sufficient to implement CEN on the level of the corporation. Additionally, in order to achieve CEN on the shareholders' level (so-called "shareholder CEN" or "portfolio CEN" (PCEN)), all foreign and domestic dividends have to be treated equally in case of distribution of profits to the shareholders.[51]

In contrast, the basic idea of *capital import neutrality* (CIN) is that all investors are treated equally according to the valuation of the source country.[52] Thus, all income arising from business activities within a given jurisdiction is subject to the same overall level of taxation, regardless of the beneficiary of the income.[53] Accordingly, the tax rate does not depend on the country of residence of the investor. This shall avoid competitive disadvantages between foreign and domestic producers operating on the same consumer market in the source country. The concept of CIN is based on the assumption that the taxable entity is closely linked with the economy of the source country. Moreover, it is assumed that domestic and foreign markets can clearly be distinguished and that the competitive conditions between those markets differ substantially.[54] Economically, an international tax system which realises CIN does not permit international production efficiency but ensures international consumption efficiency.[55] In order to implement CIN, the most common method is to tax income according to the *"source principle"*, meaning that the income generated within a jurisdiction (*"territoriality principle"*) is finally taxed in the source country and is exempted from the taxation in the country of residence (*tax exemption method*).[56]

In order to evaluate the two concepts of international neutrality in regard to their applicability in the changed economic environment as outlined in section two, one has to look at the economic background of the two concepts. Besides the fact that the majority of the economists prefer production efficiency over consumption efficiency,[57] there are other important disadvantages of the concept of CIN, which are discussed below.

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50 See Jacobs (Ed.), 2002: 24; Ault and Bradford, 1990: 41.
51 See Spengel, 2003: 249-251; Devereux and Pearson, 1989: 24.
52 See Spengel, 2003: 249; Zuber, 1991: 116.
53 See Doernberg et al., 2001: 68; Tanzi, 1995: 76.
54 See Fohr, 2001: 69-70.
55 See Homburg, 2000: 281-282.
56 See Spengel, 2003: 253.
57 See Homburg, 2000a: 14-17; Bird and Wilkie, 2000: 82; Tanzi, 1995: 77-78; Musgrave, 1992: 181-182.

The concept of *CIN* is based on the idea of dividing the economic world into different consumer markets: All foreign and domestic investors operating in the source country *and* selling in the same market in the source country are competing with each other and shall therefore face the same fiscal competitive environment.[58] However, the possibilities of exports from the source country to third countries or to the country of residence are not included in this concept.[59] For example, goods may be produced in the source country and then exported to the country of residence. In this case the producing company competes with businesses producing and selling in the country of residence. Consequently, there is no neutral tax treatment of foreign and domestic producers operating on the same consumer market. Moreover, the same problem arises if goods of a company producing in the source country and those of another company producing in the country of residence are both exported to the same third country. Again, businesses located in the country of residence compete with those established in the source country on a given consumer market but do not face the same fiscal treatment.

Thus, the problem with the concept of *CIN* lies in the basic assumption of spatially distinguishable economic markets.[60] Considering the changed economic and organisational structure of companies and markets, this distinction cannot be upheld. Nowadays, companies act more and more on an international and thus world-wide level and the inter-country trade has increased substantially. Companies' production and selling activities are no longer limited to the market of one jurisdiction, but corporations compete with other companies on the world market. Consequently, CIN cannot be limited to the source country. Instead, an equal tax treatment on the world market is necessary in order to ensure that all profits that are realised on a certain market are subject to the same effective tax burden.[61] Besides, also the assumption that different market conditions depend on different jurisdictions cannot be upheld entirely nowadays.[62] Under these circumstances, the concept of CIN is no longer appropriate for the current competitive environment of multinational firms.

To sum up, the international corporate taxation shall follow the principle of *CEN*. The most obvious method to ensure this principle is to apply the *residence principle* in conjunction with the world-wide principle. This means that the world-wide income is taxed according to the valuation in the country of residence. Besides, also the *source principle* in combination with the tax exemption method could generally guarantee CEN if the effective tax burden for

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58 See Musgrave, 1987: 206.

59 As regards the following explanations, see Schreiber, 1994: 241.

60 See Fohr, 2001: 68; Schreiber, 1994: 241.

61 See Schreiber, 1994: 241.

62 This especially holds for the internal market of the European Union. See Spengel, 2003: 257; Commission of the European Communities, 2001: 23; Jacobs, 1994: 224-226; Schreiber, 1994: 241; Devereux and Pearson, 1989: 18, 64.

business profits is harmonised.[63] Such an international consensus concerning the harmonisation of tax rates is deemed to be rather improbable. The residence principle as well as the source principle will be discussed further in the next section.

3.2. Equity between Taxable Entities

The *"equity principle"* calls for an equal treatment among different taxpayers according to their contributive capacity.[64] The taxpayer's economic ability to pay serves as the economic yardstick in order to measure the economic power of each taxpayer ("*ability-to-pay principle*"). "Ability to pay", in this context, signifies the amount of the earnings of a taxable entity.[65] Two dimensions of the equity principle can be distinguished: *Vertical equity* and *horizontal equity*. In order to ensure horizontal equity, all taxable entities with the same ability to pay, i.e. the same amount of earnings, should be subject to an equal amount of tax. Vertical equity will be fulfilled if taxable entities with an unequal economic ability to pay, i.e. different amounts of earnings, face a respectively different tax burden. In an *international context*, as long as at least two jurisdictions with different tax systems are involved, the equity principle can be interpreted according to the valuations of either the source country or the country of residence and can thus be fulfilled in only one jurisdiction.

In case of a taxation according to the *residence principle*, the absolute, world-wide ability to pay is considered by the country of residence.[66] This approach is based on the idea that a taxable entity can generally have only one single ability to pay. In contrast, in case of a taxation according to the *source principle*, the ability to pay is split up in a domestic and a foreign part, i.e. in the ability to pay in the country of residence and the one in the source country.[67] This concept rests upon the notion that the taxable entity's ability to pay differs depending on the different economic conditions existing in different jurisdictions.

The *question* to deal with is which one of these two principles can better ensure a taxation according to the ability-to-pay principle and the equity principle. As noted above, the only dimension measuring a taxpayer's ability to pay are his earnings. Consequently, the ability to pay of a taxable entity does not depend on the economic circumstances in a given jurisdiction. Hence, it does not make any difference for the ability to pay from which jurisdiction the revenues flow. Earnings of the same amount result in an ability to pay of exactly the same degree, independent from their source.[68] Therefore, the basic argumentation of the source principle, that different economic structures lead to a different ability

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63 See for further details Spengel, 2003: 253, 337.
64 See Hackmann, 1983: 666.
65 See Tipke, 2000: 19, 24.
66 See also Jacobs (Ed.), 2002: 22, 305.
67 See Schaumburg, 1995: 130.
68 See Homburg, 2000: 263; Musgrave and Musgrave, 1972: 68-69.

to pay, cannot be maintained. An additional problem with the principle of *horizontal equity* immanent to the source principle is the restricted loss offsetting: It is often not possible for a taxing subject to offset losses with income from different sources.[69] Concerning the principle of *vertical equity*, problems with the source principle will arise if the application of a progressive income tax rate is deemed to be preferable.[70] Furthermore, it is much more practical for the country of residence to take into account the ability to pay of its residents than it is for the source country.[71] To sum up, the equity principle between taxpayers and the ability-to-pay principle claim a taxation according to the residence principle whereas a taxation according to the source principle cannot be deduced.[72]

3.3. Inter-Nation Equity

The principle of *"inter-nation equity"* calls for an equitable division of the international tax revenue between different countries if taxable entities operate in several jurisdictions. In case of a taxable entity resident in one country and generating income in another country, inter-jurisdictional equity raises the question to what extent the source country should be permitted to tax the income that the taxable entity derives from its investment in the source country.[73] The allocation of the tax base should be carried out according to the *source of the profits* and thus according to the taxable entity's *participation in the economic life* of a jurisdiction.[74]

In order to determine the profits' source, two concepts generally exist. According to the so-called *"supply approach"*, the source of income is situated where the factors generating that income operate.[75] Pursuant to this approach, the mere consumer market does not represent a factor contributing to the added value of the company. In contrast, the *"supply-demand approach"* states that profits are created through the interaction of supply and demand.[76] The problem inherent in the supply-demand approach is that, nowadays, the place of demand cannot always be determined exactly. On the one hand, this fact is due to the increased use of ICT on markets and thus the increased application of electronic commerce. Thus, especially in case of the sale of digital products via ICT, the

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69 See Spengel, 2003: 340; Jacobs (Ed.), 2002: 306; Homburg, 2000: 264.

70 See Jacobs (Ed.), 2002: 306 for more details.

71 See Fohr, 2001: 80; Zuber, 1991: 90.

72 Coming to the same result see Fohr, 2001: 72-73, 79-80; Bird and Wilkie, 2000: 82; Ault and Bradford, 1990: 41; holding a different view see Schaumburg, 1995: 131-133.

73 See Musgrave, 2000: 54; Musgrave and Musgrave, 1972: 70-71.

74 See Fohr, 2001: 76; Zuber, 1991: 86-87.

75 See Oestreicher, 2000: 179; Musgrave, 1984: 234.

76 The entitlement of the demand jurisdiction goes much beyond the claim to tax profits on capital invested in the selling activity or attributed to labour in that activity, a claim that is also covered by the supply approach. See Musgrave, 1984: 234.

customer can be anonymous and his place of residence cannot be identified.[77] On the other hand, because of the increased international integration and networking within a firm as well as between different firms, products are often exported to another country or serve as input for another product. Thus, the place of demand does not always correspond with the destination of the value added and therefore cannot be located easily.[78] Due to those problems of missing tax attributes inherent in the supply-demand approach, the supply approach is advantageous and, thus, shall be preferred.

After having determined the definition of the source of profits, the question remains on what condition those profits should be taxed. This leads to the issue of the country's role in the context of the economic participation within its jurisdiction. *Economic participation* here means that an essential part of the profits is generated within the jurisdiction corresponding to the supply approach by the use of public as well as of private services.[79] According to the *"principle of economic allegiance"* or *"benefit principle"*, the country that contributes to the realisation of profits by providing its legal and economic system should be entitled to tax those profits.[80] Due to the provision of infrastructure, education or government policies, for example, it is possible for business entities to operate commercially.[81] This approach touches the very nature of taxes: They are defined as payments levied by the country in order to obtain revenues.[82] Consequently, in those cases in which the taxable entity participates in the economic life of the source country, the source country has the priority to tax the resulting profits (*"principle of source-country-entitlement"*).[83]

For practical purposes, a *threshold* indicating the intensity of economic participation necessary for taxation in the source country based on the supply approach has to be defined. As a matter of administrative expediency, the source country must impose its tax on an entity which can be held accountable under its tax laws.[84] One possibility lies in the so-called *"separate-legal-entity approach"* which is considered here. According to this approach, standard accounting procedures are used to assess the profits of each business entity operating within a given jurisdiction.[85] The current practice follows the so-called *"permanent establishment rule"* which will be examined more closely in section 4.1.1.

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77 See also section 2.1.

78 See Oestreicher, 2000: 184.

79 See Zuber, 1991: 111.

80 See Homburg, 2000: 265; Avi-Yonah, 1997: 520-521; Skaar, 1991: 25; Zuber, 1991: 111; Vogel, 1988: 398; Musgrave and Musgrave, 1972: 71. Since the services of the private sector are included, the tax due is not just a fee for the benefits provided by the public sector.

81 See Fohr, 2001: 77; McLure Jr., 2000: 11; Schanz, 1892: 372-373.

82 See for example § 3 section 1 of the German General Tax Code.

83 See Commission of the European Communities, 2001: 26; Flick, 1961: 173.

84 See Musgrave, 1972: 398.

85 See Musgrave, 2000: 54-55.

Besides the economic rationale, the allocation of tax revenue has also to coincide with the allocation *favoured by the jurisdictions*. Under practical aspects, it has to be taken into account that the allocation of the tax revenue resulting from cross-border transactions is a quite political and thus controversial matter: It is based on treaties between different countries with each country trying to get as much tax revenues as possible. Thus, international tax rules are inherently pragmatic and purpose-driven.[86] This fact has to be considered when discussing different possible reforms.

3.4. Feasibility and Efficiency

Besides the criteria for an optimal tax system mentioned above, the system of international taxation has to be *feasible* and practicable. This means that the tax system has to be enforceable in practice and thus has to have the capacity to achieve its basic objectives.[87] Feasibility of a tax system is linked to the criterion of equity between taxable entities as well as between different jurisdictions, because only a tax system that guarantees equal law enforcement can be called equal.[88]

The principle of feasibility is also linked to the one of *efficiency*. Efficiency of taxation means that the costs of the operation of the tax system are minimised. These costs consist of compliance costs for the taxpayer as well as administrative costs for the public authorities, such as control costs of the *abuse of law*.[89] For example, in case of a taxation according to the *residence principle*, manipulations concerning the shift of the place of residence are possible and have to be avoided. In case of the application of the *source principle*, unjustified shifts of income to a source country with a relatively low tax burden may occur and have to be prevented.

4. Application of the International Corporate Tax Law to ICT-Based Economic Structures

Generally, in *international corporate taxation*, the legal form of a company constitutes the taxable entity and thus the tax attribute. The country in which the income of a certain corporation is taxed is determined according to the corporation's residence. In case of business investments abroad, the permanent establishment constitutes the relevant tax attribute. At the same time, it indicates the threshold from which on the country where the investment takes place has the priority to tax profits resulting from this investment. In the following, *first*, the *tax attributes* in case of ICT-based economic structures are assessed

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86 See Owens, 2002: 130; Bird and Wilkie, 2000: 91.

87 See Commission of the European Communities, 2001: 27, labelling this requirement "effectiveness".

88 See Utescher, 1999: 335; Schaumburg, 1998: 79.

89 See Commission of the European Communities, 2001: 28; Doernberg et al., 2001: 70; OECD, 1998: 4.

according to their applicability and their conformity with the general tax principles. *Second*, based on the tax attributes and the implications from the general tax principles, it will be evaluated whether the *source principle* or the *residence principle* is preferable taking into account the changed economic structure.

4.1. Taxation in the Source Country

4.1.1. Tax Attributes: Permanent Establishment

As elaborated in section 3.3., the source country should have the priority to tax profits resulting from activities conducted within its jurisdiction if the taxable entity participates accordingly in the economic life. Consequently, in a *first step*, it is questionable from which threshold on business activities in the source country are deemed to be sufficient in order to be taxed and, thus, how the tax attributes shall be defined adequately. Besides, according to the principle of feasibility, source-based taxation has to be workable in practice. This means that the source of the income as well as the level have to be determinable. Therefore, in a *second step*, it is necessary to analyse if there are feasibility problems in case of taxation based on the given tax attributes in the source country.

In order to determine the scope of taxation in the source country, an appropriate threshold and thus a tax attribute has to be defined. Under current tax rules, the term *"permanent establishment"* (PE) serves as the tax attribute and indicates the threshold that has to be met by business activities in the source country in order to entitle that country to tax the pertinent business income. In general, the PE-concept allows the source country to tax profits attributable to those business establishments which show characteristics of permanence, substance and continuity of operation.[90] According to current tax rules, a PE is *defined* as a fixed place of business through which a business of an enterprise is wholly or partly carried on.[91] The company has to have the PE at its demand.[92] Besides, the overall activity of the PE has to exceed mere preparatory or auxiliary activities.[93] Thus, in order to come within the scope of the source country's taxing authority, it would be necessary for a non-resident company to have a physical presence in the source country. The location of the customer base would normally be irrelevant.

Since the current definition of the PE-rule is based on economic activities, it is reasonable and might be necessary for this threshold to be *adjusted* in case of changes in the nature of business and in the way the business is carried on. The assumptions underlying the existing PE-concept as a measure of economic

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90 See Musgrave, 1972: 398.
91 See Article 5 section 1 of the OECD Model Tax Convention; § 12 of the German General Tax Code.
92 See Jacobs (Ed.), 2002: 373; Peter, 2002: 55-57; Utescher, 1999: 101-103.
93 See Article 5 section 4 f of the OECD Model Tax Convention.

activity might no longer be correct. Therefore, it is *questionable* whether the definition of a PE and thus the de minimis threshold for the right to tax of the source country is still *appropriate* with regard to the changed organisational structures of the economy.

Source-based principles have been developed in an era when commerce was typically conducted through a "bricks and mortar" presence in a country. It was assumed that a physical location was necessary for the production of income, i.e. business had to be conducted at the marketplace and services had to be performed where utilised.[94] Foreign enterprises that did not reach a sufficient level of physical or representative presence would generally have had a low level of participation in the economic life of the source country.[95] Nowadays, the conditions of economic life have changed due to the increased use of ICT. It is argued that, today, enterprises could participate more easily to a substantial extent in the economic life of another country without having a "fixed place of business". Since income could be derived and value could be added by a corporation without having a physical presence in the source country, the level of the company's physical presence within a jurisdiction would not necessarily equate with the level of participation in the economic life of that jurisdiction. Thus, the use of a specific location by the company might no longer constitute a significant factor for deriving income.[96] Due to this weakening connection between physical and economic presence, the current definition of a PE which largely relies on physical manifestations of an economic presence might give rise to anomalous results and to a violation of the tax principles outlined above.[97] In the following, the extent to which problems with the general tax principles occur will be examined by looking at two examples of changed economic structures and their implications on the taxation in the source country.

4.1.1.1. Internal Organisation

Due to the decentralised and international internal organisation of a firm and the availability of digital infrastructure, employees are, for example, able to *telecommute* from a home that is located in another country than the enterprise.[98] It is also possible for them to have a mobile instead of a fixed workplace. Their tasks could comprise the development of software programs, the planning of marketing strategies, the design of goods or the administration of databases on behalf of the company. An extreme but possible case is the example of different computer experts residing and working remotely in different countries who establish a company domiciled in a third country. They jointly develop a

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94 See Australian Taxation Office, 1999: 92.
95 See Australian Taxation Office, 1999: 109.
96 See also Fairpo, 1999: 6; Skaar, 1991: 573.
97 See Australian Taxation Office, 1999: 107.
98 The number of all teleworkers in Germany in the year 1999 amounts up to 2.130.000 employees. See empirica, 2000: 26.

software program that can be ordered via a server which may again be located in another country. The employees contribute to a remarkable extent to the value added of the company. However, the company does not possess the authority to dispose of the employees' home or of their mobile workplace. Hence, no PE of the enterprise in the source country exists and, consequently, the source country has no right to tax the company's income resulting from this activity.[99]

According to the *principle of economic allegiance*, the source country should be entitled to tax the income resulting from a relevant economic activity within its jurisdiction. In the given examples, a relatively big portion of the value added is created and thus an economic activity is performed in the source country. The source country provides services such as education, a civilised society or the digital infrastructure. Nevertheless, the country of source is not entitled to tax. This outcome is not consistent with the principle of economic allegiance.[100]

Besides, according to the *principle of feasibility*, issues of determining the source of income arise. The example of the computer experts clarifies the problem: In this case, it is hard to identify the source as well as the amount of income of each employee. It can hardly be distinguished which portion of the income arises from which activity since the product and the "production process" are immaterial and since the contributions of the different employees can hardly be separated. Additionally, also the allocation of expenses to the respective source of income is raised as an issue.[101] As a result, fundamental problems with regard to the *principle of inter-nation equity* arise: If the amount of income generated in a certain source cannot be identified, an allocation of the tax revenue according to the principle of economic allegiance is not possible. Furthermore, the *principle of equity between different taxpayers* may not be fulfilled if the exact allocation of income between different taxpayers is not possible.

In addition, due to the international and decentralised internal organisation, it is easier to relocate certain areas of the company in order to make use of the international differences of effective tax rates and thus to *manipulate* the effective tax burden. For instance, since the communication between different modules of an organisation can be accomplished by use of ICT, parts of a company, such as a shared service centre, may be established in a low tax country. These possibilities of abusing the law are not consistent with the *principle of equity between different taxpayers* and the *principle of administrative feasibility*. Even though those problems did nor arise only recently, they now have aggravated due to the more mobile and decentralised structures.

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99 See Brunsbach, 2003: 129; Jacobs (Ed.), 2002: 374, 412-415; Utescher, 1999: 162-168.

100 See also Utescher, 1999: 361-362.

101 See Spengel, 2003: 349.

4.1.1.2. Digital Markets

Due to the emergence of digital markets and thus the effects of *dis-intermediation*, some of the functions that previously required a physical or representative presence within a jurisdiction, such as sales and delivery as well as the provision of many types of services, can be done from a remote place. Thus, customers in another country can be reached with greater ease and in far greater numbers than before.[102] For example, electronic commerce enables companies to sell goods or services on a large scale directly to customers in a given jurisdiction without establishing any physical presence therein.[103] Additionally, payments for the respective sales can be carried out electronically by using different electronic cash systems.[104] In those cases, under the current PE-rule, the source country has no right to tax the seller. In the following, this outcome will be evaluated according to the tax principles outlined above.

Pursuant to the *benefit principle*, taxation is justifiable if the taxpayer takes part in the economic life of a jurisdiction. In the given example, the only participation is the sale of goods to consumers. Pursuant to the supply approach, a mere consumer market does not represent a factor that contributes to the value added of a company. Therefore, if the only participation of a company in the economy of the source country consists in selling goods or services to customers, it is consistent with the benefit principle that no taxation takes place.[105]

Besides, it has to be questioned whether the application of current tax rules leads to *feasibility problems*. According to the current PE-rule, the source country has no taxing authority if only the consumption takes place within its jurisdiction. This outcome is considered as being consistent with the principle of feasibility. A taxation by the source jurisdiction solely based on consumption would also not be recommendable due to administration problems, as it poses practical problems to enforce a tax charge on a non-resident conducting trade in the source jurisdiction without having a physical presence there. Because of the lack of intermediaries and the possibility of payments through unaccounted systems remaining invisible unless declared, the tax administration has less possibilities to identify the participating party, the location as well as the amount of income.[106] This problem already exists in the case of foreign companies doing direct business, but by use of ICT the degree as well as the frequency of those problematic cases may increase.

Even if this outcome is deemed to be in accordance with the two general tax principles, it has to be noted that this development probably poses a threat to the

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[102] See Doernberg et al., 2001: 355.
[103] See Hickey, 2000: 92.
[104] See for further details Fairpo, 1999: 5.
[105] See also The State Secretary of Finance, 1998: 11.
[106] For details see Fairpo, 1999: 6; United States Department of the Treasury, 1996: 37-38.

amount of corporate income tax collected in the source country.

Since taxation at source is not practicable in the cases described above, other possibilities are taken into account. On digital markets, a *server* may take the role of an intermediary between the enterprise and the customer.[107] Consequently, the issue is raised whether a server maintained by a non-resident in a source country may constitute a PE.[108] The OECD Model Tax Convention has stipulated the circumstances under which a server establishes a PE in its commentary to Article 5 of the OECD Model Tax Convention. Accordingly, a server generally has to meet the requirements of being a fixed place of business, being at the disposal of the company and carrying on wholly or partly the business of the enterprise. Furthermore, the functions performed by the server have to exceed the preparatory or auxiliary threshold. According to the OECD, a server will constitute a fixed place of business if it is located at a certain place for a certain amount of time.[109] The enterprise has the server at its disposal if, for example, the server is owned or leased and operated by the company.[110] It has to be examined on a case-by-case basis if the operations carried out by a server are deemed to be auxiliary or preparatory activities. For instance, in case of an internet service provider, the operation of its servers constitutes an essential part of its business activities.[111] The presence of personnel is not necessary in order to determine that an enterprise carries out its business by a server.[112]

Generally, this outcome of the classification of a server as a PE is deemed to be consistent with the *benefit principle* in combination with the supply approach because a server establishes a PE only if it is physically located in the source country and not if there are only sales carried out via the server to consumers resident in the source country. To sum up, the commentary of the OECD represents a good basis in respect of content and it is to be welcomed for the clarification and acceptable certainty it provides.[113]

In case of a server constituting a PE, it would be easy for a company to install the server in a low tax country in order to reduce the overall tax burden as the server can be relocated with low effort. Consequently, incentives of manipulation and thus problems with the *principle of feasibility* arise. Besides, it has to be noted that it may be difficult to determine the amount of income

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[107] In contrast, for a web site it is clear that it cannot, in itself, constitute a PE. See OECD, 2000: section 42.2.

[108] This question is the most common one in the literature concerning electronic commerce and taxation. When dealing with this subject in a more systematical way, it becomes clear that this issue is not that relevant.

[109] See OECD, 2000: section 42.4.

[110] See OECD, 2000: section 42.3.

[111] See OECD, 2000: section 42.9.

[112] See OECD, 2000: section 42.5.

[113] See the further discussion in Hinnekens, 2001: 326-328.

attributable to the server.[114] Furthermore, it is unlikely that much tax revenue would be attributed to a server constituting a PE.[115]

Pursuant to the current tax rules, a *shift in tax revenue* from the source country to the country of residence might occur since, on the one hand, the tax attributes in the source country might become less frequent and, on the other hand, less income might be attributable to them.[116] It is conceivable that this shift is not intended by all those countries generating less tax revenue than before. When considering possible reforms, this development has to be taken into account as an allocation of tax revenue may be consistent with the general tax principles but not with the objective of the respective jurisdictions.

4.1.2. Scope of Taxation: The Source Principle

In section three, the direct implications of the generally accepted tax principles on the application of the source principle have been analysed. It has been elaborated that, basically, taxation according to the source principle may ensure CEN. However, with regard to the principle of equity between different taxpayers, the source principle is not recommendable. After having elaborated the effects of ICT on the tax attributes in the source country in the preceding section, the impact of issues concerning the tax attributes on the application of the source principle will be examined in this section.

Taxation based on the source principle means that all income generated in a country is finally taxed in the source country and thus according to its valuations. For these purposes, the country of residence completely exempts the income generated in the source country. The *principle of feasibility* implies that the effective enforcement of a tax system has to be guaranteed in order to achieve equity and efficiency. For the purpose of taxation according to the source principle, the tax attributes in the source country need to be clearly determinable and possibilities of manipulation have to be prevented. As elaborated in section 4.1.1., due to the changed economic structures, there are serious problems of determining the amount and location of income as well as of avoiding manipulation in case of tax attributes in the source country.[117] Consequently, the source principle has an impact on the merits and in terms of amount. *First*, on the merits, problems concerning the determination of the *taxable base* arise in case of taxation according to the source principle. *Second*,

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[114] See for further details OECD, 2001a.

[115] Under aspects of abuse of law, the importance of the server should not get as much attention. If a company wants to attribute income to a certain country, it can achieve this result by use of a subsidiary. If a company wants to completely avoid the attribution of income to a certain country but wants to install a server there, this effect can be achieved by a certain construct. See also Hickey, 2000: 70. The problems of transfer pricing immanent to these aspects are not discussed here. See for further details OECD, 2001a.

[116] See Doernberg et al., 2001: 69, 342-343.

[117] See also Spengel, 2003: 346-347.

the application of the *tax exemption method* has an impact on the amount of the tax due as it provides for the final taxation according to the valuation of the source country. Consequently, it is the source principle that offers and enables the utilisation of the tax advantage in case of a source country with a low tax burden. Thereby, the source principle itself entails the incentive to manipulate the total tax burden by shifting income to a source country with relatively low effective tax rates in order to reduce the tax burden. Thus, the problems of feasibility and the control of manipulation mentioned in section 4.1.1. aggravate to a great extent. Hence, it is not recommendable to base international taxation on a concept that cannot generally ensure feasibility and prevention of manipulation.[118] In addition, as elaborated in section 3.2., the source principle cannot guarantee equity between different taxpayers. Therefore, to sum up, the application of the source principle in combination with the tax exemption method is no longer useful today.

4.2. Taxation in the Country of Residence

4.2.1. Tax Attributes: Place of Effective Management

As deduced in section three, the system of international corporate taxation may be based on the residence principle. The fact that taxation is based on the legal entities as tax attributes means that, in case of a multinational enterprise (MNE) with a parent company and several subsidiaries, the residence as well as the taxable profit of each separate company have to be determined. Consequently, the definition of residence has to be efficient and feasible, meaning that it shall ensure legal certainty, practicability and prevent manipulation. One common approach to identify a company's residence is the economic criterion of the *place of effective management*.[119] The applicability of this criterion may be examined on the basis of two examples: The *first example* deals with a MNE with physical headquarters and thus key managers residing and working in different countries. The *second example* deals with two persons, both responsible for management, who live and work in different countries. They create a company that develops and sells software via a server. Thus, the company has no physical headquarter or other business premises.

The place of effective management is generally located where the key management works and where decisions necessary for conducting a business are made.[120] This is normally the place where the most senior persons, such as the board of directors, meet to take decisions concerning the management of the

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118 See also Spengel, 2003: 346-347; Jacobs (Ed.), 2002: 311; Homburg, 2000a: 51-52; United States Department of the Treasury, 1996: 23.

119 See concerning the criteria of determining a company's residence Jacobs (Ed.), 2002: 525-526; Mössner, 1998: 72-73; Schaumburg, 1998: 303-304.

120 See Doernberg et al., 2001: 301-302. The place where the decisions are carried out is irrelevant. See Schlossmacher, 2002: 97-98.

company.[121] As regards the *organisational background*, the definition of the place of effective management is based on the assumption of a hierarchical company organisation which implies that the management can be located at one specific point for a certain time.[122] However, in the changed internal organisations, the hierarchical structures are replaced by horizontal, object-orientated and matrix structures whose characteristic is just an organisational structure without a traditional centre of management that could be located at one specific place.[123] Consequently, the management structure consists of a bi- and poly-centric network and is spread across many different countries as it may be the case in the two examples outlined above.

Due to those developments, several scenarios concerning the place of effective management are conceivable. *First*, it is possible that the group of managers meets in different locations of the corporation on a rotational basis, as it is the case in the first example.[124] This scenario leads to a *mobile place of effective management*. *Second*, by use of ICT, managers and employees residing and doing their work in multiple jurisdictions can communicate via several means of electronic communications, such as e-mail, electronic discussion group applications or video conferencing.[125] Thereby, it is no longer necessary for a group of persons to be physically located or to meet in one place.[126] Given the case of the second example, the directors do not have to meet physically in order to take decisions that are necessary for the conduct of the entity's business. Thus, each jurisdiction where a manager is located at the time of the decision making can be regarded as a place of management, but it is difficult to pinpoint *the one single most significant place*, i.e. the place of effective management of a corporation.[127] *Third*, it has to be recognised that, due to the use of ICT, the directors of a company are independent of the locations of the corporation itself. Thus, decisions can be taken while they are on the move. Therefore, the place of effective management may in some cases be situated in another jurisdiction than the main activities of the company. Due to those problems of the definition of residence, an *equitable* taxation of different taxpayers, a fair *allocation of tax revenues* between the jurisdictions and a taxation according to the *principle of feasibility* cannot be guaranteed.

To sum up, the changed organisational management structures in combination with the possibility of communicating via ICT without meeting physically make it difficult – if not impossible – to point to one constant physical location which

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[121] See OECD, 2001: 7 and also § 10 of the German General Tax Code.

[122] See Schlossmacher, 2002: 98; Herzig, 1998: 283.

[123] See Breuninger and Krüger, 1999: 101 and section 2.2.

[124] See OECD, 2001: 9.

[125] See Hinnekens, 2001: 323-324.

[126] See OECD, 2001: 8; Herzig, 1998: 283-284, talking about a "virtual management of organisations".

[127] See OECD, 2001: 9; Hinnekens, 2001: 323; Breuninger and Krüger, 1999: 110; The State Secretary of Finance, 1998: 10.

indicates the place of effective management. Consequently, the country of residence of a particular corporation may be ambiguous.[128] The outlined scenarios may lead to a double or even multiple residence or to a non-residence of the corporation. Certainly, those developments are not completely new, but they are more likely to occur as a result of recent technological changes.[129] Even if the residence of a number of companies can still be identified according to the current criterion of the place of effective management, the number of cases with problems as outlined above will increase.

In practice, *different countries* apply different approaches in order to identify a company's residence. Besides, as shown in the three scenarios above, the place of effective management does not always determine exactly one country of residence with legal certainty. Thus, cases in which a company is deemed to be domiciled in several countries or in no country may occur more frequently, which leads to double taxation or double non-taxation.[130] Looking at a corporation that is domiciled in two countries, Article 4 section 3 of the OECD Model Tax Convention stipulates the place of effective management as a *tie-breaker rule*. It is questionable whether this criterion is still adequate as a tie-breaker rule given the problems with its definition as outlined above.

The issue of defining the residence entails another aspect: The increased mobility of the management structure may – according to the tax principles – provide too much *flexibility* for companies to move their place of effective management only for tax purposes.[131] In order to establish a residence in a low tax country, the place of effective management may in theory be *manipulated* more easily in case of the changed economic structures than before, because the mobility of different areas of the company or of the managers can be facilitated by use of ICT. Consequently, the possibilities of abuse of the differences between international tax burdens and thus a violation of the *principle of feasibility* may increase.[132] To what extent these problems are of real importance in practice will be shown in the next section.

4.2.2. Scope of Taxation: The Residence Principle

In section three, it has been elaborated that the residence principle might fulfil CEN and that it permits equity between different taxpayers. As the application of the source principle is deemed to be no longer appropriate these days, it has to be examined whether the residence principle might constitute an alternative solution. In this regard, it is *questionable* which impact the problems concerning the tax attributes in the country of residence shown in the preceding section have

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128 See McLure Jr., 2001: 334, 336.
129 See also Doernberg et al., 2001: 165.
130 See Hinnekens, 2001: 324.
131 See Doernberg et al., 2001: 304; Musgrave, 2000: 50.
132 This is valid under the assumption that the place of effective management is the only criterion used in order to identify a company's residence.

on taxation according to the residence principle.

Taxation according to the residence principle means that the world-wide income is finally taxed according to the valuation of the country of residence.[133] The consequential application of the residence principle requires on the company's level the current taxation of the proportional income of foreign corporations in the country of residence and respectively a full imputation of the foreign corporate tax on the domestic corporate tax when accrued. On the shareholder's level, foreign and domestic dividends would have to be treated equally in order to achieve CEN.

As shown in the preceding section, the tax attributes and thus the determination of the company's residence may be *manipulated* with less effort nowadays as it is easier to establish a residence in a country with a lower tax burden. It is the residence principle itself that provides the incentive to do this, because it subjects the world-wide income generated in the source country and liable to tax in the residence as well as in the source country to the valuation of the country of residence. Therefore, the application of the residence principle in combination with the tax credit method aggravates the problems outlined in section 4.2.1. concerning the manipulation of the place of effective management. However, in comparison with the incentives and possibilities of manipulation in case of application of the source principle, the feasibility problems inherent in the residence principle are deemed to be *less serious*. This is due to the fact that, after all, a company's residence can be determined more easily than the source of income, as the source of income is even more mobile and more obscure.[134] Surely, under certain conditions as outlined above, a company may be free to choose its place of residence to some extent when it is founded. However, in general, the residence cannot – despite the problems mentioned above – be relocated that easily and the relocation of the residence is supposed to be not that frequent. *On the one hand*, as the definition of the country of residence might be based on several criteria, the country of residence will possibly not change, because it stays the same according to at least one criterion. *On the other hand*, if the country of residence changes definitively according to all criteria, a realisation of hidden reserves will often be the consequence.[135] In any case, a re-definition of the tax attribute of a company's residence is necessary in order to prevent manipulations.[136]

Generally, the problems of defining the source, the amount and the recipient of income generated in the source country are, on the merits, also inherent in case of taxation according to the residence principle, because the tax credit method relies on the amount of tax paid in the source country – the amount that has to be

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[133] See also for further details section 3.1.

[134] See Spengel, 2003: 344-345; Jacobs (Ed.), 2002: 309; Wissenschaftlicher Beirat beim BMF, 1999: 93-94.

[135] See Spengel, 2003: 256; Homburg, 2000a: 38; Portner, 1998: 596.

[136] See section 5.2.

credited.[137] This means that the *problem of income allocation* and of *inter-nation equity* is inherent and thus relevant for both, the residence principle as well as the source principle. Hence, there is no impact on the final amount of tax due as the latter depends on the level of tax in the country of residence. In the extreme case of the exclusive application of the tax credit method for all kinds of income, the tax rates in the source countries would be rendered unimportant.[138] However, in practice, the credit is limited in the majority of cases.[139]

As regards the general tax principles, the residence principle is deemed to be preferable compared to the source principle. However, in practice, *administration problems* regarding the implementation of the residence principle – which shall not be underestimated – arise in case of income from foreign corporations. In fact, the shelter effect of foreign corporations in case of profit retention – which is caused by the classification of corporations as separate legal entities – has to be avoided as this effect leads to taxation according to the source principle instead of the residence principle.[140] Thus, in order to guarantee taxation according to the residence principle, a current taxation of the retained profits of foreign corporations is necessary. With this aim in view, in practice, a very high degree of international co-operation is needed, which is deemed to be hard to achieve. Such a world-wide application of the residence principle may not be workable and could hardly be administered, especially in case of *portfolio participations of natural persons*.[141] Furthermore, the world-wide application of the tax credit method poses administrative problems as it is deemed to be complicated and as it requires a high administration effort, especially concerning the implementation of a feasible solution in order to guarantee a fair allocation of tax revenues among different jurisdictions.[142] To sum up, even if the residence principle is deemed preferable in international taxation, the administrative problems still have to be resolved.

4.3. Interim Result

It can be concluded that the problems caused by the increased use of ICT concerning the *tax attributes* in the *source country* are already serious nowadays, and they are supposed to become even more frequent in the future. The main problems lie in the determination of the source of income and the

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137 See also McLure Jr., 2000: 14.

138 This is valid under the assumption of a tax credit method without limitations. E.g., the case of a per-country limitation leads to a taxation according to the valuations of the source country and thus to the same result as in case of the application of the tax exemption method. See Jacobs (Ed.), 2002: 48.

139 Possible limitations are the overall limitation, the per-country limitation or the per-item-of-income limitation. See Jacobs (Ed.), 2002: 45-46.

140 See Jacobs (Ed.), 2002: 291.

141 See for further details Spengel, 2003: 252; Jacobs (Ed.), 2002: 295-296; Jacobs (Ed.), 2002a: 99-101; Wissenschaftlicher Beirat beim BMF, 1999: 36.

142 See Spengel, 2003: 347-348; Jacobs (Ed.), 2002: 312.

respective amount, as shown in the case of the changed internal organisation or of digital markets. Consequently, problems of manipulating the source of income arise. They especially have an impact when taxation is based on the *source principle*. As, in addition, the source principle may not be consistent with the equity principle, it is *not recommendable* to base international taxation on the source principle.

Furthermore, it has been shown that the *tax attributes* in the *country of residence* may also be hard to identify. However, the problems are *less serious* than in case of the tax attributes in the source country. Consequently, a taxation according to the *residence principle* is not that susceptible to manipulation. Since it is also consistent with the equity principle, international taxation shall be based on the residence principle. However, in practice, the realisation of the residence principle entails problems of the shelter effect of foreign corporations as well as the world-wide tax credit method. Furthermore, due to the *inter-nation equity*, the problem of defining the threshold for taxation in the source country and thus of defining the tax attributes in the source country still remains. Therefore, in the following sections, possible amendments concerning the current tax attributes in the source country as well as in the country of residence are outlined.

5. Reform Approaches

The objective of this section is to give a brief outline of feasible solutions to the problems presented in section four. Generally, reforms of the current international tax rules shall be based on the tax principles as interpreted above. Reforms outside the scope of the current tax system, such as the abolishment of taxation based on the corporate level or a formulary apportionment of income, are not considered here.

5.1. Reforms Concerning the Tax Attribute in the Source Country: Permanent Establishment

Even in case of taxation according to the residence principle, the tax attributes and thus the threshold of taxation in the source country have to be defined. In this context, the focus lies on the notion of a PE. As outlined in section 3.3., according to the *principle of economic allegiance*, the source country shall have the priority to tax in those cases in which the taxpayer participates according to the *supply approach* in the economic life of the source country. In the following, different possible approaches in order to reform taxation in the source country are outlined and examined.

5.1.1. Internal Organisation

As mentioned in section 4.1.1.1., the definition of a PE concerning the example of *telecommuting* poses problems: There are cases in which a relatively big portion of the value added is created in a certain country without a physical presence of the company. Consequently, according to the current PE-rule, no taxation takes place. It is questionable how this problem could be solved as, on the one hand, taxation should take place according to the *benefit principle*, but, on the other hand, there may be *feasibility problems* with regard to the determination of the source and the attributable amount of income. There are *several suggestions* concerning the *modification* of the definition of a PE: The requirement of the power of disposal could be adjusted to include those cases in which an employee works, for example, at home but under the authority of the company.[143] Another suggestion is to eliminate the requirement of the power of disposal completely.[144] Alternatively, an agency relationship could serve as a basis also for those cases in which the employee does not work in relation to the market in the source country but only in relation to the company as in the case of telecommuting.[145] It would also be possible to put more emphasis on the temporal aspect within the notion of a PE instead of the requirement of a physical presence of the company itself. Following this approach, the notion of a PE would, for example, be based on the requirement of a certain *duration* of the use of a place of business instead of the requirement of a permanent use of the place of business at *one specific location*.[146] This implies for the case of telecommuting that a PE exists in the source country if the employee is physically present and works for a certain minimum time period in the source country even if the company itself has no physical presence there.

To sum up, the different proposals require further research with regard to their feasibility in practice, because even if, due to an amendment of the definition of PE as outlined above, taxation according to the principle of economic allegiance might be possible, there still may be problems concerning the feasibility of the different approaches.

5.1.2. Digital Markets

It has been shown that in case of *digital markets*, a participation in the market of the source country is possible without any physical presence. The fact that no taxation takes place in this case has been considered as being consistent with the tax principles. As regards the special issue of an *internet server*, the classification by the OECD provides a satisfactory solution.[147]

Instead, there are frequent proposals concerning the *extension* of the source country's entitlement to tax. Basically, the intention behind is to attribute a bigger portion of the tax revenues to the source country. The extended entitlement of the source country may be based on a changed definition of the *underlying concept* of the PE, namely an extension of the required participation in the economic life of the source country. According to those proposals, taxation shall be based, for example, on grounds of a consumer market in the

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143 See Utescher, 1999: 379.
144 See Utescher, 1999: 380.
145 See Brunsbach, 2003: 232.
146 See Skaar, 1991: 570, 573.
147 See also Jacobs (Ed.), 2002: 411.

source country.[148] This would imply to tax a non-resident even if his business activity, e.g. a service, is only utilised by consumers in the source jurisdiction. The underlying claim is that commercial operations conducted via the internet without any physical presence shall be treated in the same way as the respective commercial operations performed via a physical presence.[149] This approach leads to a *re-definition* of the notion of a PE itself. Its definition is widened by the complete abolishment of certain requirements, such as the prerequisite of a physical presence. Thus, taxation in the source country would already be possible upon the existence of a virtual PE.[150]

The different forms of enlarging the taxable nexus in the source jurisdiction to such a great extent raise *problems* in several respects. The proposal of taxation in case of the existence of a consumer market is based on the *supply-demand approach*, which has already been assessed as not being feasible and therefore not recommendable.[151] In addition, in case of a virtual PE, there may be significant enforceability problems since a non-resident does not have any physical presence in the source country.[152] Besides, the claim of ensuring the same competitive conditions for commercial transactions conducted from abroad via ICT and via a physical presence in the source jurisdiction cannot be upheld here. In fact, the two scenarios differ from each other as regards the participation in the economic life of the source country. Therefore, it is just reasonable that the two situations representing different competitive positions are taxed differently in the source country.[153]

The main underlying purpose of the extension of the nexus in the source country is to allocate a bigger portion of the tax revenue to the source country. However, *firstly*, it should be kept in mind that, in case of a virtual PE, there might not much income be allocated to the source country.[154] *Secondly*, as elaborated above, tax sharing shall primarily be based on the benefit principle in combination with the supply approach. Thus, the intention to allocate a bigger portion of income to the source country does not in general justify a taxation that creates new serious problems. However, it is certain that the issue of income allocation has to be resolved in a way that it is consistent with the objectives of the affected countries. But before provoking other problems, it has to be elaborated if and to what extent there is a shift of tax revenue from the source

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148 See Strunk, 1999: 274-279; Avi-Yonah, 1997: 535-536, suggesting a de minimis threshold in order to exclude most small businesses.

149 See Strunk and Wichmann, 2001: 420; Strunk, 1999: 267-268, 273.

150 See Doernberg et al., 2001: 351-353; Eicker and Scheifele, 1999: 792; Hinnekens, 1998: 195-199.

151 See section 3.3.

152 See Doernberg et al., 2001: 348, 350.

153 See also Brunsbach, 2003: 234.

154 See Bernütz and Weinreich, 2001: 696; OECD, 2000: 2. Besides, it has to be considered that, in case of a virtual PE, enhanced problems of profit allocation would arise.

country to the country of residence[155] when implementing the respective reforms and to what extent this allocation is not consistent with the aim of the respective jurisdictions. In this regard, a search for other solutions than such an extreme extension of the notion of a PE would be useful.

To sum up, the proposal of an extension of the notion of a PE is considered as being neither consistent with the benefit principle nor does it seem workable in practice.

5.2. Reforms Concerning the Tax Attribute in the Country of Residence: Definition of Residence

Since the system of international corporate taxation shall be based on the *residence principle*, the definition of the country of residence is crucial. As elaborated in section 4.2.1., the main issue raised in case of taxation according to the residence principle consists in defining the place of residence so that it constitutes a *realistic* definition, meaning that it is in accordance with the actual economic activities of a company. Besides, the criterion of the place of residence shall provide *legal certainty* and it shall be *workable*, also in case of the changed economic structures.

As regards the criterion of the *place of effective management*, the problem lies in the fact that the place of effective management is defined as the place where the key management takes decisions which are of importance for the company. However, due to the changed economic structures and the use of ICT, this place may not be static, it may not be located at one place or it may be different from the place of the main activities of the company. For those cases, a solution has to be found. In order to evaluate the different reform approaches, the two examples shown in section 4.2.1. are used again.

Possible solutions could lie in an adjustment of the criterion of the place of effective management – as a solution with the fewest changes to the current situation – or in a substitution of this criterion by another one. If the application of one single criterion is not deemed to be sufficient, a combination of several criteria, such as in a hierarchy test, might constitute an alternative.

The *modification* of the criterion of the place of effective management would imply that the management of a company is still the decisive criterion for determining the residence, but that the factors defining where the management is located would be changed. One possibility would be to add to the place of decision-making, which could be mobile, a more static element. This might be, for example, either the physical location of the headquarter or where the main functions are performed, where the main influence is exerted or where the central management and control of the company is located according to the

[155] It is not always considered as being certain that this shift will be intense. See Portner, 1999: 645-646. See on the other hand The State Secretary of Finance, 1998: 23-24, expecting long-term budgetary consequences of the growth of electronic commerce.

company formation documents.[156] However, it is questionable if, in those cases in which the place of decision-making does not provide a clear answer, a modification of the criterion of the place of effective management leads to a more precise definition.

Besides adjusting the criterion of the place of effective management, it would also be possible to base the determination of the company's residence on other *alternative criteria*, such as the incorporation or the statutory seat as a more legal criteria, the residence of the managers or the shareholders or the economic nexus.

Pursuant to the criterion of the *place of incorporation*, a corporation is domiciled in a particular country if it was established under the law of that country. This is the case, for example, in the United States.[157] Another legal approach to define a company's residence is its *statutory seat*, a criterion that is used, for example, in the German tax law.[158] On the one hand, these legal criteria are easily verifiable and therefore provide certainty concerning the determination of the place of residence.[159] Administration and compliance costs of the mere procedure of incorporation are minimal.[160] However, the costs for controlling an equal enforcement of the law shall not be underestimated: In case of the application of only one of those legal criteria, they can be manipulated very easily as the company may choose to be incorporated or to have its statutory seat in the country with the most favourable tax system just by a legal act, without establishing any physical presence there. Furthermore, the approaches are rather artificial as – in case of the determination of residence only based on those criteria – the residence is pinpointed without paying attention to the effective place of the activities performed by the company. Consequently, the place of incorporation or of the statutory seat can differ from the centre of the company's operations.[161] Due to those problems with the principle of administrative feasibility and, consequently, with the principle of equity between different taxpayers, a determination of the residence solely based on those legal criteria does not necessarily represent an adequate alternative.[162]

Another alternative suggests to define the company's residence according to the *residence of the key managers or directors*.[163] This proposal rests upon the assumption that the residence of a natural person is easily verifiable and not as mobile as that of a legal person. It is questionable whether and in which cases

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[156] See concerning those possibilities for a tie breaker rule OECD, 2001: 12.
[157] See sections 11(a) and 7701(a) 4 of the United States Internal Revenue Code; Schlossmacher, 2002: 99.
[158] See § 11 of the German General Tax Code.
[159] See also Peter, 2002: 262.
[160] See OECD, 2001: 10.
[161] See Doernberg et al., 2001: 302; Avi-Yonah, 1997: 527-528.
[162] See also OECD, 2001: 11; Bernütz and Weinreich, 2001: 700.
[163] See Doernberg et al., 2001: 372.

this approach leads to a better solution than the current definition. Even if the residence of a manager is not that mobile, it is likely that in some of those cases in which the place of effective management cannot be defined according to the current criterion, it can neither be identified according to the managers' residence. If the managers do not meet in order to take decisions but communicate via ICT, this phenomenon is partially just due to the fact that the managers reside in different countries. Thus, their residence would not necessarily provide an easier or more workable definition of the company's residence. However, the criterion of the managers' residence might be useful in those cases in which the company itself does not have a physical presence, as shown in the second example, or if the place of decision-making can be manipulated easily. In addition, it has to be noted that in certain cases the criterion of the managers' residence does not necessarily lead to a determination of the residence in accordance with the economic activities of a company.

A further proposal identifies the residence of a company according to the *residence of its shareholders*, meaning that the company's residence is located in the jurisdiction where the biggest portion of the shares is hold by the residents. This approach is based on the idea that, finally, a corporation is nothing more than a network of contractual relationships between natural persons, among them the shareholders who ultimately own the company. As in the preceding approach, the underlying notion is that the residence of a natural person is rather immobile. However, it is doubtful whether this approach could constitute an alternative to the place of effective management in the problematic cases outlined above. In case of a *MNE* with a poly-centric management structure, it is likely that the shareholders also reside in many different jurisdictions. Especially the private shareholders' residence may often be unknown. In case of legal persons as shareholders, who often hold the biggest part of shares and therefore might be decisive, the resulting place of residence may in many cases constitute an inappropriate solution, because the resident jurisdiction defined this way has nothing to do with the actual business operations of the company. Finally, the mere application of the criterion of the shareholders' residence could lead to a concentration of companies domiciled in industrialised countries as it is nowadays more probable that the shareholders of a corporation reside in an industrialised country than the fact that the company really exerts its business activities there. Compared with the criterion of the managers' residence, the latter should be preferred as it relies solely on natural persons and thus does not include problems with the residence of legal persons.

Another possibility consists in basing the definition of the residence on a more economic criterion, meaning the place where the *economic nexus* is the strongest.[164] The economic connection may be characterised by material income producing factors, such as land, labour or capital. Usually, this criterion is

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[164] See OECD, 2001: 11-12; Doernberg et al., 2001: 374.

relevant in case of taxation at source. A definition of residence based on the economic nexus ensures that the residence would not be located in a jurisdiction where no activity of the company takes place. Regarding this approach, further research is required concerning the choice as well as the emphasis of the factors in order to develop a workable definition of residence. In particular, it has to be elaborated to what extent the same problems as discussed in case of source-based taxation arise due to the changed economic structures. Again, the problem consists in defining the factors which determine an economic nexus of a company.

Besides the alternatives of applying a sole criterion, a *combination* of several criteria is possible for cases in which the residence of a company is unclear when applying the criterion of the place of effective management to the changed economic structures. Such a combination could be based on a *formula* taking into account the residence of managers, shareholders and employees, the economic nexus as well as the place of incorporation as a legal criterion.[165] In addition, a hierarchical way of considering the different factors might be useful.[166] Such a *hierarchical test* could take into account the fact that the criteria differ concerning their usefulness for different economic company models. For example, besides the place of effective management, the economic nexus may serve as one criterion within the hierarchical test. A legal criterion might be useful to represent the last component of a hierarchy test, as, in the end, it provides legal certainty in the majority of cases.

To summarise, in order to achieve a feasible solution concerning the definition of residence, it would be useful to further examine, on the one hand, the cases in which the criterion of the place of effective management is deemed to be no longer appropriate and, on the other hand, the feasibility – also concerning the probability of an international agreement – of different reforms.

5.3. Scope of Taxation

As elaborated in section 4.1.2., a general application of the *source principle* is not recommendable. Therefore, it is not discussed in more detail here.

Instead, international tax law should, in general, be based on the *residence principle*. However, the solution to *feasibility problems* coming along with its implementation[167] requires further research. In this regard, the focus lies on the circumvention of the shelter effect of foreign corporations as well as the administrative challenges with the application of the tax credit method. Possible solutions would depend on the potential of international co-operation between different countries as well as on the extent to which different corporate tax systems will assimilate.

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[165] See Doernberg et al., 2001: 372-373.
[166] See Peter, 2002: 277; OECD, 2001: 13-14.
[167] See section 4.2.2.

In order to prevent the opportunities of *manipulating* the country of residence in case of taxation based on the residence principle, reforms concerning the tax attributes as outlined in the preceding section might be helpful. The problems of determining the source of income – which, since the principle of inter-nation equity requires a fair allocation of tax revenues between the country of source and the country of residence, is also relevant in case of the mere application of the residence principle – might be solved by the amendments to the tax attributes in the source country as described above.

6. Summary

(1) The main consequences of the increased use of *ICT* in markets and hierarchies are the development of digital markets, the regional and organisational decentralisation of the internal organisation as well as the augmented occurrence of hybrid forms of co-operation.

(2) Given the economic structures changed by the use of ICT, the concept of *capital export neutrality* shall prevail in international corporate taxation whereas the concept of capital import neutrality is deemed as not being appropriate to the changed economic structures. The *principle of inter-nation equity* requires that taxation is based on the *principle of economic allegiance*. In order to identify the source of profits, the *supply approach* is preferable to the supply-demand approach because the latter raises problems of determining the place of demand caused by the increased use of ICT.

(3) When applying the current *PE-concept* to the changed economic structures, the reference to physical aspects may raise problems. Concerning the *internal organisation* of a company, the definition of a PE is not consistent with the principle of economic allegiance in case of *telecommuting*: Even though a relatively big share of the value added is generated in the source country, no taxation takes place under the current definition. In this regard, an adjustment of the definition of a PE might be necessary. Besides, as it becomes difficult to pinpoint the source of income, problems with the principle of feasibility result. In addition, increased opportunities of manipulation arise as the structure of the internal organisation becomes more flexible. As regards *digital markets*, it is consistent with the tax principles that no taxation takes place if the consumer market represents the only nexus to the source country. Thus, possible reforms concerning an enlargement of the PE-concept, e.g. taxation in case of a consumer market or a virtual PE, are not recommendable. With regard to the *allocation of tax revenue*, first, it has to be observed to what extent a *shift* from the source country to the residence jurisdiction results. Second, a workable solution for allocating the tax revenues has to be compiled when reforming the tax attributes.

(4) Consequently, due to the increased use of ICT, it becomes more and more difficult to identify the source of income, and the source is more often susceptible to manipulation. As those incentives especially have an impact in case of taxation according to the *source principle*, the application of this approach is *not recommendable*.

(5) Due to the application of ICT and the changed organisational structures, the criterion of the *place of effective management* designating a company's residence raises problems, as the place of effective management may be mobile, it may not be possible to pinpoint the one single most significant place, or the place of effective management may not coincide with the place of the main activities of the company. Other possible solutions might be an adjustment of the criterion of the place of effective management or (a combination of) additional alternative criteria, such as the economic nexus or the residence of the managers.

(6) The fact that the tax attributes in the country of residence may be mobile and can be manipulated has a negative impact on the application of the *residence principle*. However, as the residence principle is less susceptible to manipulation, those problems are *less serious* than in case of taxation according to the source principle. Consequently, international taxation shall be based on the residence principle. In practice, the *administration problems* concerning the world-wide application of the residence principle in combination with the tax credit method, which are caused by the shelter effect of foreign corporations, require a workable solution.

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