Improving the *SNA* Treatment of Transactions within Multinational Enterprises[*]

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Abstract

Multinational enterprises play a unique and important role in the global economy and in national economies. Core measures in the *SNA* are affected by the treatment of transactions within MNEs under the residence concept, which is effectively a *legal* concept or a quasi-economic concept rather than a pure *economic* concept. In the case of MNEs that are structured with legal entities that lack economic substance, legal residence may generate results that are inconsistent with the objectives of the *SNA*. Furthermore, economic literature on the formation of MNEs, global guidance on the taxation of MNEs, and economic measurement literature on alternatives to legal residence all lend support to a concept of economic residence in lieu of legal residence. Thus, this paper proposes improving the *SNA* treatment of transactions within MNEs by differentiating *SNA* supplemental measures under the current effective concept of *legal* residence from *SNA* core measures under a pure concept of *economic* residence.

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1. Introduction

In the *System of National Accounts* (*SNA*), multinational enterprises (MNEs) are a special category of direct investment that results when a direct investor has control over a direct investment enterprise. Given this control, MNEs play a unique and important role in the global economy and in national economies. While international guidelines such as the *Balance of Payments and International Investment Position Manual* (*BPM*) and the *Benchmark Definition of Foreign Direct Investment* (*BD*) recommend measures designed to provide insight into the role of direct investment and MNEs in official statistics, the measures are not included in the core framework of the *SNA*. In addition, the *SNA* attributes transactions to economic territories based on residence. The residence of an entity is generally the economic territory in which most of an entity's economic activity takes place. Thus, the intent of the residence concept is to attribute transactions where production is taking place.

The scope of the residence concept includes transactions conducted within MNEs, which are often structured with entities for purposes other than production and often engage in internal transactions. These two features present challenges for economic accounting. Under the latter feature, internal transactions are valued using transfer pricing methods that may fail to reflect market outcomes. While such failure inevitably affects economic accounting statistics, any distortions that result from mispriced transactions are presumably limited because transfer prices are subject to strict regulatory scrutiny and enforcement by national tax authorities. A bigger challenge for economic accounting is the appearance of transactions when MNEs are structured for purposes other than production because such structuring facilitates the artificial locations of inputs and output and of debt and equity. The result is a wedge between the location of production and the location of the underlying factors of production, which affects the accuracy and relevance of core *SNA* measures as well as the interpretability of the measures.

In the case of an entity with little or no physical presence and little or no economic activity, residence in the *SNA* is determined as the economic territory in which the entity is legally incorporated or registered. As a result, the *SNA* rest of world account includes transactions conducted within MNEs regardless of economic substance. While the recommendation for legal residence is intended to be a pragmatic exception to an otherwise economic concept of residence, the recommendation may generate distortions throughout the core framework of the *SNA* and has been shown empirically to generate questionable results for some published measures in the United States (Lipsey 2010, Rassier (forthcoming)). In addition, the proliferation of transactions that lack economic substance within MNEs is evident in efforts by national tax authorities and international bodies to mitigate the increasing erosion of tax bases through profit shifting, which is accomplished through structuring for purposes other than production. Thus, the intent of the residence concept is based on *economic* residence, but the essence of the residence concept is based on *legal* residence. In other words, residence in the *SNA* is effectively a *legal* concept or a quasi-economic concept rather than a pure *economic* concept, which has important implications for the future of national accounts as long as transactions that lack economic substance continue to grow. As the global economy evolves and as the role of MNEs evolves, an accurate and complete picture of economically meaningful transactions within MNEs, and consequently, between national economies and the rest of world is increasingly important for policy makers and researchers who rely on economic accounting statistics.

Recent papers suggest supplementing supply and use tables compiled from the *SNA* goods and services account with breakdowns on domestic- and foreign-owned resident entities (Ahmad and Ribarsky 2014, Fetzer and Strassner 2015) or supplementing the *SNA* primary income accounts with separate statistics on direct investment income flows (Harrison 2014). In addition, statistical companions to the *SNA*, such as the *BD*, already include recommendations to mitigate the distortionary effects of structuring for purposes other than production. Regardless of supplemental measures and regardless of recommendations under other statistical guidelines, achieving the fundamental linkages of the *SNA* rest of world account with the goods and services account via imports and exports and with the income accounts via property income becomes challenging when economic residence and legal residence do not overlap. Likewise, achieving the *SNA* objective of distinguishing the rest of world account from the production account becomes challenging when economic residence and legal residence do not overlap.

This paper suggests a fundamental alternative to the current *SNA* recommendations: limit the scope of the residence concept to *economic* residence in lieu of *legal* residence. In particular, the paper proposes differentiating *SNA* supplemental measures under the current effective concept of *legal* residence from *SNA* core measures under a pure concept of *economic* residence in the rest of world account. While *SNA* national aggregates such as gross national income (GNI), national disposable income, and national wealth may not be affected when economic residence and legal residence do not overlap, *SNA* domestic aggregates such as gross domestic product (GDP), disposable income, saving, and net lending / net borrowing may become less accurate and less relevant to the objectives of the *SNA*.[1] In contrast, a pure concept of economic

[1] However, even *SNA* national aggregates may be affected by a lack of overlap in the case of corporate inversions as discussed in Hanson et al. (2015).

residence proposed in the paper will yield an improved core framework that is more consistent with the objectives of the *SNA*.

The paper is organized in five sections that follow. The next section summarizes the residence concept of the *SNA* and related international guidelines. The third section provides an overview of previous related economic literature on MNEs. The fourth section proposes a core *SNA* framework that is based on a pure concept of economic residence. The fifth section introduces some practical considerations for attributing transactions within MNEs based on economic residence. The last section concludes.

2. The Residence Concept

According to the *SNA*, the residence of an institutional unit is the economic territory in which the unit has its center of predominant economic interest (*SNA* para. 4.10). The center of predominant economic interest is generally based on attributes of physical presence such as dwelling or place of production (*SNA* para. 4.14); however, for a unit with few or no attributes of physical presence, residence is determined by the unit's place of legal incorporation or registration (*SNA* para. 4.15(f)). In addition, the *SNA* emphasizes that the use of economic territory as the scope of economic statistics means that affiliated enterprises are each resident in the economy of physical or legal location rather than the economy of the group's head office (*SNA* para. 4.12). Thus, the scope of economic statistics under the residence concept includes transactions conducted within MNEs, which may include transactions that lack economic substance if an MNE is structured with legal entities that do not engage in production. In other words, the scope of rest of world transactions is potentially broader under an effective concept of legal residence than under a more limited pure concept of economic residence. Furthermore, legal residence does not require a physical presence and does not necessarily result in production, but as explained in section 3, economic residence quite likely requires a physical presence and does result in production.

Figure 1 depicts the scope of rest of world transactions under the residence concept. In figure 1, economic residents in the domestic economy and in foreign economies are represented by the shaded areas labeled X, and legal residents are represented by the unshaded areas labeled Y. If all legal residents have an economic presence by engaging in production, which is likely the case for unaffiliated enterprises, then the overlap between legal residents and economic residents is complete, and the scope of rest of world transactions is the same under a legal residence concept and an economic residence concept. In other words, the scope of rest of world transactions is based on a pure economic concept. However, as the overlap decreases between legal residents and economic residents, which may be the case for affiliated enterprises especially where the *SNA* criterion of control is satisfied for MNEs, then the scope of rest of world transactions increases and residence is effectively a legal concept or a quasi-economic concept. In contrast, if measured transactions are limited to transactions conducted between economic residents based on their involvement in production, the scope of rest of world transactions is limited to the shaded areas regardless of overlap between legal residents and economic residents. Thus, an effective legal residence concept may yield rest of world transactions that do not exist under a pure economic residence concept.

Residence in the *BPM* is consistent with residence in the *SNA*. The objective of the *BPM* is to set the global standard for balance of payments and international investment statistics. The *BPM* includes additional details on residence, but the shared objective of the *SNA* and the *BPM* is to measure and attribute production to the economy in which production is actually taking place. Direct investment is one of the functional categories recommended in the *BPM* to be reported for balance of payments and international investment statistics. In addition to the *SNA* and the *BPM*, the objective of the *BD* is to set the global standard for direct investment statistics. The *BD* offers recommendations not found in the *SNA* or in the *BPM* for MNEs because of their unique role in direct investment transactions and positions and because of their implications for direct investment statistics under the residence concept. In particular, the *BD* recommends that separate statistics be provided by compilers on special purpose entities, which are entities in MNEs with little or no physical presence and little or no economic activity. Thus, the *BD* recommends measures designed to mitigate the distortionary effects of structuring for purposes other than production that result under the effective legal residence concept. However, neither the recommendations of the *BPM* nor the recommendations of the *BD* are included in the core framework of the *SNA*.

3. Related Literature on Multinational Enterprises

The following related lines of literature provide context for the current paper: 1) economic literature on the formation of MNEs, 2) economic literature on the taxation of MNEs, and 3) economic measurement literature on alternatives to effective legal residence.

3.1. Formation of Multinational Enterprises

Economic literature on the formation of MNEs focuses on adapting general equilibrium trade models to include endogenous MNEs. Thus, the models assume firms operate in imperfectly competitive markets.[2] Current economic theories explain the formation of MNEs based on the organization of production into one of two types: vertical integration and horizontal integration. Vertical integration results when firms divide the production process among

[2] In early work, Caves (1971) argues that direct investment generally takes place in industries characterized by oligopolistic market structures rather than competitive market structures upon which trade theory is built. Likewise, Horst (1971) argues that the competitive market assumption required in general equilibrium models does not accurately reflect the reality of profit-maximizing MNEs with market power.

affiliates in order to take advantage of lower relative factor prices. Horizontal integration results when firms replicate production at affiliates in order to serve local markets. Helpman (1984) constructs one of the first theoretical models of vertical integration, and Brainard (1993) offers an empirical assessment of the model in which she finds very little MNE activity is explained by differences in factor prices. Markusen (1984) constructs one of the first theoretical models of horizontal integration, which is supported by empirical evidence in Brainard (1997). Markusen (1997) argues that the outcomes identified by vertical and horizontal models face limitations based on underlying assumptions and constructs an alternative knowledge-capital model, which explains a more comprehensive set of outcomes. Estimates in Carr et al. (2001) lend empirical support to the knowledge-capital model.

A common feature of the formation models is the inclusion of a local input such as labor and a firm-specific input such as intangibles, which can be used simultaneously by multiple entities within the enterprise. In other words, the firm-specific input is a shared input. In Helpman (1984) and Markusen (1984), the shared input is immobile but can serve multiple affiliates remotely. In Markusen (1997), knowledge is a shared input that is geographically mobile. In either case, shared inputs do not need to be physically present for production to take place, but shared inputs cannot generate output without the local input. In other words, production in Helpman (1984) and Markusen (1984, 1997) depends on a physical presence. Thus, the *SNA* effective concept of legal residence is not consistent with economic literature on the formation of MNEs, which is based on fundamental trade theory. In contrast, economic literature on the formation of MNEs seems to support a pure concept of economic residence.

3.2. Taxation of Multinational Enterprises

Horst (1971) constructs a partial equilibrium model to demonstrate the income shifting behavior of MNEs through transfer pricing decisions. The theoretical results in Horst (1971) are supported by a large body of empirical work primarily initiated by Grubert and Mutti (1991). More recently, Gresik (2001) provides a comprehensive look at the challenges imposed on national tax authorities by the ability of MNEs to shift production and resources across national boundaries. From a measurement perspective, profit shifting also imposes challenges for economic accounting. However, rather than focusing on profit shifting behavior per se, the focus in this paper is on responses of national tax authorities and international bodies such as the Organisation for Economic Co-operation and Development (OECD) that may be of use to economic accountants for improving core measures in the *SNA*.

Economic accountants and national tax authorities face similar challenges with respect to MNEs. Economic accountants want to know where within an MNE investment and production are taking place, and national tax authorities want to know where income from investment and production is earned. Current global guidance on international taxation is provided in the OECD's *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations* (OECD 2010b). The OECD transfer pricing guidelines generally recommend transactions within MNEs be recognized at market values (or "arm's length" values) as if the transactions are taking place among unrelated entities. Many national tax authorities impose and enforce the arm's length standard, which is subject to a number of practical challenges. Thus, the OECD is currently working on a project at the request of the G-20 finance ministers to address base erosion and profit shifting (BEPS).

The BEPS project calls for documentation that includes country-by-country reporting (OECD 2014a). Under country-by-country reporting, MNEs are required to report to national tax authorities, by country, earnings, revenues, income taxes paid and accrued, stated capital, accumulated earnings, number of employees, and tangible assets.[3] Some respondents to the BEPS project have expressed strong concern that country-by-country reporting is suggestive of a method of formulary apportionment, which the OECD transfer pricing guidelines explicitly reject as a substitute for the arm's length standard. However, the OECD asserts that the purpose of country-by-country reporting is to provide tax regulators with indicators regarding the location of economic activity in order to target audit risk rather than to replace the arm's length standard. Regardless of substitution between formulary apportionment and the arm's length standard, the indicators recommended under country-by-country reporting suggest the OECD considers economic activity to be determined in part by physical presence.

The BEPS project also includes an action on the artificial avoidance of permanent establishment status (OECD 2014b), which is related to a prior report on the attribution of profits to permanent establishments (OECD 2008b). A permanent establishment is a taxable presence that results in a jurisdiction based on an enterprise engaging in economic activity in the jurisdiction. The OECD model tax convention defines a permanent establishment as a fixed place of business, such as an office or a factory, which also includes dependent agents who act on behalf of an enterprise and who have authority to conclude contracts in the name of the enterprise but are not employees of the enterprise (OECD 2010a). Under the authorized OECD approach for permanent establishments, the profits attributable to a permanent establishment should be congruent with "the profits that the permanent establishment would have earned at

[3] While guidance under BEPS does not have the authority of regulation, some countries are moving forward with BEPS-related initiatives in advance of finalizing the BEPS recommendations.

arm's length if it were a legally distinct and separate enterprise performing the same or similar functions under the same or similar conditions" (OECD 2008b para. 10). Furthermore, the assumption of risk and the economic ownership of assets that underlie the arm's length result should be determined by the place of performance of "significant people functions" in the case of non-financial enterprises or by the location of "key entrepreneurial risk takers" in the case of financial enterprises. Thus, economic activity and the related attribution of profits to a permanent establishment are determined in part by physical presence.[4]

Overall, the *SNA* effective concept of legal residence does not seem consistent with global guidance on the taxation of MNEs, which shares closely related objectives with economic accounting. However, global guidance on the taxation of MNEs seems to support a pure concept of economic residence, which is determined at least in part by physical presence.[5] Thus, both the economic literature on the formation of MNEs and global guidance on the taxation of MNEs appear to support a pure concept of economic residence in lieu of legal residence. Furthermore, both the economic literature on the formation of MNEs and global guidance on the taxation of MNEs consider physical presence to be a necessary condition to determine economic activity.

3.3. Alternatives to Effective Legal Residence

Challenges encountered under the effective legal residence concept are widely addressed in international discourse and in economic measurement literature. The United Nations et al. (2011) recently published a collection of papers that address the impact of globalization on

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[4] In the case of electronic commerce, the commentary to the OECD model tax convention clarifies that computer equipment at a location may constitute a permanent establishment even if no personnel are required to operate the equipment. However, the attribution of profits to the permanent establishment would still depend on the performance of "significant people functions" under the authorized OECD approach, which implies little or no profit would be attributed to the permanent establishment (OECD 2008b para. 95).

[5] In addition to global guidance on the taxation of MNEs, which focuses on economic substance, the International Accounting Standards Board (IASB) generally highlights the importance of economic substance over legal form. In particular, the IASB highlights the importance of economic substance over legal form for determining the disclosure of related party relationships and transactions in financial statements in International Accounting Standard 24 (IASB 2009).

national accounts. Three papers are dedicated to identifying and explaining challenges associated with allocating production of MNEs to national economies based on legal residence. However, none of the papers propose replacing the effective legal residence concept with a pure economic residence concept.

In addition to the United Nations et al. (2011) papers, Lipsey (2010) argues that shared inputs such as intangibles and some services impose a challenge under the effective legal residence concept because returns to shared inputs may be attributed anywhere in the world and may result in transactions that lack economic substance when an MNE is structured for purposes other than production. As a result, Lipsey (2010) suggests but does not develop an alternative location-based framework to accompany the residence-based framework for measuring transactions in intellectual property and services. Lipsey's (2010) argument is supported with an alternative formulary apportionment framework in Rassier and Koncz-Bruner (2015) and Rassier (forthcoming). In particular, Rassier (forthcoming) treats a reduction in transactions in direct investment income that result for MNEs under formulary apportionment as an implied increase in GDP for the United States.

Earlier work also suggests an alternative ownership-based framework for organizing direct investment and trade statistics. Baldwin and Kimura (1998) and Kimura and Baldwin (1998) use results for the U.S. and Japan to highlight the usefulness of an ownership-based framework. More recently, Federico (2015) applies bilateral data on 44 countries to the Baldwin and Kimura (1998) framework. While an ownership-based framework may address some of the challenges encountered under the effective legal residence concept, an ownership-based framework is not designed to identify the location of production within MNEs, which is the centerpiece for economic accounting purposes.

4. An *SNA* Framework based on Economic Residence

The scope of rest of world transactions outlined in figure 1 is instructive for the *SNA* treatment of transactions within MNEs. In particular, rest of world transactions should include transactions within MNEs but should be limited to transactions between economic residents and should not include transactions with mere legal residents because the latter could result in distortions in *SNA* core measures. Tables 1 and 2 outline the effects on *SNA* measures of treating transactions within MNEs under an effective legal residence concept and under a pure economic residence concept. Consistent with the notation in figure 1, an X in tables 1 and 2 denotes transactions for economic residents, and a Y denotes transactions for mere legal residents with no economic substance. Thus, a Y indicates a potential distortion introduced by the effective legal residence concept for a particular transaction or balancing item. Transactions for economic residents are shown in the odd numbered columns, and transactions for mere legal residents are shown in the even numbered columns.

4.1. Current Accounts

The *SNA* current accounts are presented in table 1. As shown at the top of table 1, transactions with mere legal residents may affect imports and exports of goods and services. While trade in goods may be subject to the effects of mere legal residence in cases where intangible inputs are an important part of production, trade in services has been identified as particularly vulnerable to the effective concept of legal residence (Lipsey 2009). In Lipsey's (2009 p. 44) words, "The measurement of trade in more and more services places a great deal of weight on the definition of residence, because the identification of residence can change what is, on the face of it, a domestic transaction into an international transaction." In the context of the *SNA*, the fundamental linkages between the rest of world account and the goods and services account via imports and exports become blurry when economic residence and legal residence do not overlap. Likewise, if output in the production account includes exports based on mere legal residence or if intermediate consumption in the production account includes imports based on mere legal residence, then achieving the *SNA* objective of distinguishing the rest of world account from the production account also becomes challenging. Thus, value-added and the external balance of goods and services are both subject to distortions under effective legal residence.

In the primary distribution of income account in table 1, operating surplus is affected to the extent of any distortions in value-added. In addition, property income is subject to distortions as a result of transactions based on mere legal residence. Thus, the fundamental linkages between the rest of world account and the income accounts via property income also become blurry when economic residence and legal residence do not overlap. However, national income should not be affected because national income includes dividends and reinvested earnings that result under direct investment. Thus, any distortions in operating surplus or property income that result from effective legal residence should be offset in national income by the reallocation of income back to the direct investor.[6]

Most of the transactions in the secondary distribution of income account in table 1 are unaffected by mere legal residents. However, other current transfers may be affected by rest of world transactions in non-life insurance when they are conducted within MNEs. In particular, MNEs are often structured with non-resident reinsurance affiliates in order to grow their domestic non-life insurance business and in order to take advantage of lower capital requirements in some jurisdictions. If a reinsurance affiliate is created as a legal entity with no

[6] As discussed in Hanson et al. (2015), an exception for national income may result under a corporate inversion. A corporate inversion is a legal reorganization in which a domestic parent becomes a wholly owned subsidiary of a foreign enterprise. The result affects both dividends and reinvested earnings that result under direct investment.

economic substance, the result will yield artificial transactions in net premiums and claims that are recorded as other current transfers in the secondary distribution of income account. Thus, disposable income is affected to the extent that transactions in net premiums and claims are conducted with mere legal residents rather than economic residents. The effect on disposable income is shown with Y′ rather than Y because the effect is a result of secondary income transactions rather than production transactions or primary income transactions.

The effect of mere legal residents on disposable income is carried forward to the use of disposable income account at the bottom of table 1, which subsequently affects saving. In addition, the current external balance at the bottom of the use of disposable income is affected to the extent of any effect on rest of world transactions in goods and services and rest of world transactions in income.

4.2. Accumulation Accounts and Balance Sheets

The *SNA* accumulation accounts and balance sheets are presented in table 2. Given the treatment in the *SNA* of foreign-owned land and immovable assets as notional residents and the limited effect of mere legal residence on capital transfers, the only effects shown in table 2 on the capital account are carried over with saving and the current external balance from the use of disposable income account. However, the effects from saving and the current external balance also affect changes in net worth due to saving and capital transfers and net lending / net borrowing. In addition, transactions in financial assets and liabilities in the financial account should have an equal effect on net lending / net borrowing in the financial account as long as three counterpart transactions based on mere legal residence are recorded in the financial account: 1) payments for imports and exports, 2) reinvestment of earnings, and 3) unearned premiums and claims outstanding on non-life insurance.

The other changes in the volume of assets (OCVA) account in table 2 does not show any effects based on mere legal residence because the OCVA account does not include rest of world changes. The revaluation account does include rest of world revaluations and will be affected to the extent that mere legal residents hold financial assets and liabilities that have experienced changes in prices. The residual changes in net worth due to holding gains and losses are also affected in the revaluation account. Likewise, financial assets and liabilities in the balance sheets will be affected to the extent that mere legal residents hold financial assets and liabilities. The balance sheets are also affected to the extent of any effect on changes in net worth due to saving and capital transfers in the capital account and changes in net worth due to holding gains and losses in the revaluation account. However, net worth in the balance sheets should not be affected by mere legal residence because net worth is a national concept that includes financial assets and liabilities that result under direct investment.

4.3. Core Measures and Supplemental Measures

In addition to outlining the effects of treating transactions within MNEs under an effective legal residence concept and under a pure economic residence concept, tables 1 and 2 demonstrate alternatives for core measures and supplemental measures in the *SNA* framework. Under an effective legal residence concept, core measures include the sum of the odd- and the even-numbered columns for each account. Thus, current core measures in the *SNA* include any distortions introduced to the goods and services account, rest of world account, and total economy accounts by mere legal residents with no economic substance. In order to assess the magnitude of any distortions on current core measures, supplemental measures on transactions with mere legal residents as shown in the even-numbered columns may be separately provided. Supplemental measures have been proposed for some *SNA* accounts in recent papers (Ahmad and Ribarsky 2014, Fetzer and Strassner 2015, Harrison 2014). However, supplemental measures do not resolve the challenge of mitigating distortions in core measures.

Under a pure economic residence concept, core measures include only the odd-numbered columns for each account. Thus, alternative core measures under a pure economic residence concept exclude any distortions introduced to the goods and services account, rest of world account, and total economy accounts by legal residents with no economic substance. Supplemental measures on transactions with mere legal residents as shown in the even-numbered columns may still be separately provided. However, core measures under a pure economic residence concept effectively achieve the fundamental linkages of the *SNA* rest of world account with other *SNA* accounts and effectively achieve the *SNA* objective of distinguishing the rest of world account from the production account when economic residence and legal residence do not overlap.

5. Pragmatic Considerations

Since the *SNA* is an organizing framework built on economic concepts, certain recommendations are made to facilitate pragmatic considerations. However, facilitating pragmatic considerations may yield statistics that are inconsistent with the core objectives of the *SNA*. The treatment of goods for processing is an example of a recent change in the *SNA* that is intended to bridge a gap between recommendations based on pragmatic considerations and recommendations based on sound economic accounting principles. Under the 1993 version of the *SNA*, goods for processing transactions are recognized as goods cross territorial borders. Under the 2008 version of the *SNA*, good for processing transactions are recognized based on changes in economic ownership. The change in recognition is an example of a change that is conceptually sound but pragmatically challenging for most countries because balance of payments statistics are generally measured from customs documentation as goods cross territorial borders. However, the change was introduced to the 2008 version of the *SNA* in order to more accurately reflect the contribution of global production arrangements in core measures of the *SNA* and the *BPM* frameworks.

From a pragmatic perspective, a pure concept of economic residence for MNEs is challenging but may not be impossible to implement. Rassier and Koncz-Bruner (2015) and Rassier (forthcoming) argue that a method of formulary apportionment is a pragmatic solution for attributing transactions within MNEs based on economic substance. Formulary apportionment is a measurement method adopted from tax practice that attributes consolidated business accounting measures of income to jurisdictions based on factors such as employment, tangible property, and sales that reflect where economic activity takes place. The method is an alternative to separate accounting and the arm's length standard under the OECD transfer pricing guidelines.

Formulary apportionment is not without critics for international tax purposes, but the arguments made against the method for international tax purposes do not necessarily apply for economic accounting purposes. In fact, formulary apportionment is suggested in the *SNA* for determining the current market value of a global enterprise group to record in the balance sheet (*SNA* para. 13.71(f)). In addition, formulary apportionment is widely used by businesses that operate in multiple states of federations and is an option for businesses that operate in multiple European Union countries under the European Commission's directive for a Common Consolidated Corporate Tax Base (European Commission 2011). The method is also demonstrated in Rassier (forthcoming) to work for United States balance of payments statistics using survey data collected on transactions in direct investment income and survey data collected on activities of MNEs. Thus, formulary apportionment is feasible using routine statistical data that are currently collected by some national statistical institutes and is feasible according to experiences based on tax practice and applied statistical research.

6. Conclusion

Multinational enterprises play a unique and important role in the global economy and in national economies. Core measures in the *SNA* are affected by the treatment of transactions within MNEs under the residence concept, which is effectively a *legal* concept or a quasi-economic concept rather than a pure *economic* concept. In the case of MNEs that are structured with legal entities that lack economic substance, legal residence may generate results that are inconsistent with the objectives of the *SNA*. Furthermore, economic literature on the formation of MNEs, global guidance on the taxation of MNEs, and economic measurement literature on alternatives to legal residence all lend support to a concept of economic residence in lieu of legal residence. While a pure concept of economic residence may be more pragmatically challenging than an effective concept of legal residence, changes introduced on economic ownership in the 2008 version of the *SNA* highlight the importance of recommendations based on sound economic accounting principles rather than pragmatic considerations. In addition, recent research on attributing transactions within MNEs based on economic substance offer hope for pragmatic solutions under a pure economic residence concept. Thus, this paper proposes improving the *SNA* treatment of transactions within MNEs by differentiating *SNA* supplemental measures under the current effective concept of *legal* residence from *SNA* core measures under a pure concept of *economic* residence.

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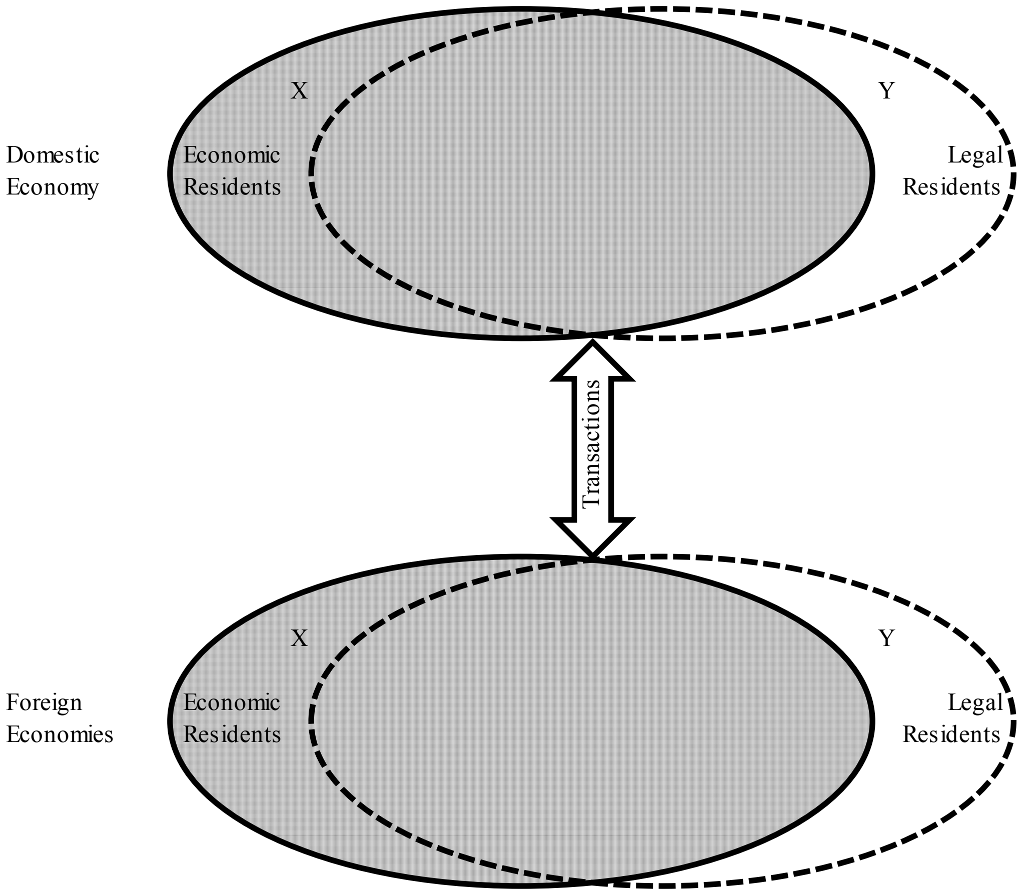
Figure 1
Scope of Rest of World Transactions under the Residence Concept



Note: Economic residents in the domestic economy and in foreign economies are represented by the shaded areas labeled X, and legal residents are represented by the unshaded areas labeled Y. Under an effective concept of legal residence, the scope of rest of world transactions includes the shaded and unshaded areas. Under a pure concept of economic residence, the scope of rest of world transactions is limited to the shaded areas. Thus, an effective legal residence concept may result in rest of world transactions that do not exist under a pure economic residence concept.

Table 1
***SNA* Current Accounts under the Residence Concept**

Uses | Resources

Total		Goods and Services		Rest of World		Total Economy				Total Economy		Rest of World		Goods and Services		Total	
Economic Residents	Legal Residents	Economic Residents	Legal Residents	Economic Residents	Legal Residents	Economic Residents	Legal Residents	Code	Transactions and Balancing Items	Economic Residents	Legal Residents	Economic Residents	Legal Residents	Economic Residents	Legal Residents	Economic Residents	Legal Residents
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)			(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
X	Y	X	Y					P7	Imports of goods and services			X	Y			X	Y
X	Y			X	Y			P6	Exports of goods and services					X	Y	X	Y
									Production Account								
X	Y	X	Y					P1	Output	X	Y					X	Y
X	Y					X	Y	P2	Intermediate consumption					X	Y	X	Y
X	Y					X	Y	B1	Value added (domestic product)								
X	Y			X	Y			B11	External balance of goods and services								
									Generation of Income Account								
								B1	Value added (domestic product)	X	Y					X	Y
X						X		D1	Compensation of employees								
X						X		D2	Taxes on production								
X						X		D3	Subsidies on production (-)								
X	Y					X	Y	B2	Operating surplus								
X						X		B3	Mixed income								
									Allocation of Primary Income Account								
								B2	Operating surplus	X	Y					X	Y
								B3	Mixed income	X						X	
X				X				D1	Compensation of employees	X		X				X	
								D2	Taxes on production	X						X	
								D3	Subsides on production (-)	X						X	
X	Y			X	Y	X	Y	D4	Property income	X	Y	X	Y			X	Y
X						X		B5	Balance of primary incomes (national income)								
									Secondary Distribution of Income Account								
								B5	Balance of primary incomes (national income)	X						X	
X				X		X		D5	Current taxes on income, wealth, etc.	X		X				X	
X				X		X		D61	Net social contributions	X		X				X	
X				X		X		D62	Social benefits other than social transfers in kind	X		X				X	
X	Y′			X	Y′	X	Y′	D7	Other current transfers	X	Y′	X	Y′			X	Y′
X	Y′					X	Y′	B6	Disposable income								
									Use of Disposable Income Account								
								B6	Disposable income	X	Y′					X	Y′
X	X					X		P3	Final consumption expenditure					X		X	
X	Y′					X	Y′	B8	Saving								
X	Y			X	Y			B12	Current external balance								

Note: An X denotes transactions for economic residents, and a Y denotes transactions for legal residents with no economic substance. A Y′ denotes an effect that is a result of secondary income transactions rather than production transactions or primary income transactions.

Table 2
SNA Accumulation Accounts and Balance Sheets under the Residence Concept

Changes in Assets | Change in Liabilities and Net Worth

Total		Goods and Services		Rest of World		Total Economy				Total Economy		Rest of World		Goods and Services		Total	
Economic Residents	Legal Residents	Economic Residents	Legal Residents	Economic Residents	Legal Residents	Economic Residents	Legal Residents	Code	Transactions and Balancing Items	Economic Residents	Legal Residents	Economic Residents	Legal Residents	Economic Residents	Legal Residents	Economic Residents	Legal Residents
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)			(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
									Capital Account								
								B8	Saving	X	Y′					X	Y′
								B12	Current external balance			X	Y			X	Y
X						X		P5	Capital formation					X		X	
								D9r	Capital transfers, receivable	X		X				X	
								D9p	Capital transfers, payable	X		X				X	
								B101	Changes in net worth due to saving and capital transfers	X	Y′	X	Y			X	Y
X	Y			X	Y	X	Y′	B9	Net lending / net borrowing								
									Financial Account								
								B9	Net lending / net borrowing	X	Y′	X	Y			X	Y
X	Y			X	Y	X	Y	F	Net acquisition of financial assets / liabilities	X	Y	X	Y			X	Y
									Other Changes in the Volume of Assets Account								
X						X		AN1	Produced non-financial assets								
X						X		AN2	Non-produced non-financial assets								
X						X		AF	Financial assets / liabilities	X						X	
								B102	Changes in net worth due to OCVA	X						X	
									Revaluation Account								
X						X		AN	Non-financial assets								
X	Y			X	Y	X	Y	AF	Financial assets and liabilities	X	Y	X	Y			X	Y
								B103	Changes in net worth due to holding gains and losses	X	Y	X	Y			X	Y
									Balance Sheets								
									Opening balance sheet								
X						X		AN	Non-financial assets								
X	Y			X	Y	X	Y	AF	Financial assets and liabilities	X	Y	X	Y			X	Y
								B90	Net worth	X		X				X	
									Total changes in assets and liabilities								
								B101	Saving and capital transfers	X	Y′	X	Y			X	Y
								B102	Other changes in the volume of assets	X						X	
								B103	Holding gains and losses	X	Y	X	Y			X	Y
									Closing balance sheet								
X						X		AN	Non-financial assets								
X	Y			X	Y	X	Y	AF	Financial assets and liabilities	X	Y	X	Y			X	Y
								B90	Net worth	X		X				X	

Note: An X denotes transactions for economic residents, and a Y denotes transactions for legal residents with no economic substance. A Y′ denotes an effect that is a result of secondary income transactions rather than production transactions or primary income transactions.