Reclaiming Relevance of the SNA Core

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RECLAIMING RELEVANCE OF THE SNA CORE*

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Abstract

Dissatisfaction with the National Accounts figures conforming with SNA2008 requirements have surfaced in several instances, since these figures were released. Not just when more ambitious aspects of the economy (like externalities affecting the environment) require measurements. But actually with the core concept GDP to measure country wide value added. The SNA2008 seems to have traded in statistical relevance of the core concepts (for complete accordance with Balance-of-Payments-Manual concepts), compared to SNA1993. The paper proposes some minor changes with big effects in terms of adjusting the statistical framework to better cater for users' needs. Especially needs for geographically organised/segmented data, in other ways than through the residence status of institutional units. Such reorientation requires the principles to be fully transparent. The paper presents alternative definitions of a few concepts which better suit the needs of users who want to know what is going on in specific areas.

—— Preliminary draft ——

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1 Introduction

> *"In summary, the new UN system has adopted gross* ***domestic*** *measures in its production accounts, and net* ***national*** *concepts for its income and outlay accounts."* About the SNA1968[5], from Ruggles and Ruggles (1970)[10]. [1]

National Accounts (NA) figures in accordance with *System of National Accounts 2008* (*SNA2008*)[7] were released by the US in 2013, and by the EU in 2014. When figures for the Irish economy were released in 2015, with large shifts occurring from one year to the next, puzzlement gave way to suspicion, about why GDP-figures exhibited a shift on a scale not common under the previous manual SNA1993[6], nor before.

Today, according to *SNA2008* definitions, the *Gross Domestic Product, GDP*, is more difficult to measure accurately. One example of the difficulties is the profound consequences of whether a company claims to own products which are loosely-speaking transferred between resident and non-resident entities or not. UNECE(2011)[3] provides much information about the statistical difficulties brought about by the globalization phenomenon. Even when the National Statistical Institutes, NSIs, make honest attempts to keep producing figures according to that manual, the results do not satisfy those people who are mostly interested in the description of activity in a specific economy, say the Danish, as the tangible dimension of geography has become elusive relative to the definition of GDP.

This state of affairs is not sustainable. The next manual is planned for publication in 2025, and conforming NA figures for the European Union (EU) are planned for 2029. User needs have to be addressed sooner, if the relevance of the SNA for economic statistics is not to be eroded too much more.

In this paper we explore how little the concepts need to be adjusted, if only more data are harvested for the necessary compilations, in order to better cater to the needs of users with a strong focus on production created in a specific geographic area.

1.1 Not new

The necessary distinctions are not new, but have been advanced right from the earliest comprehensive manuals of the international work on the definition of national accounts, cf. OEEC(1950)[1] which refers to investigations by Deane(1946)[2] about relevant accounts for areas during colonial times. The above quote illustrates that this understanding, reflected also in Kendrick(1972)[4][2], was prevalent in certain parts of academia during the 1970'ies.

The above quote summarises the situation before the previous manual, *SNA (1993)*, took effect by the mid-1990ies. In *Osterwald-Lenum (2017)*[9] it was

[1] Bold font added here. For the full quotation and context, go to the appendices. This quote succinctly documents the correctnes of the understanding on which the paper [9] was based.

[2] An excerpt is included in the appendices here.

demonstrated that there was a transition from *SNA(1968)* to *SNA(1993)*, and on to *SNA(2008)* which stricly speaking requires a change of name of the main concept of the SNA: *Gross Domestic Product (GDP)* to perhaps *Gross Residents' Product* or *Gross National Product.* The paper suggested that it would be helpful to redefine a set of concepts which are both scalable in terms of the geography, and the institutional units covered (relative to that geography).

1.2 Not ideal

This whole situation is, in this author's view, an example of the complexity of the manuals which have outgrown the capabilities of even the highly competent people writing the manuals. We need a simpler perspective, which most users can understand fully, and use to criticize proposed changes of the manuals, on the basis of. Such a *theory of economic measurement* is necessary if we are to truly improve *SNA* manuals rather than just change them. A modest beginning I sketched myself in *Osterwald-Lenum (2015)*[8]. Here I present proposals, using a preliminary methodology which draws on the relevant underlying records of the *virtual descriptive economic database (VDED)* presented in the latter paper.

2 The SNA core

The core of the SNA concepts and accounts are those, roughly speaking, which concern the definitions of production, output, consumption, capital expenditure and of income and saving. In terms of accounts, the standard presentations of National Accounts (NA) data, it is enough to consider the following six different accounts:

- Production account,
- Generation of income account,
- Allocation of primary income account,
- Allocation of other primary income account,
- Use of disposable income account, and
- Capital account

From these presentations the definitions of *Gross Domestic Product (GDP)* and *Gross National Income (GNI)* emerge as concepts derived from the detailed NA data. These concepts are all defined at the country-wide level, i.e. with respect to a specific economic area and the economic agents (institutional units) active (resident) there. Quite often users are interested in other economic areas, either larger units, comprising a number of countries (say the EU), or smaller areas (say internal regions of large countries).

2.1 The central question, and the implicit record layout of microfacts

SNA2008 posed the central question, and added a very perceptive comment:

> "Who does what, with whom, in exchange for what, by what means, for what purpose, with what changes in stocks?"
>
> Answering these questions for all economic flows and stocks and operators in a given economy would provide an enormous amount of information describing the complete network of economic interrelations. [3]

The answers to this question reveal most of the information which tabulations of National Accounts figures are based upon. The paper[8]extended this central question even more in its appendix 2. In this extended form the question is repeatedly used in the following, hopefully increasing intelligibility, at the expense of adding more pages to the paper.

It is the intention that all observations, the data from which are necessary for the definition of the NA-aggregates, should come from answers to this question. Thus it should be possible to define the NA-aggregates as summations from such observations. In the following such observations are called "microfacts".

For this reason we should consider the more general question concerning the involved geographies:

Which products are produced *where,* by *whom* located *where,* with the resulting benefits accruing to *whom*, located *where*?

2.2 Dissolution of GDP and GNI in terms of microfacts

Which microfacts are actually necessary to define GDP and GNI?

In principle it is possible, though teadious, to demonstrate that both concepts, *GDP* and *GNI*, are sums over the relevant microfacts. Such microfacts may be construed as records contained in the *Virtual Descriptive Economic Database (VDED)* which conceptually holds a precise record of what actually took place over any given (past) period, and at any given place. First we look at an attempt to transform an output transaction into such a microfact. As we may want to destill that first version of the output transaction into simpler, more basic VDED-transaction units, the first version is called a protomicrofact.

After illustrating the structure of the microfacts, next the aggregates are defined as *summations* over a *set* of microfacts. The *set of microfacts* are defined by a filter, and which field are used for the summation is clearly indicated. Here we use some conventions:

use '*' as a value in a specific field, a socalled "wildcard", when we indicate that the set of microfacts selected may have any value for that particular field.

"SUM over this" indicates the field, the values of which are added up.

[3] §2.8, page 16.

2.2.1 Illustration of the form of specific Output or Production microfacts

A protomicrofact for output could take the form, using the codes of SNA2008 for fields 2 and 10.

We imagine the product, indexed by an identifier product<id>1, is produced, P11, by a resident, IU<id1>, at a Domestic location, locat<id>1, and sold to a non-resident, IU<id2>, at time t_1. The transaction is valued at the market price v[usd]1. The record is given an identifier "vded<id1>".

Everywhere we use DK as the country identifier, both when determining the economic area, and residents.

	microfact	***fieldname***	***kind***
0	vded<id1>	VDED-record identifier	number
1	IU<id1>, DK-resident	who	units, with explicit resident status
2	P11, market output	does what (on which usual/unusual terms)	transactions, (and conditions of transaction)
3	going concern;	with what purpose	purpose
4	product<id>1	with which assets/products	assets/products
5	locat<id>1, DK-domestic area	where	region/country
6	v[usd]1	valued at which (monetary) amount	units of (which) currency
7	market value	at what value concept and prices (and quantities)	price concept, price level and price index
8	IU<id2>, DK non-resident	with whom as counterpart	units, with explicit resident status
9	t_1	at what time	time
10	AF.21, cash (currency)	(in exchange) for what; which payment or reciprocal product	assets/products
11	v[usd]1	valued at which (monetary) amount	units of (which) currency
12	0, as what is produced is also sold	with what change in stocks (as a result)	assets/products
13	product<id>2, laborhours<id>1, cap.services<id>1	by what means; drawing on (consuming) which economic resources	combination of assets, products, labour and capital services
14	going concern;	based on what expectations	aspects of future states of the economy

The above protomicrofact for output could be destilled into several distinct microfacts, as we separate production from the sale, and allow for some transport. Again using the codes of SNA2008 for fields 2 and 10:

	microfact 1	***microfact 2***	***microfact 3***	***fieldname***
0	vded<id1a>	vded<id1b>	vded<id1c>	VDED-record identifier
1	IU<id1>, DK-resident	IU<id1>, DK-resident	IU<id1>, DK-resident	who
2	P11, market output, PRODUCTION	P11, market output, Transport product from production to inventory	P11, market output, SALE from inventory	does what (on which usual/unusual terms)
3	going concern;	going concern;	going concern;	with what purpose
4	product<id>1	product<id>1	product<id>1	with which assets/products
5	locat<id>1; of production	shift of locat<id>1 to locat<id>2; of inventory	locat<id>2; of sale	where
6	v[usd]0a	v[usd]0b	v[usd]0c	valued at which (internal) (monetary) amount
7	valued at costs	valued at costs	market value	at what value concept and prices (and quantities); refers to content of field 11
8	-	-	IU<id2>, DK-non-resident	with whom as counterpart
9	t_1	t_2	t_3	at what time
10	inventory stocks increase	local inventory stocks change	AF.21, cash (currency)	(in exchange) for what; which payment or reciprocal product
11	v[usd]0a	v[usd]0b	v[usd]1	valued at which (monetary) amount
12	product<id>1-inventory stocks increase	ex post decrease at production locat., increase at locat. of sale; 0, overall, as local inventory stocks change	product<id>1-inventory stocks decrease, as what was produced is now sold	with what change in stocks (as a result)
13	product<id>2, laborhours<id>1a, cap.services<id>1a	product<id>2-3, laborhours<id>1b, cap.services<id>1b	product<id>2-4, laborhours<id>1c, cap.services<id>1c	by what means; drawing on (consuming) which economic resources
14	going concern;	going concern;	going concern;	based on what expectations

2.2.2 Aggregates: Exports and Imports, Output, Intermediate consumption and Value Added

Exports and Imports for time T, as well as *Output*, *Intermediate consumption* and *Value Added* for time T, may be expressed as a filter over the VDED's records.

Each is represented by a column:

	microfact: Exports	***microfact: Imports***	***microfact: Output***	***microfact: Intermediate consumption***	***microfact: Value Added***
0	*	*	*	*	*
1	IU<*>, DK-resident	IU<*>, DK-resident	IU<*>, DK-resident	IU<*>, DK-resident	IU<*>, DK-resident
2	P6, exports of goods and services	P7, imports of goods and services	P1, output	P2, intermediate consumption	B1g, Value Added / GDP
3	*	*	*	production	*
4	product<*>	product<*>	product<*>	product<*>	product<*>
5	locat<*>	locat<*>	locat<*>	locat<*>	locat<*>
6	v[usd]*	v[usd]*	v[usd]*	v[usd]*	v[usd]*
7	market value	market value	market value;	market value	market value
8	IU<*>, DK-non-resident	IU<*>, DK-non-resident	*	*	*
9	T	T	T	T	T
10	*	*	*	*	*
11	SUM over this	SUM over this	SUM over this	SUM over this	SUM over this
12	*	*	*	*	*
13	*	*	product<*>, laborhours<*>, cap.services<*>	*	*
14	*	*	*	*	*

Much of the details of these microfact are not relevant for the present discussion, so we may leave out most of the dimensions.

If we are mainly interested in production, what really matters are *the resident economic areas of the institutional units involved in selling the products* of all output transactions and *of those institutional units purchasing those products*, as well as *where the production took place, geographically.* In order to focus precisely on these a special table is presented next.

2.3 Table of Residents and Geographies

After the previous considerations it is actually simple to present in table form, the essence of the matter: how do Value Added concepts for residents and for geography relate to each other?

Columns under the heading "Economic territory" each concerns *where* the actual production took place. Rows under the heading "Institutional units" each concern which economic area where the involved institutional units are residents.

Table 2.3.1 of combinations of elements of concepts of activity/value added[4]

Relative to (DK) economic area		**Economic territory**		
	Production / Value added	**(DK-) Domestic**	**RoW(DK) / Outside of DK**	**Sum**
Institutional units	**(DK-) Residents**	(DK-) Domestic Gross (DK-) Residents' Product	RoW(DK) Gross (DK-) Residents' Product	Gross DK-Residents' Product
	Non-(DK-) residents	(DK-) Domestic Gross Non-(DK-) residents' Product	RoW(DK) Gross Non-(DK-) residents' Product	Gross Non-DK-residents' Product
	Sum	(DK-) Domestic Gross Product	RoW(DK) Gross Product	GWP

Note: RoW(DK) is Rest-of-the-World from DK-perspective, GWP is an acronym for GrossWorldProduct

2.4 From Old to New names

Here the suggested new names are juxtaposed with the current SNA2008-names. Care was taken to avoid new names with acronyms, e.i. DGP, which create ambiguity compare to the old acronyms, GDP.

	New names	**Present names**
	Gross Residents' Product (GRP)	SNA2008: Gross Domestic Product (GDP)
	Gross Residents' Income (GRI)	Gross National Income (GNI)
	Domestic Gross Product (DGP)	***Wanted today, not part of SNA2008; SNA1968:GDP?***
	Domestic Gross Income (DGI)	*not part of SNA2008*

[4]This table is a modified version of tabel 6 of [9].

3 The required data

All NSIs already collect data for the their own *DK-domestic Gross DK-residents' Product*, as part of compilation of *Gross Residents' Product* (pt. *GDP*). But NSIs may not know which part of this which is located on the domestic economic area. Thus more data are needed to be able to break the accounting figures down onto the relevant geographical classes.

In addition to this data NSIs need to collect data for
DK-domestic Gross Non-DK-residents' Product, and the
DK-RoW Gross DK-residents' Product.

The challenges of NSIs regarding the former is exercising government power to have the data needed from institutional units, which are under other governments' jurisdiction. Almost similarly with regard to the latter NSIs try to avoid large data requirements of domestically located institutional units in order for that cost to become unbearable, and a reason to emigrate. Coordinated efforts by governments may make that data cost unavoidable for institutional units staying within their combined area.

By embracing the suggested new naming standard a big conceptual obstacle is removed for more geographically scalable concepts for Value Added.

This way it is possible to define, for each country their own, *DK-domestic Gross Product*, which many users require to understand the situation on the DK-domestic economic area, and also *Gross (DK-) Residents' Product* which in the SNA2008 unfortunately is called Gross Domestic Product, even if not geographically domestic as uniquely as the name of the concept suggests.

The systematic cooperation between governments, about exchange of sensitive business data, which is highly necessary under the SNA2008, in order to promote figures which are accurate for each individual country, complete and avoiding doublecounting across countries.

The need to vet proposals to changes of the manuals before they are adopted, suggests that a centralized unit is needed. Both to have the resources to regularly check the manuals and the complex of recommendations be established to develop a range of method to cope with the challenges, as well as prevent future mishaps in changes of manual rules

4 The proposed changes

There are *three* different parts to the proposal.

First, at the conceptual level we should make the naming convention for the central concepts more logical, by adopting the following "template", wherever the implict country (DK) is clearly indicated:

{Domestic/Rest-of-the-World}{Gross/Net}{Residents'/Non-residents'}{Product/Income}

Otherwise the more involved "template", where DK is explicitly used to identify the implicit country:

{DK-domestic/Outside of DK}{Gross/Net}{DK-residents'/Non-DK-residents'}{Product/Income}

These names are precise and may be combined or broken down into smaller parts in a logical fashion.

Second, the required data are harvested, for NSIs to be able to compile figures for *DK-domestic Gross Non-DK-residents' Product*, and the *DK-RoW Gross DK-residents' Product*.

Third, within a major cluster of advanced economies, say the EU, or the OECD, a National Accounts research unit is established with the task of developing a range of methods which each individual countries can draw on to reach their sweet spot between available data, precision of NA-aggregates and available resources, and plan for necessary improvements. This unit would also be available for testing proposals of changes to current manuals, in order for mishaps to be avoided.

Apparently most NSIs today face such strict budgetary pressures that such innovation is not possible at the significant scale which is needed. But all would benefit from establishment of such a new unit's work.

5 Conclusion

The paper proposes some minor changes with big effects in terms of adjusting the statistical framework to better cater for users' needs. Especially needs for geographically organised/segmented data, in other ways than through the residence status of institutional units.

The paper suggests a set of more precise concepts for value added for different combinations of residents and geographical areas. The suggestions are *Domestic Gross Product* for value added on the domestic economic territory, and *Gross Residents' Product* for value added by residents of the given economic area. The latter at present unfortunately is called *Gross Domestic Product* in SNA2008 lingo, even if all its value added is not produced domestically in the geographical sense.

The advantages of the full set of suggestions are that it is easier to make explicit requests for geographical precision. National statistical institutes (NSIs) may feel that is a disadvantage, as such figures have not previously been readily available, in part due to excessive accommodation to statistical respondents, to keep data requirements low. In a world with companies growing to be dominant at the regional level and internationally, without requirements of regional and product breakdowns, society loses knowledge of what is actually happening in and to their economy. Therefore, despite not being without costs, it is recommended that companies are required to report breakdowns of their production processes with respect to products and geographical locations. On the basis of such data, the proposed concepts are feasible, and their figures should advance economists' understanding of the geographical side of the actual state and path of the economy, and promote more relevant policy proposals.

References

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[9] Michael Osterwald-Lenum. Value-added (at market prices) for a given set of locations, and for a given set of residents. from sna1968 to sna1993 to sna2008. 2017.

[10] Nancy Ruggles and Richard Ruggles. *The Design of Economic Accounts.* Number 89 in General series. National Bureau of Economic Research (NBER), 1970.

P.S. My own papers are available from my ResearchGate-webpages:
https://www.researchgate.net/profile/Michael-Osterwald-Lenum

6 Appendix: Record structure of the central question

SNA1993 posed a central question, the answers to which, reveal most of the information which tabulations of National Accounts figures are based upon. [8]extended this central question even more in its appendix 2. It is reprinted here for the reader to be able to check the thinking for herself.

The record structure of the virtual database holding observable economic descriptions

	field	***kind***
1	who	units, with explicit resident status
2	does what (on which usual/unusual terms)	transactions, (and conditions of transaction)
3	with what purpose	purpose
4	with which assets/products	assets/products
5	where	region/country
6	valued at which (monetary) amount	units of (which) currency
7	at what value concept and prices (and quantities)	price concept, price level and price index
8	with whom as counterpart	units, with explicit resident status
9	at what time	time
10	(in exchange) for what; which payment or reciprocal product	assets/products
11	valued at which (monetary) amount	units of (which) currency
12	with what change in stocks (as a result)	assets/products
13	by what means; drawing on (consuming) which economic resources	combination of assets, products, labour and capital services
14	based on what expectations	aspects of future states of the economy

Appendix: Table of Residents and Geographies

The following table is a modified version of tabel 6 of [9].

Table A.2.1 of combinations of elements of concepts of activity/value added

Relative to the economic area (DK)		Economic territory		
	Production / Value added	(DK-) Domestic	RoW(DK) / outside of DK	Sum
Institutional units	(DK-) Residents	(DK-) Domestic Gross (DK-) Residents' Product	RoW(DK) Gross (DK-) Residents' Product	Gross DK-Residents' Product
	Non-(DK-) residents	(DK-) Domestic Gross Non-(DK-) residents' Product	RoW(DK) Gross Non-(DK-) residents' Product	Gross Non-DK-residents' Product
	Sum	(DK-) Domestic Gross Product	RoW(DK) Gross Product	GWP

Note: RoW(DK) is Rest-of-the-World from DK-perspective, GWP is an acronym for GrossWorldProduct

Table A.2.2 of combinations of elements of concepts of activity/value added and internal regions

Relative to the economic area (DK)		Economic territory		
	Production / Value added	(DK-) Region 1	(DK) Region 2	(DK-) Domestic
Institutional units	(DK-) Residents	(DK-) Region 1 Gross (DK-) Residents' Product	(DK) Region 2 Gross (DK-) Residents' Product	(DK-) Domestic Gross (DK-) Residents' Product
	Non-(DK-) residents	(DK-) Region 1 Gross Non-(DK-) residents' Product	(DK) Region 2 Gross Non-(DK-) residents' Product	(DK-) Domestic Gross Non-(DK-) residents' Product
	Sum	(DK-) Region 1 Gross Product	(DK) Region 2 Gross Product	(DK-) Domestic Gross Product

Note: Region 1 and region 2 exhaust the DK-economic area.

7 Appendix: Quotes

Pages 1-3 of OEEC1950[1]:

1 - THE NATURE OF THE ACCOUNTS

1. National Income and Domestic Income

The system set out below attempts to record, in a simple and uniform manner, the economic activity of an economy.

An economy may be considered from two standpoints. First, attention may be concentrated on the territory lying within the frontiers of a state and the aggregate product resulting from the economic activity within these frontiers may be called the domestic product and be said to give rise to the domestic income. Second, attention may be concentrated on the normal residents of a given territory. The national income is usually defined as the factor income accruing to the normal residents of a given territory whether or not it originates in that territory. Thus, the national income of a given country excludes the contribution to the domestic income of that country made by factors of production owned by foreigners but includes the contribution to the domestic activity of other countries made by factors of production owned by the normal residents of the given country.

The terms domestic territory, formal residents and income originating need to be explained somewhat more precisely.

Domestic territory is defined as the territory lying within the customs frontiers of the country concerned, with the qualifications given below. All other territory on the surface of the earth constitutes the rest of the world and is said to lie abroad, in relation to the given country. Normal residents of the rest of the world are termed foreigners. Since each piece of economic activity, wherever conducted, must be assigned to one and only one territory if national accounts are even in principle to be additive it is proposed to adopt the following conventions.

(1) Ships sailing and aeroplanes flying under the national flag of a given country are to be considered as part of the domestic territory of that country.

(ii) Ships sailing and aeroplanes flying under a foreign flag are to be considered as part of the rest of the world, even while in the territorial waters of the country concerned or in the air above it.

(ill) Embassies, official missions and the armed forces of a given country located abroad are to be considered within the domestic territory of the given country.

(iv) Foreign embassies, official missions and the armed forces located in a given country are to be considered within the rest of the world in relation to the given country.

The term normal residents shall be understood to refer to indi-

viduals whose principal residence is situated on domestic territory. Thus tourists of a given country travelling abroad are considered as normal residents of that country, but citizens of a given country who usually live abroad are not. On the other hand, the official representatives of a given country (official missions and armed forces) are, when located abroad, to be considered extra-territorial by the country in which they are located and, therefore, as normal residents of the given country. Furthermore, a frontier worker who works in country A and is normally resident in country B contributes to the domestic income of country A and the national income of country B. A difficult case arises where certain normal residents of country B regularly work for a part of the year in country A. In this case it is suggested that the whole of their earnings in country A should be regarded as contributing to the domestic product of country A and the national income of country B.

The income arising from economic activity (factor income as opposed to transferred income) is deemed to originate on the territory on which .the economic activity takes place. In the case of enterprises which operate on and are directed from one and the same territory no difficulty arises and the whole of their income is deemed to originate on the territory in question though a part may subsequently be transferred to foreign shareholders. In many cases however it happens that a concern operates in several territories or that while its productive activity is concentrated in one territory it is in part directed from another. In the case of large international concerns highly complicated problems are likely to arise in allocating their activity to territories. The principle adopted here is that i production and the income arising therefrom should be ascribed to the territory on which the production takes place, costs and proceeds being calculated as if the concern or establishment in question bought and sold at market rates even if, in fact, some part of what it receives from or transfers to other units of the complex of which it is a member is omitted from its records or entered only at a nominal or standard value. Thus in the case of a subsidiary operating in and directed from country B of a concern located in country A, the operating income, calculated on the above lines, may be wholly ascribed to country B. In the case of a branch plant, mine or plantation operating in country B but in part directed from country A, the income arising, to be ascribed to country B, will be reckoned after charging head office expenses incurred in country A. The income of country A will include the factor in'bome (directors' fees, salaries, etc.) arising in the head offices located in country A of productive units operating in other countries. In the case of a buying or selling agency (e.g. a travel agency or purchasing agent) operating in country B on behalf of a concern located in country A, the income of those working in the agency will be included in the domestic and

national income of country B but will appear, together with other expenses of the agency, as an export from country B to country A.

Any undistributed income retained by a subsidiary company, branch plant or establishment directed from abroad should be included in the national as well as the domestic income of the country in which the establishment in question is located.

Accordingly national income will include and domestic income will exclude :

(i) the income from investments in the rest of the world, distributed to the normal residents of the country, less the income from investments in the given country distributed to foreigners ;

(ii) the income from labour and professional activity undertaken abroad by the normal residents of the given country less the income from labour and professional activity of foreigners (i.e. those not normally resident within the frontiers of the country concerned) undertaken within the territory of the given country.

Pages 48-50 of Ruggles&Ruggles' 1970 book[10]:

The Aggregates of Income and Product

National income accounting not only depends upon the definition of economic activity and the sectoring of the economy; it depends also on the creation of economic constructs around which the system can be built and which can be broken down in a number of different ways to show the structure and behavior of the system. The determination of the scope of the national income and product measurements is highly germane to the content of the economic constructs. But explicit consideration of what constructs should be developed and how the different constructs should be related to each other is essential.

National Income and Product Measures

Three major considerations enter into the development of measures of national income and product. (1) How gross should the measurement of output be? (2) Should the coverage refer to the residents of the country or to the activities taking place within the geographic area of the country? (3) Should output be measured in terms of market prices or in terms of the factor payments generated by economic activity? Each of these considerations gives rise to a different type of measurement, and as a result there are a considerable number of different national income and product measurements in current use.

Gross national and gross domestic product at market prices are the grossest measures of output now used. In countries where the residents receive a substantial flow of net income from abroad, the gross national product, which represents the total income and product of the residents of a nation, will be larger than the gross do-

mestic product, which represents the income and product of the geographic area. On the other hand, in countries where residents of other nations share substantially in the ownership and operation of enterprises within the country there may be a net flow of income to other countries, and thus gross domestic product would be larger than gross national product. The US and the UN uses of these concepts differ somewhat. The US production account is built around the concept of gross national product at market prices, whereas the UN consolidated production account is built around gross domestic product at market prices. In the US system, gross domestic product is not shown explicitly anywhere, but the present UN system does show gross national product in its supporting tables. The new revision of the UN system also relies on gross domestic product at market prices as the aggregate measure of total output, and does not show gross national product.

Gross domestic product at factor cost, which is defined as gross domestic product at market prices minus indirect taxes net of subsidies, does not appear in the standard accounts of either the US or UN systems, but it is shown as the aggregate of gross product originating by industry in the supporting tables of the old UN system. In the new UN system, gross product originating by economic activity is shown both at market prices and at factor income, which is the same as factor cost.

The new UN system introduces a new net concept, disposable income for the nation. This is equal to gross national product at market prices minus the consumption of fixed capital. In other words, it is the net national product at market prices. This concept, which is shown as the total of the consolidated income account for the nation, replaces the concept of national income and the equivalent concept of net national product at factor cost that is used as the basis of the national income account in the old UN system.

In the US system, national income (net national product at factor cost) is presented as a subtotal in the national income and product account, and is used in supplementary tables as the total of income originating by industry and by sector and legal form of organization.

In summary, the new UN system has adopted gross domestic measures in its production accounts, and net national concepts for its income and outlay accounts. The valuation of the income and product aggregates is at market prices, and in fact the traditional concept of national income does not appear in the system. Furthermore, the emphasis on domestic product also means that the familiar concept of gross national product does not appear explicitly.

There has been a growing tendency in national income accounting to use gross rather than net measures of income and product. In part, the reason for this is that the grosser concepts provide an opportunity to include more data about the operation and function-

ing of the economy, and economists have in large measure given up the income and product aggregates as measures of economic welfare. If the scope of income and product measurements is to be further extended in the directions suggested above, the statistical difference between the gross and net concepts would be substantially increased. The capital consumption and amortization charges of the tangible and intangible capital of households, governments, and business enterprises would be very much larger than at present. The net measurements of income and product would increase only by the amount of the net imputed services arising from the inclusion of the additional tangible and intangible stock of capital. As regards the income and product system as a whole, the net concepts altered as proposed may be more meaningful measures of current income and output than the gross measures, so that the net measures may take on increased importance.

Pages 33-34 of Kendrick's 1972 book[4]:

Limits of the Nation

Since the national product is defined by Commerce as market value of all final goods and services produced by the nation's economy, we need to look at the concept of "the nation."

In United States economic accounts, the nation is taken to consist not of citizens of the country, but of residents. The earnings of anyone residing in the United States for more than six months are included in the national income figures. Conversely, United States citizens living abroad are not counted as part of the United States economy, except for employees of the United States government.

Income on foreign property owned by American residents is counted as part of national income and product. Portfolio earnings on foreign investments, for example, are counted as part of our national income and product, but earnings on equity and plants located in this country and owned by foreigners residing abroad are not counted as part of our national income.

In other words, there are two definitions: (1) domestic income—all the income arising in a geographic area; and (2) national income and product – domestic income plus income earned abroad by the work and property of United States residents, minus the income earned in the United States by the work and property of Residents of other countries. Whereas the basic production account for the United States is cast in terms of national income and product, the UN standard system employs gross domestic product and expenditure (see Appendix B, Table B-1.1). In Appendix B, Table B-I.3, National Disposable Income and Its Appropriation, the UN system includes net factor income from the rest of the world (but excludes Consumption of fixed capital). All in all, the UN treatment seems

preferable, since production analysis can more readily be related to the geographic area, whereas analyses of national income and saving must take account of net income from abroad.