**February 17, 2013**

**Chapter 4**

**NTA and the Macro Economy**

Manual on National Transfer Accounts:

The age dimension of income, consumption, and lifecycle reallocations

This draft is being prepared for the Population Division of the Department of Economic and Social Affairs of the United Nations. Preparation of the manual is a component of the Development Account project (ROA 167) “Strengthening capacity of national policy analysis in the social and economic sectors of developing countries in the production and use of National Transfer Accounts (NTA)”.

When reviewing your tables, I found out, however, that the SNA data that you

are referring to in the <Ch\_4\_NTA\_and\_the\_MacroEconomy.V3.docx> and <Macro

control based on Netherlands 2008.v3a.xlsx> files are NOT Netherlands data.

They are "constructed"(not real) SNA figures, as contained in the tables of

the 2008 SNA. I therefore suggest that you change the reference in Chapter 4

to something like "SNA figures (not data) as included in the 2008 SNA".

From Jan von Tongeren

4.1 Introduction

The purpose of this chapter is to explain how NTA aggregate flows can be constructed using data from the System of National Accounts (SNA). This is very important because it insures consistency with SNA the mainstay for describing the aggregate economy. NTA and SNA have different purposes and conceptual frameworks, however. Some NTA variables, particularly related to private transfers, have no direct counterpart in SNA. Many NTA flows are identical to or can be can be constructed from SNA data.

Age groups are fundamental to NTA and all flows are classified by the age of the residents to whom and from whom they flow. The government is considered an intermediary in NTA and public flows are classified by the age of taxpayers or beneficiaries of public programs. Private institutions, e.g., households, corporations, and non-profit institutions are also treated as intermediaries or agents that represent the interest of residents. In order to construct a complete set of accounts, flows to and from the rest of the world (ROW) are also documented. Unless otherwise indicated, flows refer to flow to or from residents. The aggregate macro controls described in this chapter consist of NTA flows aggregated across all ages.

NTA accounts are naturally divided into three sub-accounts each discussed in detail in subsequent chapters. The three tables presented here provide the aggregate controls and also a very broad overview of the generational economy. The first sub-account is the lifecycle account and the aggregate values required to construct NTA are shown in Table 4.1 Aggregate lifecycle flows.

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| Table 4.1 Aggregate lifecycle flows, Mexico, 2004 Pesos (billions) |
| **Lifecycle Deficit** | **2,350** |
| **Consumption** | **5,761** |
| Public Consumption | 914 |
| Private Consumption | 4,847 |
| **Labor Income**  | **3,411** |
| Earnings | 2,406 |
| Self-employment Labor Income | 1,005 |

Source: Estimates by Ivan Mejia Guevara from www.ntaccounts.org accessed January 27, 2013.

The lifecycle deficit is an NTA variable, equal to consumption less labor income, and it has no counterpart in SNA. Other components of the lifecycle flows are constructed directly from SNA data with adjustments described in detail below.

Consumption, public consumption, and private consumption are based on final consumption expenditure data in SNA. Labor income is an estimate of the value of the return to labor and it has no direct counterpart in SNA. Earnings is reported in SNA, although the NTA value requires an adjustment. SNA does not report the value of labor for self-employed and unpaid family workers, but this is estimated from mixed income.

The variables that serve as aggregate controls for public age-reallocations, discussed in additional detail in Chapter 6, are presented in Table 4.2. The high-level aggregations in Table 4.2, have no counterpart in SNA, but are calculated from the components provided in the table.

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| Table 4.2 Aggregate public age reallocations, Mexico, 2004 Pesos (billions) |
| **Public Age Reallocations** | **99.4** |
| **Public transfers** | **-0.2** |
| Public transfer inflows | 1,236.8 |
| Public transfers inflows, in-kind | 914.0 |
| Public transfers inflows, cash | 322.8 |
| Public transfer outflows | 1,236.9 |
| Taxes and other revenues | 1,137.4 |
| Transfer deficit(+)/surplus (-) | 99.5 |
| Net public transfers from ROW | -0.2 |
| **Public asset-based reallocations** | **99.5** |
| Public asset income | 307.7 |
| Public capital income | 0.0 |
| Public property income | 307.7 |
| Public property income inflows | 495.4 |
| Public property income outflows | 187.7 |
| Public saving | 208.2 |

Source: Estimates by Ivan Mejia Guevara from www.ntaccounts.org accessed January 27, 2013.

Public transfer inflows consist of transfers received by members of the population that are mediated by the government, including all cash transfer programs and all public provision of goods and services including both collective and individual consumption. These are calculated directly from SNA. Public transfer outflows refer to outflows from the resident population. When combined with net public transfers from ROW, they must equal public transfer inflows by definition. Public transfer outflows are funded by taxes and other public revenues, available from SNA. The transfer deficit/surplus is a balancing item that measures the shortfall or surplus of public revenues relative to public transfer inflows. This variable is unique to NTA.

All components of *Public asset-based reallocations* are based on SNA data with adjustments required in some cases as described in more detail below.

The aggregate values for private age-reallocations are presented in Table 4.3. An important point is that some components of private age reallocations, those shaded in Table 4.3, are not based on SNA or other available aggregate data. In some countries, private inter-household transfer macro controls may be available, but not in most cases. Private transfer inflows and outflows are estimated using the methods unique to NTA as described in Chapter 7. They are reported here only to give a complete accounting of aggregate private age-reallocations. The unshaded values in Table 4.3 are constructed using methods introduced in this chapter.

Private transfers, private transfer inflows less private transfer outflows, can be estimated using SNA data because it is equal to net private transfer from the rest of the world by definition.

The components of private asset-based reallocations are readily constructed from SNA data as is detailed below.

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| Table 4.3 Aggregate private age reallocations, Mexico, 2004 Pesos (billions) |
| **Age Reallocations** | **2,350** |
| **Private Age Reallocations** | **2,251** |
| **Private transfers** | **194** |
| Private transfer inflows | 2,229 |
| Private transfer inflows, interhousehold | 285 |
| Private transfers inflows, intrahousehold | 1,944 |
| Private transfer outflows | 2,035 |
| Private transfer inflows, interhousehold | 92 |
| Private transfers inflows, intrahousehold | 1,944 |
| Net Private transfers from ROW | 194 |
| **Private asset-based reallocations** | **2,057** |
| Private asset income | 2,833 |
| Private capital income | 3,140 |
| Private property income | -308 |
| Private property income inflows | 2,388 |
| Private property income outflows | 2,696 |
| Private saving | 775 |
| Source: Estimates by Ivan Mejia Guevara from www.ntaccounts.org accessed January 27, 2013. |
| Note: Values in shaded area are not based on SNA.  |

# 4.2 Relationship between NTA and SNA

The NT Flow Accounts are based on the identity, equation 2.1 in chapter 2, which emphasizes intergenerational flows. An alternative version that is more closely related to SNA is:

 

The left-hand-side is the disposable income of age group *x.* The first three terms, labor income, capital income, and property income, are very similar to primary income, the income received by persons age x because of their involvement in producing goods and services. The final term on the left-hand-side is net transfers, , equal to transfer inflows less transfer outflows.

Combining all of these left-hand-side flows quantifies the resources that members of each age group have at their disposal and can use in two ways. The resources can be consumed in the current period or they can be saved.

The aggregate NTA values for the economy are obtained by summing across age x. In NTA all flows to and from the government, firms, non-profit institutions, and households are assigned to individuals. Hence, the aggregate NTA flows are similar to flows for the total economy as reported in the System of National Accounts. Representing the total for all residents of the nation using the variable without the age argument, x, gives us:

 

These components as measured in NTA are very similar to flows measured in the System of National Accounts (SNA). Before proceeding with a detailed discussion of methods for constructing NTA aggregate flows, however, it is important to understand basic differences and similarities between NTA and SNA.

NTA and SNA both provide comprehensive accounts of how income is generated and used by resident units. In SNA the total economy for which flows are documented consists of five kinds of resident units, households, financial and non-financial firms, government, and non-profit institutions serving households (NPISHs), plus flows to non-resident units called the rest of the world.

In NTA, the resident units consist of age groups with all flows classified as inflows to or outflows from an age group or, aggregating across all age groups, the resident population.

An important feature of NTA is that the flows are not limited to flows to and from households. Firms, NPISHS, and governments are treated as agents of the population. The income of a firm is treated as the income of individuals (or age groups) who own that firm. Dividends paid by firms are treated as dividends paid by the individuals who own that firm. Public transfers are treated as transfers from taxpaying age groups to the age groups in which beneficiaries are concentrated, often children and the elderly.

Important economic flows in NTA have no exact counterpart in SNA because the accounts differ in their purpose. The goal of NTA is to provide insights about how the economy operates to satisfy generational objectives. From this perspective, labor income and capital income are fundamental. Labor income is closely related to age, the rise and decline of productivity over the lifecycle. Saving and the accumulation of capital provide one of the key economic mechanisms for dealing with the mis-match between labor income and consumption. Labor income and asset income are not defined in SNA, however, but SNA data are used to construct estimates of aggregate labor income and asset income that are key in NTA.

A central feature of generational economics is that all age reallocations are achieved by two exhaustive, mutually exclusive flows – transfers and asset-based reallocations. Transfers are broadly defined in NTA to include all flows between individuals that do not involve explicit exchange, including all final goods and services produced by the government, cash payments by the government, all taxes and social insurance contributions to the government that fund these transfers, private transfers between households, and transfers between individuals living in households. Estimates of some of these flows can be based directly on SNA, some require modification, and others, such as intra-household transfers, have no SNA counterpart.

Another important feature of NTA is that public and private age reallocations (transfers and asset-based flows) are distinguished. Public flows are inflows and outflows to age groups that are mediated by the public sector. SNA provides extensive information about flows to and from general government that can be used to construct public NTA flows. For example, taxes received by the government are outflows from age groups while benefits paid by the government are inflows to age groups in NTA. SNA provides information about asset income and saving for both the public and private sectors that is very useful for NTA. Little information about private transfers is available from SNA, however, and other methods must be used to generate these data in NTA.

A potential source of confusion is that the terminology used in NTA and SNA are different in some respects. SNA flows are categorized as *resources* or *uses.* Resources are also referred to as receipts or, in NTA, as inflows. Income is an example of a resource. *Uses* is also referred to as disbursements or, in NTA, as outflows. Consumption and saving are examples of *uses.*

# 4.3 Calculating macro controls for the NTA flow account

The NTA flow account draws only on current accounts in SNA, which document how income generated in the current accounting period are allocated and used. Four current accounts in SNA provide basic information about current resources and uses: the Generation of Income Account, the Allocation of Primary Income Account, the Secondary Distribution of Income Account, and the Use of Disposable income account. The allocation of primary income account provides the SNA data required to estimate three components of NTA: labor income, asset income, and property income. The Secondary Distribution of Income Account provides information useful for estimating NTA transfers. And the use of Disposable Income Account provides data need to calculate consumption and saving in NTA.

Figure 4.1. Schematic of Flow Accounts in the System of National Accounts. Accounts are presented on a gross basis. Subtract “consumption of fixed capital,” found in the capital accounts, from all gross amounts to get the accounts presented net of depreciation.



## 4.3.1 Calculating primary income

In NTA primary income consists of labor income, capital income, and property income. In SNA primary income consists of compensation of employees, operating surplus, mixed income, property income, and taxes on products and production less subsidies.

Two adjustments are required to convert the SNA components of primary income into the NTA components of primary income.

* **Mixed Income**. Mixed income in SNA is income from household enterprises, which do not distinguish the returns to capital from the returns to labor. In NTA 2/3 of gross mixed income is allocated to labor income and 1/3 to gross capital income. This simple approach is consistent with the best available evidence on this issue ([Lee, Lee et al. 2008](#_ENREF_3)).
* **Taxes on Products and Production less Subsidies.** In NTA taxes on products and production less subsidies are divided into three components: taxes less subsidies on labor income, taxes less subsidies on capital income, and taxes less subsidies on consumption. Labor income and capital income in NTA are adjusted upward valuing labor and capital income before the assessment of taxes less subsidies on production. Consumption must be adjusted downward to exclude taxes less subsidies on products. Taxes on products and production less subsidies are included in outflows from age groups that along with other taxes and revenues fund public transfer outflows.

If the tax is assessed on goods and services when they are produced, delivered, sold or transferred, these are classified in SNA as “taxes on products” and NTA attributes these to consumption. An example is Value Added Tax. In SNA taxes on products are included in final consumption expenditure, but in NTA taxes on products are not counted as consumption. Hence, taxes on products are subtracted from final consumption expenditure. Subsidies on products are treated like negative taxes – instead of subtracting them from final consumption expenditures, they are added.

Taxes assessed on the employment of labor or the ownership or use of land, buildings or other assets used in production are classified with “other taxes on production.” NTA adds these taxes to labor income if they are assessed on the employment of labor, or to capital income if they are assessed on the ownership or use of land, buildings, or other assets used in production. “Other subsidies on production” are treated like negative taxes, reducing the amount to labor income or capital income. Whether the tax should be attributed to labor or capital is often not clear from SNA tables. More detailed information about “other taxes on production” may provide insights about how taxes should be allocated between capital and labor. Country teams will need to look for more data to understand the exact nature of “other taxes on production” and decide what is being taxed. In the absence of additional information taxes on production less subsidies are allocated using the following simple rules:

Share allocated to compensation of employees = compensation of employees/ (compensation of employees + gross operating surplus, corporations and NPISHs + gross mixed income),

Share allocated to self-employed labor income = 2/3 gross mixed income/ (compensation of employees + gross operating surplus, corporations and NPISHs + gross mixed income),

Capital share, corporations and NPISHS = (gross operating surplus, corporations and NPISHs)/(compensation of employees + gross operating surplus, corporations and NPISHs + gross mixed income).

Capital share, mixed income = (1/3 gross mixed income)/(compensation of employees + gross operating surplus, corporations and NPISHs + gross mixed income).

Table 4.4 summarized this discussion, showing the detail on taxes on products and production less subsidies that country teams are likely to find in their SNA tables and the NTA attribution of these taxes.

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| Table 4.4 Adjusting for Taxes on Products and Production Less Subsidies |
| **SNA flow** | **NTA adjustment** |
| Taxes on products | Tax on consumption; consumption reduced.  |
| Other taxes on production | Allocated to labor in proportion to share of labor income. |
|
| Allocated to capital in proportion to share of gross capital income.  |
|
| Subsidies on products | Tax on consumption; consumption reduced.  |
| Other subsidies on production | Allocated to labor in proportion to share of labor income. |
|
| Allocated to capital in proportion to share of gross capital income.  |
|

A third adjustment is required to convert gross capital income to net capital income which is used in NTA.

* **Net capital income.** Net capital income is calculated as gross capital income less capital consumption. Capital consumption is available in the Allocation of Primary Income Account, as an addendum to one of the other flow accounts, or as part of the capital accounts. If these data are not available, there are methods available for estimating consumption of capital.

## 4.3.2 Calculating consumption and saving

Consumption, as defined in NTA, is very similar to consumption as defined in SNA and reported in the *Use of Disposable Income Account.* Private and public consumption are distinguished in NTA. Private values are obtained by aggregating values for financial and non-financial corporation, households, and NPISHs. Public values are based on consumption and saving of general government as reported in SNA.

Two adjustments for consumption may be necessary to obtain NTA values:

* **Taxes on Products and Production less Subsidies.** The treatment of taxes on products and production less subsidies is described in detail in the preceding section. Consumption must be adjusted downward to exclude taxes less subsidies on products.
* **Reclassification of public and private consumption.** In some cases, private consumption is reclassified as public consumption. This adjustment is discussed in Chapter 5.

Saving in NTA is equivalent to disposable income less consumption as defined in SNA and reported in the *Use of Disposable Income Account.* No adjustment is made for changes in pension entitlements which will lead to a difference between SNA and NTA values of saving only if changes in pension entitlements are non-zero for ROW. Private saving is defined as the sum of financial and non-financial corporations, households, and NPISHs. Public saving is defined as the sum of saving of general government.

Calculating macro controls for primary income, consumption, and saving provide all values required to construct a full set of lifecycle controls (Table 4.1) and all values required to construct public and private asset-based reallocations as reported in Tables 4.2 and 4.3, respectively.

## 4.3.3 Calculating public and private transfers

Constructing NTA transfers relies heavily on SNA flows reported in the *Secondary Distribution of Income Account.* There are important differences between the NTA concepts of public and private transfers and the concepts used in SNA. In NTA, a public transfer refers to a flow between the private sector and the public sector or a flow between the ROW and the public sector. Private transfers refer to flows within the private sector and flows between the private sector and ROW. Flows between government units do not directly lead to age reallocations and are not included in NTA. In order to construct NTA flows it is necessary to classify flows in the SNA *Secondary Distribution of Income* into the four groups: public/private, public/ROW, private/private, and private/ROW.

The second difference between NTA transfers and SNA flows is that current transfers in NTA are more inclusive than in SNA. First, all taxes including taxes less subsidies on products and production are classified as a public transfer outflow in NTA. (It is an outflow because NTA values are always reported from the perspective of the in NTA.) Second, a broad definition of in-kind public transfer inflows is employed in NTA that include all public consumption, both individual and collective consumption. Residents receive in-kind public transfer which, in turn, they consume.

SNA provides limited information that can be used to estimate aggregate controls for private transfers. Transfers between households are not generally included in the SNA *Secondary Distribution of Income Account.* Intra-household transfers values are not available in SNA or from other statistical sources. Intra-household transfers are estimated indirectly using methods described in Chapter 7.

SNA data can be used to construct an estimate of net private transfers from ROW. This is very useful because it is equal to private transfers for residents. Combining private transfers with private asset-based reallocations yields an estimate of private age reallocation.

Important details about constructing public and private transfer flows are best discussed in the context of a specific example taken up in the next section.

# 4.4 An Example of calculating macro controls

This section provides a complete example of constructing macro controls based on SNA data for the Netherland in 2008.[[1]](#footnote-1)

## 4.4.1 Calculating primary income

The SNA Allocation of Primary Income Account is presented in simplified from in Table 4.5. The accounts have been reduced to two sectors: private, which is the sum of flows for corporations, households, and NPISHs, and general government. Resources and uses are presented for each flow. Many detailed flows are not reported as they are not needed for our purpose.

 

Although flows to and from households are not required for most purposes, there are two exceptions. The net operating surplus of households serves as the macro control for imputed asset income from owner-occupied housing and is reported under private operating surplus. Interest paid by households is also distinguished in NTA and this value is reported in the note to Table 4.5.

Table 4.6 NTA Primary Income is presented below and is intended only as a bridge between SNA and standard NTA aggregate control tables. Primary income consists of only two components in NTA: labor income, consisting of compensation and self-employment labor income, and asset income, consisting of capital income and property income. NTA net national income (1509) is less than SNA net national income (1642) because taxes less subsidies on products (taxes on consumption) are not included in NTA net national income.



Converting the SNA representation of primary income to the NTA representation involves several adjustments. The first adjustment is to allocate gross mixed income to self-employment labor income and capital’s share of mixed income. Two-thirds is allocated to labor and one-third to capital income (Table 4.7).

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| Table 4.7 Allocation of mixed income  |
| Item | Total | Self-employment labor income | Capital share of mixed income |
|
| Mixed income, gross | 61 | 41 | 20 |
| Note. Values have not been adjusted for taxes and subsidies on products and production.  |

The second adjustment is to reclassify taxes and subsidies on products and production. A portion is classified as taxes on labor income, separately for compensation of employees and self-employment labor income, and as taxes on labor income capital income. Labor income and capital income are adjusted upward setting them at the pre-tax level of income. Taxes and subsidies on products are allocated to consumption. Taxes and subsidies and production are allocated to compensation of employees, self-employment labor income, and capital income in proportion to the income of each productive factor using gross capital income of corporations and households as discussed above. The result is shown in Table 4.8.

NTA compensation of employees is calculated as the SNA value of 1154 plus taxes less subsidies on production (41) giving a total of 1195 as shown in Table 4.6 above. NTA self-employment labor income is equal to labor income’s share of mixed income (41) plus taxes less subsidies on self-employment income (1) giving a total value of 42.

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| Table 4.8 Allocation of taxes and subsidies on products and production |
|   | Total | Compensation of employees | Self-employment labor income' | Capital income | Consump-tion |
|
| Taxes on products | 141 |  |  |  | 141 |
| Subsidies on products | -8 |  |  |  | -8 |
|  |  |  |  |  |  |
| Taxes on production  | 94 | 66 | 2 | 26 |  |
| Subsidies on production | -36 | -25 | -1 | -10 |   |
| Total | 191 | 41 | 1 | 16 | 133 |
| Note: Taxes and subsidies on production assumed to be assessed only on private sector. |

Constructing NTA capital income involves several calculations shown in Table 4.9. Capital share of mixed income and taxes less subsidies on capital income are added to the gross operating surplus of corporations to compute gross capital income. The components of capital income are also adjusted to include taxes on products and production less subsidies. They are allocated to capital income of corporations and NPISHs and to capital income from mixed income in proportion to the gross values of each component. None is allocated to the capital income from owner-occupied housing. Consumption of fixed capital is subtracted to calculate net capital income for each of the three components.

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| Table 4.9 Calculation of capital income, net |
|   | Private | Public |
| Operating surplus, corporations, NPISHs, gross | 341 | 27 |
| Operating surplus, gross, households | 84 |  |
| Capital share of mixed income | 20 |  |
| Taxes less subsidies on capital income | 16 |   |
| Capital income, gross | 461.5 | 27 |
| For corporations and NPISHs | 356.3 |  |
| For owner-occupied housing | 84 |  |
| For mixed income | 21.2 |  |
| Consumption of fixed capital | 195 | 27 |
| Corporations and NPISHs | 172 |  |
| Owner-occupied housing | 15 |  |
| Mixed income | 8 |  |
| Capital income, net | 266.5 | 0 |
| Capital income, corporations and NPISHs | 184.3 |  |
| Capital income, owner-occupied housing | 69 |  |
| Capital income from mixed income, net | 13 |   |

Net capital income and its three components are entered from the corresponding private and public sector values in Table 4.6.

NTA property income inflows and outflows for public and private in Table 4.6 are identical to SNA property income resources and uses. NTA also distinguishes interest on consumer credit. The NTA outflow is set equal to interest uses by households reported in SNA. There is no need to distinguish NTA private inflows separately for consumer credit and other forms of property income.

## 4.4.2 Calculating Consumption and Saving

Calculating NTA consumption and saving are taken up at this point because once this step is completed the complete NTA lifecycle account can be constructed, as well as, public and private asset-based reallocations. Transfers are taken up in the next section.

The SNA Use of Disposable Income, Net for Netherlands 2008 is presented in Table 4.10. Again the values for corporations, households, and NPISHs are combined and classified as private flows.



The value of SNA final consumption expenditure includes taxes less taxes on products. These are excluded from NTA consumption as explained above. Taxes less subsidies on consumption as calculated in Table 4.8 is 133 for private consumption and 0 for public consumption. Hence, NTA private consumption is reduced by 133 from 1047 to 914 while public consumption is unaffected and remains 352. The adjusted consumption values are combined with the labor income values from Table 4.6 to construct the NTA aggregate lifecycle flows (Table 4.11). The lifecycle deficit is calculated as consumption less labor income.

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| Table 4.11 Aggregate lifecycle flows, Netherlands 2008 |
| **Lifecycle Deficit** | 29.5 |
| **Consumption** | 1,266.0 |
| Public Consumption | 352.0 |
| Private Consumption | 914.0 |
| **Labor Income**  | 1,236.5 |
| Earnings | 1,194.8 |
| Self-employment Labor Income | 41.7 |

In addition, Table 4.6 and 4.10 provide the information required to compile public and private asset-based reallocations. Asset-based reallocations consist of asset income, detailed in Table 4.6, and saving reported in Table 4.10. The adjustment of consumption does not influence saving, because disposable income is also reduced by the same amount. SNA saving in Table 4.10 is adjusted to account for changes in pension entitlements. In this particular example, the adjustment affects only household and corporate saving, but these are combined in NTA into private saving. Private saving could be affected, however, if the change in pension entitlements involved the Rest of World. NTA does not adjust for changes in pension entitlements, and saving is defined as net disposable income less consumption.

Public asset-based reallocations are reported in Table 4.12. Public asset income and its components are taken directly from the public sector flows in Table 4.6. Public capital income is net of depreciation. Public property income is public property income inflows less outflows. Public asset income is public capital income plus property income. Public saving is taken from Table 4.10, SNA use of disposable income. Public asset-based reallocations are equal to public asset income less public saving.

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| Table 4.12 Aggregate public asset-based reallocations |
| Public asset-based reallocations | 42 |
| Public asset income | -20 |
| Public capital income | 0 |
| Public property income | -20 |
| Public property income inflows | 22 |
| Public property income outflows | 42 |
| Public saving | -62 |

Private asset-based reallocations are reported in Table 4.13. The components of private asset income are based on private sector values reported in Table 4.6. Private capital income is equal to capital income generated by businesses and capital income generated by owner occupied housing. Private property income outflows are equal to consumer credit (interest paid by households) and all other property income outflows. Private property income is equal to property income inflows less outflows. Private asset-based reallocations are equal to private asset income less private saving.

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| Table 4.13 Aggregate private asset-based reallocations |
| Private asset-based reallocations | 26 |
| Private asset income | 293 |
| Private capital income | 267 |
| Private capital income, business and non-profits | 198 |
| Private capital income, owner occupied housing | 69 |
| Private property income | 26 |
| Private property income inflows | 375 |
| Private property income outflows | 349 |
| Consumer credit | 14 |
| Other private property income outflows | 335 |
| Private saving | 267 |

## 4.4.3 Calculating Transfers

The key source of information for constructing estimates of NTA transfers is the *Secondary Distribution of Income Account* in the System of National Accounts presented in simplified form in Table 4.14. As previously, private flows include all flows to financial and non-financial corporations, households, and NPISHs.



SNA data can be used to construct complete aggregate controls for public transfers. Information about private transfers is more limited, but still useful.

The treatment of transfers in NTA differs from SNA in several important regards. First, public transfers in NTA are more broadly defined that in SNA. NTA public transfers include*Taxes on products and production* less *Subsidies.* Also, all public consumption is classified as an in-kind public transfer.

A second distinction is that in NTA transfers are classified based on inter-sectoral features of the flows. Public transfers refer to flows between the private and the public or between the public sector and ROW. Private flows refer to transfers within the private sector and transfers between the private sector and the ROW. The remaining flows, those within the public sector, involve no age-reallocations and are not included in NTA.

Table 4.15 is constructed as an intermediate step to constructing aggregate transfers. It follows the same structure as SNA Secondary Distribution of Income, it includes all flows defined as transfers in NTA and it classifies all transfers into four categories: transfers between public and private, public and ROW, private and ROW, and within private. Transfers within government are noted and used to check consistency with the SNA Secondary Distribution of Income account.



Taxes less subsidies on products and production are classified as a use of resources for the private sector and a resource for general government in much the same way as other taxes. These flows could include transfers from the ROW to general government, but in the case of Netherlands all taxes fall on residents. Thus, the flows are entered as transfers between public and private and not transfers between public and ROW. Current taxes on income, wealth, etc. are taken directly from the SNA Secondary Distribution of income Account. Of the resources of general government reported in SNA (213), 212 can be classified as a public/private transfer based on the private uses entry and 1 can be classified as public/ROW based on the ROW uses entry.

Net social contributions include public/private flows of 50 and private/private flows of 283. The classification is based on the SNA entry of 50 for resources of general government and 283 for resources of the private sector. Public transfers, in-kind are an NTA entry equal to public consumption adjusted to exclude taxes less subsidies on products as explained above. This is classified as a use for general government and a resource for the private sector and is entered as a public/private transfer.

Other current transfers involve a variety of flows and classifying them involves more detailed calculations. A more detailed set of components of Other current transfer is useful for carrying out the necessary steps (see Table 4.16). Two components of Other current transfers can be directly classified. Current transfers within government (96) are classified as within public transfers and entered in Table 4.15 as “Transactions within government”. These are only used as a check. Current international cooperation are classified as public/ROW transfers and a portion of “Other current transfers public/ROW.”

 

In the absence of additional information about the other flows included in Other current transfers an approximation method is used to estimate the inter-sectoral flows. Other current transfers excluding current transfers with government and current international cooperation are arranged in Table 4.17. The total inflows and outflows are 171 with the sectoral distribution as reported. ROW/ROW is shaded as transactions external to the economy are not included in national accounts. The ROW/private and ROW/public flows are calculated using a simple procedure. The outflows from ROW (15) are assumed to be proportional to the inflows to the private and public sector. Likewise, the inflows to ROW (24) are assumed to be proportional the outflows from the private and government sector.

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| Table 4.17 Other current transfers excluding current transfers within government and current international cooperation |
|   | Outflows from |
|  Private | Public |  ROW  | Total |
| Inflows to |  | 147 | 9 | 15 | 171 |
|  Private | 140 |   |   | 14.3 |  |
|  Public | 7 |   |  | 0.7 |  |
|  ROW  | 24 | 22.6 | 1.4 |   |  |
| Total | 171 |   |   |   |   |

The2 x 2 inter-sectoral flow matrix for private/public other current transfers is estimated using the iterative Deming method that is described in the appendix. This method produces matrix values that are consistent with the total private and public inflows and outflows and close to proportional to the total flows. The estimates obtained are reported in Table 4.18. The value for private/private (118) is entered in the Transactions within private group in Table 4.15. The value for public/public (0.4) is included in transactions within government. The two public/private flows (7.3 and 5.9) are entered in Transfers between public and private values for other current transfers. The ROW flows are included in Transfers between public and ROW and Transfers between private and ROW.

Aggregate controls for public and private transfers are reported in Table 4.19. Values are drawn from Table 4.15 or calculated from values within the table. The table meets several important properties of NTA. The first is that public transfer inflows and outflow must be equal if net transfers to ROW are included. Public transfers of -29.7 refer to the net transfers of the resident population. Their public transfers are negative because net transfers from ROW are negative.

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| Table 4.18 Other current transfers excluding current transfers within government and current international cooperation |
|  |  | Outflows from |
|  |  |  Private |  Public |  ROW  | Total |
| Inflows to |  | 147.0 | 9.0 | 15.0 | 171 |
|  Private | 140.0 | 118.5 | 7.3 | 14.3 |  |
|  Public | 7.0 | 5.9 | 0.4 | 0.7 |  |
|  ROW  | 24.0 | 22.6 | 1.4 |   |  |
| Total | 171 |   |   |   |   |

Another important feature of public transfers is the transfer deficit(+)/surplus(-) . This is a balancing item that is equal to the gap between public transfer inflows and public taxes and revenues. In the case of the Netherlands in 2008 revenues were insufficient to cover public transfer inflows of 471.3 and net transfers from ROW of -29.7 (i.e., net transfers to ROW of 29.7).



Private transfer values from SNA are quite limited. The key transfers in NTA are inter-household transfers and intra-household transfers. Unfortunately, neither of these is compiled as part of SNA. One very important piece of information, however, is Net private transfers from ROW. By definition, this will equal Private transfers for all resident combined. This piece of information when combined with private asset-based reallocations allows us to estimate private age-reallocations. Other means, taken up in chapters 6 and 7, are required to estimate the importance of inter- and intra-household transfers.

## 4.4.4 Age Reallocations

Aggregate controls for age reallocations can now be completed using the asset-based reallocations reported for public and private asset-based reallocations reported in Tables 4.12 and 4.13, respectively, and public and private transfers reported in Table 4.19. Public age-reallocations are shown in Table 4.20 and private age-reallocations are reported in Table 4.21.

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| Table 4.20 Aggregate public age reallocations, Netherlands 2008 |
| **Public Age Reallocations** | **12.3** |
| **Public transfers** | **-29.7** |
| Public transfer inflows | 471.3 |
| Public transfer inflows, in-kind | 352.0 |
| Public transfer inflows, cash | 119.3 |
| Public transfer outflows | 500.9 |
| Taxes and other revenues | 458.9 |
| Transfer deficit(+)/surplus(-) | 42.0 |
| Net public transfers from ROW | -29.7 |
| **Public asset-based reallocations** | **42.0** |
| Public asset income | -20.0 |
| Public capital income | 0.0 |
| Public property income | -20.0 |
| Public property income inflows | 22.0 |
| Public property income outflows | 42.0 |
| Public saving | -62.0 |

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| Table 4.21 Aggregate private age reallocations, Netherlands 2008 |
| Age Reallocations | 29.5 |
| **Private Age Reallocations** | 17.2 |
| **Private transfers** | -8.3 |
| Private transfer inflows | na |
| Private transfer inflows, interhousehold | na |
| Private transfers inflows, intrahousehold | na |
| Private transfer outflows | na |
| Private transfer inflows, interhousehold | na |
| Private transfers inflows, intrahousehold | na |
| Net Private transfers from ROW | -8.3 |
| **Private asset-based reallocations** | **25.5** |
| Private asset income | 292.5 |
| Private capital income | 266.5 |
| Private capital income, corporations and NPISHS | 184.3 |
| Private capital income, owner occupied housing | 69.0 |
| Private capital income from mixed income | 13.2 |
| Private property income | 26.0 |
| Private property income inflows | 375.0 |
| Private property income outflows | 349.0 |
| Consumer credit | 14.0 |
| Other private property income outflows | 335.0 |
| Private saving | 267.0 |
| na. Values cannot be obtained from SNA. |  |

# 4.5 NTA identities and evaluating results

For each set of aggregate controls a set of identities holds that can be useful for evaluating results.

The following identities hold for aggregate lifecycle flows:

* Lifecycle deficit = Consumption – Labor income
* Consumption = Public consumption + Private consumption
* Labor income = Earnings + Self-employment labor income.

The following identities hold for public age reallocations:

* Public age reallocations = Public transfers + Public asset-based reallocations
* Public transfers = Public transfer inflows – Public transfer outflows
* Public transfer inflows = Public transfer inflows, in-kind + Public transfer inflows, cash
* Public transfer outflows = Public transfer inflows – Net public transfers from ROW
* Transfer deficit/surplus = Public transfer outflows – Taxes and other revenues
* Public asset-based reallocations = Public asset income – Public saving
* Public asset income = public capital income + public property income
* Public property income = Public property income inflows – Public property income outflows

The following identity holds for private age reallocations:

* Private age reallocations = Private transfers + Private asset-based reallocations
* Private transfers = Net private transfers from ROW
* Private asset-based reallocations = Private asset income – Private saving
* Private asset income = Private capital income + Private property income
* Private capital income = Private capital income, business and non-profits + Private capital income, owner occupied housing
* Private property income = Private property income inflows – Private property income outflows

Several additional identities hold for private age reallocations that can be confirmed only after private transfers by age have been constructed:

* Private transfers = Private transfer inflows – Private transfer outflows
* Private transfer inflows = Private transfer inflows, interhousehold + Private transfer inflows, intrahousehold
* Private transfer outflows = Private transfer outflows, interhousehold + Private transfer outflows, intrahousehold

Two important identities apply across the aggregate sub-accounts:

* Age reallocations = Public age reallocations + Private age reallocations
* Lifecycle deficit = Age reallocation

# 4.5 A macro inventory

Aggregate controls provide important quantitative information about the economy, but a deeper understanding of the programs, policies, institutions, and practices is very important, as well. This section suggests that researchers compile a macro inventory as one mechanism for documenting important features of their generational economy. The questions that constitute the macro inventory are answered below for the United States, but the appropriate questions and answers will vary from country to country. A spreadsheet template of these questions is available at [www.ntaccounts.org](http://www.ntaccounts.org).

## 4.5.1 Lifecycle deficit

### Labor income

For the labor income inventory, a series of general questions are presented that explore the nature of the national labor market and examine several features that may have important age implications.

1. How many workers are employed in the formal versus informal sector?
2. How important is informal agricultural production (i.e. family farms) to the economy? Do all household members, including children, help with family farms?
3. How important are household-owned businesses (e.g. small shops) to the economy? Do all household members, including children, help in these enterprises?
4. When do people typically enter the labor force? Is it usually after a long period of formal education? Are there apprenticeship programs that students participate in?
5. Are fringe benefits an important part of employee compensation? Is there a lot of employer-provided child care, or health insurance, or contributions to retirement plans?

### Consumption

For the consumption accounts, these questions pertain to private consumption only, as public consumption is also part of the transfer accounts.

1. What proportion of people are owners versus renters? (This relates to the portion of private consumption that is the flow of services of owner-occupied housing.)
2. Do parents spend a significant amount of money on private schooling for young children? Do many families pay for supplementary private education services, like private tutors, even if children attend a public school?
3. Do many young people attend private universities or is the higher education system mostly financed by the government?
4. Do people have to pay much out-of-pocket for health care, or is health care mostly provided by the government? If care is provided by the government, is it just for certain age groups, like the very young or very old?
5. When people grow very old and rates of disability rise, how are the elderly cared for? In private homes, in public institutions, or through care in private homes subsidized by the government?

## 4.5.2 Public Reallocations

Public reallocations include public transfers and public asset income. To understand the public sector thoroughly, it is helpful to fill out a public sector inventory, detailing all government revenue sources and expenditures. An example is shown in Table 4.22 for the United States in 2009. The dollar amounts are filled in with their macro controls, although the full calculation steps are not given until later chapters. At this point, it is sufficient to use this inventory as a template to note the major government programs and sources of revenue used to pay for them, whether that represents taxes, revenues from sovereign wealth funds, royalties from government owned resources such as oil or mineral wealth or public enterprises, or proceeds from the sale of assets. As you progress in calculating the accounts, you can add the exact macro controls and information on data sources for the per capita age patterns. In this example for the US, those sources include various types of administrative records, particular surveys with the survey data variable containing the relevant information, or information on the assumed age pattern.

## 4.5.3 Private Reallocations

Private reallocations include private transfers and private assets. Private transfers have a close connection to household structure, as transfers are more likely to flow between those sharing a household than those living apart in most contexts.

 Questions relating to private transfers:

1. What is the household structure like? Is there a great deal of multigenerational family coresidence? Or do family members tend to live in separate households but in the same area? Are there many households of persons living alone?
2. Do elderly relatives tend to move in with their adult children as they age, or do they maintain a separate residence, or do adult children move into the home of the elderly parent?
3. Are there cultural expectations that adult children will support elderly parents?
4. Are there cultural expectations that parents will support adult children?
5. Do children tend to leave the parental home for higher education or remain in the parental home?

Table 4.22 Public sector inventory for the United States, 2009 (Billions of US$). Survey abbreviations in last column are for the Current Population Survey (CPS), Consumer Expenditure Survey (CEX), National Nursing Home Survey (NNHS), and the Medical Expenditure Panel Survey (MEPS).



Questions relating to private assets:

1. Is home ownership common? Is home buying financed by mortgage lending or do buyers have to have the cash before the purchase?
2. If a household operates a small farm, do they likely own the land or rent a plot?
3. Do people use consumer debt instruments such as credit cards or home equity loans?
4. Do many people save for their own retirement or do they mostly rely on public pensions?
5. Is it likely that individuals own stocks or bonds of corporations? (It is possible that the average values of stock or bonds owned by individuals will be very large even though most individuals do not own securities. This can arise if relatively few high income earners have large holdings. )
6. Do many people finance their education by taking out student loans?
1. The SNA data were provided by Jan von Tongeren. [↑](#footnote-ref-1)